



## 12<sup>th</sup> NEU-KKU INTERNATIONAL CONFERENCE



## SOCIO-ECONOMIC AND ENVIRONMENTAL ISSUES IN DEVELOPMENT



LABOUR - SOCIAL PUBLISHING HOUSE

16-17<sup>th</sup> JULY, 2020



**12<sup>th</sup> NEU-KKU INTERNATIONAL CONFERENCE**

**SOCIO-ECONOMIC AND ENVIRONMENTAL  
ISSUES IN DEVELOPMENT**

**LABOURS - SOCIAL PUBLISHING HOUSE**

**16-17<sup>th</sup> JULY, 2020**



**12<sup>th</sup> INTERNATIONAL CONFERENCE  
SOCIO-ECONOMIC AND ENVIRONMENTAL  
ISSUES IN DEVELOPMENT, 2020**

**Steering Committee**

1. Assoc. Prof. Dr. Pham Hong Chuong, President, NEU, Vietnam
2. Assoc. Prof. Dr. Bui Duc Tho, Vice President, NEU, Vietnam
3. Assoc. Prof. Dr. Dinh Duc Truong, Dean, Faculty of Environmental, Climate Change and Urban Studies, NEU, Vietnam
4. Assoc. Prof. Dr. Kulthida Tuamsuk, Dean, Faculty of Humanity and Social Science, Khon Kaen University, Thailand

**Organizing Committee**

1. Assoc. Prof. Dr. Dinh Duc Truong, Dean, Faculty of Environmental, Climate Change and Urban Studies, NEU, Vietnam
2. Assoc. Prof. Dr. Pham Thi Bich Chi, Head, Department of Planning and Finance, NEU, Vietnam
3. Dr. Trinh Mai Van, Deputy Head, Department of Science Management, NEU, Vietnam
4. Dr. Dao Thanh Tung, Head, Department of International Cooperation, NEU, Vietnam
5. MA Bui Duc Dung, Head, Department of Administration, NEU, Vietnam
6. Dr. Nguyen Thi Thanh Huyen, Vice Dean, Faculty of Environmental, Climate Change and Urban Studies, NEU, Vietnam
7. Assoc. Prof. Dr. Le Thu Hoa, Faculty of Environmental, Climate Change and Urban Studies, NEU, Vietnam
8. Dr. Nguyen Cong Thanh, Faculty of Environmental, Climate Change and Urban Studies, NEU, Vietnam
9. Dr. Vu Trong Nghia, Head, Department of Communication, NEU, Vietnam
10. MA Nguyen Dinh Hung, Department of Science Management, NEU, Vietnam
11. MA Nguyen Quynh Huong, Department of Science Management, NEU, Vietnam
12. Assoc. Prof. Dr. Nguyen Ngoc Son, Dean, Faculty of Planning and Development, NEU, Vietnam
13. MA Pham Huong Thao, Department of Science Management, NEU, Vietnam
14. MA Nguyen Chi Dung, Department of Science Management, NEU, Vietnam
15. Mr Bui Huy Hoan, Department of Science Management, NEU, Vietnam
16. Assoc. Prof. Dr. Kulthida Tuamsuk, Dean, Faculty of Humanities and Social Sciences, Khon Kaen University, Thailand
17. Assistant Prof. Dr. Ratana Chanthao, Vice Dean, Faculty of Humanities and Social Sciences, Khon Kaen University, Thailand

## **Proceeding Editorial Board and Peer Reviewers**

1. Assoc. Prof. Dr. Dinh Duc Truong, Dean, Faculty of Environmental, Climate Change and Urban Studies, NEU, Vietnam
2. Assoc. Prof. Dr. To Trung Thanh, Head, Department of Science Management, NEU, Vietnam
3. Dr. Trinh Mai Van, Deputy Head, Department of Science Management, NEU, Vietnam
4. Dr. Nguyen Thi Thanh Huyen, Vice Dean, Faculty of Environmental, Climate Change and Urban Studies, NEU, Vietnam
5. Dr. Doan Quang Tri, General Administration of Hydro-Meteorology, MONRE, Vietnam
6. Assoc. Prof. Dr. Le Ha Thanh, Faculty of Environmental, Climate Change and Urban Studies, NEU, Vietnam
7. Assoc. Prof. Dr. Nguyen Ngoc Son, Dean, Faculty of Planning and Development, NEU, Vietnam
8. Dr. Ngo Thi Phuong Thao, Dean, Faculty of Real Estate and Resources Economics, NEU, Vietnam
9. Dr. Nguyen Kim Hoang, Faculty of Environmental, Climate Change and Urban Studies, NEU, Vietnam
10. Assoc. Prof. Dr. Pham Thi Huyen, Faculty of Marketing, NEU, Vietnam
11. Dr. Nguyen Cong Thanh, Faculty of Environmental, Climate Change and Urban Studies, NEU, Vietnam
12. Assoc. Prof. Dr. Vu Thi Hoai Thu, Faculty of Environmental, Climate Change and Urban Studies, NEU, Vietnam
13. Assoc. Prof. Dr. Tran Van Nam, Dean, Faculty of Law, NEU, Vietnam
14. Assoc. Prof. Dr. Pham Thi Thanh Thuy, Dean, Faculty of Foreign Languages Economics, NEU, Vietnam
15. MA. Le Huy Huan, Faculty of Environmental, Climate Change and Urban Studies, NEU, Vietnam
16. MSc. Nguyen Thuy Linh, Faculty of Environmental, Climate Change and Urban Studies, NEU, Vietnam
17. Assoc. Prof. Dr. Kulthida Tuamsuk, Dean, Faculty of Humanities and Social Sciences, Khon Kaen University, Thailand
18. Assistant Prof. Dr. Sutida Ngonkum, Vice Dean, Faculty of Humanities and Social Sciences, Khon Kaen University, Thailand
19. Assistant Prof. Dr. Ratana Chanthao, Vice Dean, Faculty of Humanities and Social Sciences, Khon Kaen University, Thailand
20. Assoc. Prof. Dr. Sekson Yongnavit, Faculty of Humanities and Social Sciences, Khon Kaen University, Thailand

## LIST OF PAPERS DIVIDED BY TOPIC

### **PART 1: ECONOMIC DEVELOPMENT AND INTEGRATION**

1. **THE MACRO-FACTORS AFFECT SECURITIES MARKET: CASE IN VIETNAM ..... 1**  
Nguyen Kim Quoc Trung, Nguyen Thi Phuong Dung
2. **HELICOPER MONEY AND THE PROSPECT OF IMPLEMENTATION IN VIETNAM DURING ECONOMIC CRISES ..... 11**  
Nguyen Thi Tuyen
3. **TAX ADMINISTRATION TO IMPROVE TAX COMPLIANCE: THE LESSONS FROM THE UNITED STATES, THE UNITED KINGDOM AND BULGARIA ..... 24**  
Mac Thi Hai Yen
4. **SUSTAINABLE DEVELOPMENT OF BOND MARKET TO CREATE CONDITIONS FOR SOCIO-ECONOMIC STABLE DEVELOPMENT IN VIETNAM ..... 38**  
Tran The Sao
5. **GROWTH MODEL OF RISING INCOME (ROMO MODEL) AND ECONOMIC POLICY ORIENTATION IN VIETNAM ..... 47**  
Le Ngoc Thong, Nguyen Thi Hao
6. **CONCLUSION AND APPROVAL OF EVFTA: OPPORTUNITIES AND CHALLENGES FOR VIETNAMESE ENTERPRISES ..... 54**  
Dinh Thi Nga, Nguyen Thi Quynh Anh
7. **THE ROLE OF BANK CREDIT ACTIVITIES IN THE DEVELOPMENT OF GREEN ECONOMY IN THE PERIOD..... 69**  
Phung The Hung
8. **THE IMPACT OF OWNERSHIP STRUCTURE ON THE PERFORMANCE OF COMMERCIAL BANKS - THE CASE IN VIETNAM..... 79**  
Nguyen Thi Hoai Phuong, Mai Tuan Anh
9. **MACROECONOMICS POLICY AND FINANCIAL STABILITY - SWEDEN EXPERIENCE AND LESSONS FOR VIETNAM..... 94**  
Nguyen Thi Hoai Phuong, Le Van Chi, Pham Thi Thuy Dung
10. **DEVELOPING HIGH-TECH MARKET AND SUSTAINABLE AGRICULTURE IN ISRAEL: POLICY IMPLICATIONS FOR VIETNAM..... 105**  
Nguyen Thanh Tuan, Nguyen Duc Hoang Tho

11.	<b>IMPACT OF BUDGET DEFICIT ON GROWTH - A CASE STUDY OF SOUTHEAST ASIAN COUNTRIES .....</b>	<b>117</b>
	Le Khac Hoai Thanh	
12.	<b>DEVELOPING NIGHT-TIME ECONOMY IN VIETNAM - THE CASE OF HANOI.....</b>	<b>123</b>
	Nguyen Ngoc Son, Pham Hong Thai, Doan Thi Ha Nguyen Phuong Thao, Bui Ngoc Lan, Le Thi Huyen Trang	
13.	<b>COMPETITIVE POWER GENERATION MARKET IN VIETNAM ACHIEVEMENTS AND LIMITATIONS.....</b>	<b>138</b>
	Nguyen Minh Cuong, Vu Phuong Lan, Nguyen Thi Dieu Huyen	
14.	<b>DISTRIBUTION SYSTEM PLANNING IN COMPETITION POWER MARKET .....</b>	<b>146</b>
	Nguyen Minh Cuong, Nguyen Thi Thanh Thao, Vu Phuong Lan	
15.	<b>CURRENT SITUATION OF ELECTRICITY MARKET IN VIETNAM IN THE PERIOD OF 2005 - 2017 AND SOME EFFICIENCY IMPROVING SOLUTIONS .....</b>	<b>155</b>
	Nguyen Thi Dieu Huyen, Nguyen Thi Tuyet Minh, Nguyen Minh Cuong	
16.	<b>SUB-NATIONAL GOVERNANCE QUALITY AND ECONOMIC GROWTH IN VIETNAM.....</b>	<b>165</b>
	Do Tuyet Nhung, Le Quang Canh	
17.	<b>COMPARISON OF PERFORMANCE OF FOREIGN DIRECT INVESTED ENTITIES IN THE INDUSTRIAL SECTOR AND VIETNAMESE COUNTERPARTS – EVIDENCE FROM UNIDO SURVEY .....</b>	<b>179</b>
	Nguyen Thi Phuong Hoa, To Van Nhat	
18.	<b>THE ANTI-CORRUPTION POLICY AND ITS CORRELATION WITH THE FOREIGN CAPITAL FLOW IN VIETNAM.....</b>	<b>190</b>
	Nguyen Thi Nhu Quynh, Ngo Thuy Hang Nguyen Hien Mai, Nguyen Dao Thao	

## **PART 2: BUSINESS ADMINISTRATION AND MANAGEMENT**

19.	<b>APPLICATION OF Z-SCORE MODEL RESEARCH FOR PREDICTABILITY OF BANKRUPTCY: THE CASE OF ENTERPRISES IN VIETNAM.....</b>	<b>199</b>
	Hoang Thi Hong Van	
20.	<b>DEMOGRAPHIC CHANGES AND OPPORTUNITIES FOR BANKING SECTOR IN VIETNAM.....</b>	<b>209</b>
	Tran Thi Mai Phuong	

21.	<b>EMPLOYEE COMMITMENT TO ORGANIZATIONAL CHANGE WITH THE ROLE OF JOB SATISFACTION AND TRANSFORMATIONAL LEADERSHIP .....</b>	<b>217</b>
	Nguyen Thi Bich Thuy, Phan Dang Ngoc Yen Van	
22.	<b>IMPROVING THE REMUNERATION SYSTEMS OF ORGANIZATIONS FOR SUSTAINABLE HUMAN RESOURCE MANAGEMENT IN VIETNAMESE FIRMS .....</b>	<b>232</b>
	Hoang Thi Thanh Chung, Duong Thi Phuong Hanh	
23.	<b>DETERMINING FACTORS TO THE ACCEPTANCE AND USE OF PEER-TO-PEER LENDING BEHAVIOR OF COLLEGE STUDENTS IN HANOI.</b>	<b>252</b>
	Dang Anh Tuan, Nguyen Mai Thu Hanh Tran Thi Bich Loan, Hoang Minh Ngoc	
24.	<b>FACTORS AFFECTING ONLINE PAYMENT METHOD DECISION BEHAVIOR OF CONSUMERS IN VIETNAM.....</b>	<b>261</b>
	Nguyen Thi Phuong Linh, Tran Thi Nga, Nguyen Thi Phuong Nhung Nguyen Vu Khanh Quynh, Nguyen Thi Thao	
25.	<b>ENTERPRISE ECONOMIC SECURITY: RESEARCH ORIENTATIONS IN VIETNAM .....</b>	<b>278</b>
	Pham Minh Duyen, Nguyen Thanh Dung	
26.	<b>FACTORS INFLUENCE CUSTOMERS' SATISFACTION TOWARD ONLINE BRAND COMMUNITY: A CASE STUDY OF NATIONAL ECONOMICS UNIVERSITY'S ONLINE BRAND COMMUNITIES.....</b>	<b>288</b>
	Do Thi Dong, Nguyen Thi Kieu Trang, Nghiem Minh Giang Nguyen Thi Thuong, Nguyen Ba Viet Trung, Nguyen Kieu Anh	
27.	<b>DETERMINANTS OF OPERATIONAL EFFICIENCY AND THE RELATIONSHIP BETWEEN OPERATIONAL EFFICIENCY AND SOLVENCY OF LOGISTICS JOINT-STOCK COMPANIES.....</b>	<b>299</b>
	Vu Thi Mai, Dinh Gia Hoa, Mai Thanh Huong, Pham Van Hau	
28.	<b>INCREASING SUPPORTIVE BEHAVIOR FOR ORGANIZATIONAL CHANGE IN SOE EQUITIZATION: ROLE OF INDIVIDUAL READINESS FOR CHANGE .....</b>	<b>311</b>
	Bui Duc Tho, Le Thi Hoai Thu	
29.	<b>APPLICATION OF SERVQUAL MODEL FOR EVALUATING DEPOSIT SERVICE QUALITY OF JOINT STOCK COMMERCIAL BANK FOR INVESTMENT AND DEVELOPMENT OF VIETNAM - HAI BA TRUNG BRANCH .....</b>	<b>320</b>
	Do Thuy Chi, Le Thanh Tam, Le Duc Hoang	



30.	<b>ACCESS TO BANKING CAPITAL OF MICRO-ENTERPRISES AND HOUSEHOLDS .....</b>	<b>337</b>
	Khuc The Anh, Le Hoang Anh, Pham Thi Nhat Linh	
31.	<b>FEMINIST PERSPECTIVES IN ENTREPRENEURSHIP: A STUDY OF INSTITUTIONAL CHANGES OF FEMALE ENTREPRENEURSHIP IN VIETNAM .....</b>	<b>349</b>
	Nguyen Quoc Anh, Tran Viet Hoang Le Thi Thu Trang, Nguyen Thi Viet Trinh	
32.	<b>SWITCHING BEHAVIOUR OF CUSTOMER IN VIETNAMESE COMMERCIAL BANKS.....</b>	<b>360</b>
	Duong Thuy Ha	
33.	<b>LEVEL OF FACTORS IMPACT ON THE BUYERS' INTENTION IN BUYING HEALTH INSURANCE AT NON-LIFE INSURANCE COMPANIES IN VIETNAM .....</b>	<b>373</b>
	Nguyen Nhat Ha, Nguyen Thai Son Bui Quynh Anh, Tran Tien Dung	

### **PART 3: HUMANITIES, EDUCATION AND SOCIAL SCIENCE**

34.	<b>THE EFFECTS OF THE CONFUCIANISM - BUDDHISM - TAOISM THOUGHT TO THE DEVELOPMENT OF THE VIETNAM FROM THE XIX CENTURY.....</b>	<b>381</b>
	Nguyen Thi Hoai An	
35.	<b>THE IMPACTS OF HEALTH INSURANCE ON HEALTHCARE IN THE POOR AND NEAR-POOR HOUSEHOLDS IN VIETNAM .....</b>	<b>388</b>
	Le Thi Nhu Quynh, Nguyen Thi Ngoc Diep, Pham Xuan Nam	
36.	<b>SPIRITUAL TOURISM DEVELOPMENT IN VIETNAM AND ITS COROLLARIES TO RELIGION - SPIRITUALITY .....</b>	<b>401</b>
	Nguyen Nam Hung	
37.	<b>CULTURAL LIFE OF WORKERS IN INDUSTRIAL ZONES: CURRENT SITUATION, CAUSES AND SOLUTIONS.....</b>	<b>412</b>
	Truong Vu Long	
38.	<b>COMPLETING THE LAW ON HANDLING OF ANTI - COMPETITIVE AGREEMENTS .....</b>	<b>423</b>
	Tran Thi Nguyet	
39.	<b>MORE AWARE OF THE VIETNAM'S DEVELOPMENT WAY THAT NGUYEN AI QUOC FOUND IN THE EARLY 20TH CENTURY, OPPORTUNITIES AND CHALLENGES FOR VIETNAM'S DEVELOPMENT .....</b>	<b>431</b>
	Tran Thi Thu Hoai	

40.	<b>COMPLETE THE REGULATIONS OF THE LAW ON ANTI - COMPETITIVE AGREEMENT IN LABOR.....</b>	<b>439</b>
	Tran Van Nam, Tran Thi Nguyet	
41.	<b>IMPROVING SOCIAL SECURITY POLICIES IN VIETNAM.....</b>	<b>448</b>
	Do Van Hai	
42.	<b>TRAINING AND FOSTERING THE OFFICIAL STAFF AT HANOI UNIVERSITY OF HOME AFFAIRS.....</b>	<b>454</b>
	Vu Ba Anh Tung	
43.	<b>COMPLETING THE PROVISIONS OF VIETNAM’S CIVIL CODE 2015 TOWARDS SUSTAINABLE DEVELOPMENT .....</b>	<b>464</b>
	Kieu Thi Thuy Linh, Deo Thi Thuy	
44.	<b>STATUS OF ECOLOGICAL ETHICS OF NEU’S STUDENTS AND SOME RECOMMENDATIONS.....</b>	<b>477</b>
	Le Thi Hong Thuan, Nguyen Thuy Linh, Nguyen Thi Mai Lan	
45.	<b>SOME SOLUTIONS FOR SOCIAL SCIENCES AND HUMANITIES HUMAN RESOURCE DEVELOPMENT IN VIETNAM TODAY.....</b>	<b>492</b>
	Hoang Thi Hai Yen	
46.	<b>ASSITANCE OF JUSTICE OF SOCIAL BENEFITS IN THE MARKET - ORIENTED SOCIAL ECONOMY IN VIETNAM TODAY.....</b>	<b>502</b>
	To Hien Tha, Truong Tat Thinh	
47.	<b>THE INFLUENCE OF SOCIAL INSURANCE ON WORKERS’ WAGES AND JOBS IN VIETNAM .....</b>	<b>511</b>
	Nguyen Vinh Giang, Mai Quoc Bao	
48.	<b>A STUDY ON GENDER-BASED VIOLENCE AGAINST FEMALE YOUTH IN VIETNAM .....</b>	<b>520</b>
	Trinh Mai Van, Nguyen Van Dai Trinh Nguyen Anh Khoi, Tran Minh Quang	
49.	<b>FACTORS INFLUENCING URBAN VIETNAMESE YOUNGSTERS’ ONLINE SHOPPING HESITATION .....</b>	<b>531</b>
	Le Pham Khanh Hoa, Nguyen Thi Duong Linh Dong Thi Thanh Thuy, Tran Thi Hong, Nguyen Thi Bao Ngoc	
<b>PART 4: URBAN AND REGIONAL DEVELOPMENT</b>		
50.	<b>SOLUTIONS FOR DEVELOPING HIGH QUALITY HUMAN RESOURCE TO MEET THE TARGETS OF INDUSTRIALIZATION AND MODERNIZATION OF NAM DINH PROVINCE .....</b>	<b>539</b>
	Co Huy Le	

51.	<b>DEVELOPMENT OF NEW URBAN AREAS THAT ARE FRIENDLY AND MEET THE AGING NEEDS OF THE POPULATION.....</b>	<b>549</b>
	La Ngoc Mai	
52.	<b>SUSTAINABLE DEVELOPMENT OF THE MARINE ECONOMIC ZONE IN THE CENTRAL COAST - REALITIES AND SOLUTIONS.....</b>	<b>560</b>
	Ma Duc Han	
53.	<b>RAISING THE LEGAL AWARENESS OF THE NORTHERN MOUNTAINOUS OF THE NORTHERN VIETNAM-SITUATION AND SOLUTIONS.....</b>	<b>573</b>
	Tran Thuy Linh	
54.	<b>LESSONS APPLIED TO THE DEVELOPMENT OF MEDICINAL VALUE CHAINS IN QUANG NINH PROVINCE.....</b>	<b>582</b>
	Tran Trung Vy	
55.	<b>TECTONIC GOVERNMENT WITH SUSTAINABLE URBAN DEVELOPMENT. A CASE STUDY IN VIETNAM'S MAJOR CITIES DURING COVID-19.....</b>	<b>593</b>
	Phan The Cong, Nguyen Ngoc Quynh	
56.	<b>RESEARCH ON ROAD MAINTENANCE CAPITAL MANAGEMENT IN NINH BINH PROVINCE, VIETNAM.....</b>	<b>611</b>
	Bui Thi Hoang Lan	
57.	<b>FACTORS INFLUENCING GREEN HOUSING PURCHASE BEHAVIOUR: A SURVEY FROM HANOI CITY, VIETNAM.....</b>	<b>625</b>
	Nguyen Thanh Lan, Nguyen Minh Phuc Pham Kieu Loan, Tran Thi Tu Uyen	
58.	<b>GENTRIFICATION IN HUE CITADEL: URBAN DEVELOPMENT POLICY IN HERITAGE MANAGEMENT TASK.....</b>	<b>642</b>
	Pham Manh Hung	
59.	<b>CONSUMERS' PURCHASING INTENTION TOWARD ORGANIC COSMETICS: INSIGHTS FROM HANOI.....</b>	<b>653</b>
	Nguyen Thu Nga, Do Thuy Dung, Phan Thi Quynh Le Ngoc Binh, Le Anh Dung	
60.	<b>TOWARD SUSTAINABLE GRADE A OFFICE BUILDINGS: A CASE STUDY IN HANOI .....</b>	<b>675</b>
	Nguyen Le Dieu Linh	

61. **ACCESS TO CREDIT MARKETS AND SELECTION OF CREDIT SOURCES OF RURAL HOUSEHOLDS: THE CASE STUDY OF THE RED RIVER DELTA, VIETNAM..... 690**  
Ta Nhat Linh, Phan Thu Trang  
Nguyen Thanh Huyen, Philippe Lebailly
62. **MANAGEMENT OF COMPULSORY SOCIAL INSURANCE COLLECTION FROM THE NON-STATE-OWNED ENTERPRISES IN BAC GIANG PROVINCE ..... 706**  
Nguyen Thi Thanh Ha
63. **ROLE OF OUT-STATE ENTERPRISES IN SOCIO-ECONOMIC DEVELOPMENT IN THAI NGUYEN PROVINCE ..... 715**  
Pham Thi Ngoc Van, Nguyen Thi Thu Trang
64. **MODEL OF TRADITIONAL BROCADE WEAVING CONSERVATION ASSOCIATED WITH THE SUSTAINABLE ECONOMIC DEVELOPMENT OF H'MONG ETHNIC MINORITY SUNG PHAI - LAI CHAU ..... 725**  
Nguyen Thi Tham
65. **ORGANIC FOODS BUYING INTENTION'S BARRIERS OF YOUNG URBAN VIETNAMESE..... 735**  
Le Pham Khanh Hoa, Nguyen Thi Phuong Anh, Tran Ngoc Anh  
Vu Diem Hang, Pham Hoai Phuong, Chu Thi Hong Quyen
66. **URBAN DEVELOPMENT AND ECONOMIC NETWORK IN MYITKYNA, KACHIN STATE, MYANMAR..... 744**  
Seng Aung

## **PART 5: ENVIRONMENTAL ECONOMICS AND MANAGEMENT**

67. **THE IMPACT OF GLOBALIZATION ON ENVIRONMENTAL SECURITY IN VIETNAM TODAY ..... 759**  
Le Thi Thanh Ha
68. **IMPACT OF THE FOURTH INDUSTRIAL REVOLUTION ON THE ENVIRONMENT ..... 768**  
Le Thi Hanh
69. **THEORETICAL AND PRACTICAL ISSUES IN LAND ACCUMULATION AND CONCENTRATION IN VIETNAM..... 775**  
Hoang Ngoc Huong
70. **APPLYING THE COMMUNITARIANISM IN THE ORIENTATON OF SUSTAINABLE DEVELOPMENT IN THE ENVIRONMENT IN VIETNAM TODAY ..... 793**  
Nguyen Hong Son, Nguyen Thi Bich Thuy, Nguyen Thi Mai Lan

71. **EMPIRICAL RESEARCH ON THE ROLE OF LAND USE RIGHTS ON THE TOTAL FACTOR PRODUCTIVITY IN AGRICULTURE IN VIETNAM ... 804**  
Kieu Nguyet Kim, Nguyen Thi Minh
72. **RESULTS OF A CHOICE EXPERIMENT SURVEY TO ESTIMATE WILLINGNESS-TO-PAY FOR AIR QUALITY IMPROVEMENTS IN HANOI CITY ..... 818**  
Nguyen Cong Thanh
73. **TWO-WAY IMPACTS OF CRUDE OIL PRICE MOVEMENTS FOR SOCIO-ECONOMIC SUSTAINABLE DEVELOPMENT OF ENVIRONMENTAL PROTECTION AND NATIONAL ENERGY SECURITY IN VIETNAM ..... 833**  
Luong Van Hai
74. **PAYMENTS FOR FOREST ENVIRONMENTAL SERVICES IN VIETNAM WITH THE DIFFERENT MECHANISMS ..... 842**  
Mai Thi Khanh Van
75. **CURRENT SITUATION OF ENVIRONMENTAL SANITATION AND SOLUTIONS TO IMPROVE ENVIRONMENTAL SANITATION IN THE MONG ETHNIC MINORITY AREAS IN THE NORTHWEST REGION .... 853**  
Ngo Quang Son, Vu Thi Binh, Do Thi Nguyen Tieu, Pham Van Phuc  
Le Thi Nhu Quynh, Vu Xuan Hung, Tran Thi My An, Ha Thi Giang
76. **THE STUDY ON MYANMAR AND ASEAN ENVIRONMENTAL COOPERATION ..... 865**  
Ah Mar
77. **ENVIRONMENTAL ISSUES AND SOCIO-ECONOMIC DEVELOPMENT FROM MARBLE EXTRACTION IN MANDALAY REGION: A CASE STUDY OF SAGYIN VILLAGE, MADAYA TOWNSHIP/ MYANMAR..... 877**  
Khin Khin Soe
78. **ENERGY SECURITY ENERGY ELECTRICITY OF VIETNAM OIL AND GAS GROUP FOR SUSTAINABLE ECONOMIC AND SOCIAL DEVELOPMENT AND ENVIRONMENTAL PROTECTION..... 887**  
Nguyen Thi Truc Phuong
79. **SURVEY ON THE USAGE OF SINGLE - USE/ DISPOSABLE PLASTICS IN VIETNAMESE STUDENTS..... 895**  
Le Thu Hoa, Tran Thi My Loc, Tran Thi Thu Trang, Vu Huy Huan
80. **PAYMENT FOR ECOSYSTEM SERVICES IN LAO PDR: A CASE STUDY OF IMPACTS AT HOUSEHOLD LEVEL ..... 907**  
Bounkham Vorachit, Tran Tho Dat, Dinh Duc Truong
81. **FACTORS AFFECTING THE INTENTION TO DEVELOP GREEN SUPPLY CHAIN IN COFFEE PRODUCTION IN TAY NGUYEN, VIETNAM..... 921**  
Pham Van Chinh

## **PART 6: CLIMATE CHANGE AND SUSTAINABILITY DEVELOPMENT**

82. **HANOI TOWARDS SUSTAINABLE TOURISM DEVELOPMENT..... 937**  
Do Minh Diep
83. **THE PROPOSALS FOR A SUSTAINABLE DEVELOPMENT OF SOCIO-  
ECONOMIC UNDER CLIMATE CHANGE CONDITIONS IN QUANG BINH  
PROVINCE..... 944**  
Nguyen Tien Thanh
84. **ENERGY CONSUMPTION AND CARBON DIOXIDE EMISSION IN  
SOUTH-EAST ASIA: A PANEL DATA APPROACH..... 957**  
Nguyen Xuan Thach
85. **ADAPTING TO CLIMATE CHANGE THROUGH OCCUPATIONAL  
MOBILITY IN MEKONG RIVER DELTA ..... 967**  
Hoang Thi Quyen
86. **IMPACT OF THE BREADTH AND DEPTH OF OUTREACH ON OPERATIONAL  
SUSTAINABILITY IN VIETNAM'S FORMAL MICROFINANCE INSTITUTIONS .. 978**  
Ha Van Duong
87. **IMPACTS OF CLIMATE CHANGE ON AGRICULTURAL PRODUCTION  
IN VIET NAM ..... 990**  
Hoang Ngoc Huong
88. **EXPLOITING THE CULTURAL HERITAGE VALUES FROM THE  
SUSTAINABLE TOURISM DEVELOPMENT VIEW: CASE STUDY IN TRAN  
VAN THOI DISTRICT, CA MAU PROVINCE..... 1000**  
Trinh Minh Chanh
89. **CLIMATE CHANGE ADAPTATION POLICIES IN MEKONG RIVER  
DELTA ..... 1008**  
Ha Huy Ngoc, Tran Thi Tuyet
90. **SOME PROBLEMS OF LAND ACCUMULATION AND CONCENTRATION  
IN AGRICULTURAL DEVELOPMENT IN AN GIANG PROVINCE IN THE  
PERIOD OF 2010-2020..... 1018**  
Nguyen Thi Xuan Loc
91. **HIGH-TECH AGRICULTURE DEVELOPMENT IN VIETNAM TODAY:  
SITUATION AND SOLUTIONS..... 1026**  
Truong Thi Thuy Lien
92. **AN ANALYTICAL FRAMEWORK FOR IMPACTS OF CLIMATE CHANGE  
ON THE LIVELIHOOD OF THE URBAN POOR: THE CASE OF HO CHI  
MINH CITY, VIETNAM ..... 1037**  
Ho Ngoc Thuy, Nguyen Tran Thai Ha

93. **INDIGENOUS KNOWLEDGE IN DISASTER RISK REDUCTION IN CAT HAI ISLAND, CAT HAI DISTRICT, HAI PHONG CITY, VIETNAM.....** 1051  
Tran Ngoc Thuy, Nguyen Thuy Linh
94. **DEVELOPING THE SUSTAINABILITY INDEX FOR THE COASTAL ZONE OF VIETNAM IN THE CONTEXT OF CLIMATE CHANGE .....** 1059  
Nguyen Dinh Thai, Luu Viet Dung, Nguyen Tai Tue  
Tran Dang Quy, Mai Trong Nhuan
95. **CREDIT POLICY TO SUSTAINABLE DEVELOPMENT OF MARINE ECONOMY CONTRIBUTION TO ENVIRONMENTAL PROTECTION .** 1072  
Le Van Hai
96. **STATISTICAL ANALYSIS OF THE IMPACT OF CLIMATE CHANGE ON RICE PRODUCTIVITY IN VIETNAM: USING PANEL DATA MODEL...** 1079  
Nguyen Dang Khoa, Nguyen Huyen Trang
97. **NATURAL DISASTER INSURANCE IN VIETNAM: A REVIEW .....** 1091  
Dinh Duc Truong, Nguyen Dieu Hang

## **PART 7: DIGITAL ECONOMY AND INFORMATION TECHNOLOGY**

98. **USER ACCEPTANCE OF E-BOOKS: THE EFFECT OF PERCEIVED BARRIERS, READING HABIT AND ENVIRONMENTAL CONSCIOUSNESS..** 1103  
Le Bao Ngoc, Le Huyen Trang
99. **BUILDING DIGITAL GOVERNMENT FOR ENVIRONMENT MANAGEMENT AND SUSTAINABLE DEVELOPMENT.....** 1112  
Nguyen Trung Tuan, Truong Dinh Duc, Dao Thien Quoc
100. **SMART LOCKER- A SUSTAINABLE URBAN LAST-MILE DELIVERY SOLUTION: BENEFITS AND CHALLENGES IN IMPLEMENTING IN VIETNAM.....** 1123  
Tran Thi Huong, Bui Ngoc Thiet
101. **ORIENTATIONS FOR BUILDING THE POTENTIAL OF SCIENCE AND TECHNOLOGY OF THE VIETNAMESE PEOPLE'S ARMY IN THE FOURTH INDUSTRIAL REVOLUTION PERIOD.....** 1136  
To Hien Tha, Nguyen Trong Luat
102. **OUTWARD FOREIGN DIRECT INVESTMENT IN THE CONTEXT OF DIGITAL TRANSFORMATION: THE CASE OF VIETNAM.....** 1144  
Nguyen Nhat Linh, Phung Thanh Quang, Nguyen Thi Thao Nguyen
103. **ORIENTED DEVELOPMENT FOR ECONOMICS FROM THE SIMILARITIES BETWEEN ECONOMICS AND DATA SCIENTIFIC.....** 1152  
Pham Van Minh



**PART 1:  
ECONOMIC DEVELOPMENT  
AND INTEGRATION**





# THE MACRO-FACTORS AFFECT SECURITIES MARKET: CASE IN VIETNAM

*Nguyen Kim Quoc Trung*

*nkq.trung@ufm.edu.vn*

*University of Finance - Marketing*

*Nguyen Thi Phuong Dung*

*nguyenthiphuongdung.cs2@ftu.edu.vn*

*Foreign Trade University, Ho Chi Minh Campus*

## **Abstract**

*The main objective of this study is to determine the macro-factors affect Vietnam stock market from 2006 to 2017. By using qualitative research methods such as the statistics, description techniques, the study analyzes the volatility of the stock market in Vietnam during that period. At the same time, the method of estimating the long-term relationship between Vietnam stock market and key macro-factors by using an autoregressive distributed lag model. Research results show that the significant variables have influenced on Vietnam stock market are: Consumer price index, Exchange rate and Oil price affect.*

**Keywords:** *stock market, VNINDEX, exchange rate, inflation rate, interest rate, oil price, money supply.*

## **1. Introduction**

International investors and researchers have focused on emerging financial markets in Asia, including Vietnam. The stock market since joining Vietnam has provided attractive investment opportunities for foreign investors. Globalization has led to the economic growth and international financial market integration as well as the participation of foreign investors has made the relationship between the global stock market and macro-factors such as the foreign exchange rate, inflation rate, oil price stronger (Megaravalli và Sampagnaro, 2018).

However, the Vietnamese economy is currently facing many difficulties and challenges with the deficit trade balance, foreign exchange reserves are not strong enough, the usage of foreign direct investment (FDI) capital is still low... So, the concerns of investors about the macro environment for the operation of the stock market are completely baseline and the question is raised whether the fluctuation of the macroeconomy will affect the volatility of the stock market?

There have been many research studies on the influence of macro factors on the stock markets of different countries and vice versa. Specifically, in the Japanese stock market, Hamao (1988) determined that changes in the expected inflation rate, unanticipated changes in risk premia and the term structure of interest rates were statistically significant variables and have affected the Japanese stock returns. Another research study of Megaravalli và

Sampagnaro (2018) has considered the relationship macroeconomic indicators and their impact on stock markets in ASIAN 3 with a pooled mean group approach. While Jareño and Negrut (2016) investigated the impact of the US stock market on macroeconomic factors. As these results, we can see there is a linkage two-way between the stock market and macro-factors. However, in this paper, the author only considers the effect of macro-factors to the stock market. This leads to the main objective of the paper is to answer the question "What are the macro factors affecting the Vietnam stock market?"

## **2. Literature review and previous research studies**

### **2.1. Literature review**

#### **(i) Efficient market hypothesis - EMH:**

An effective market is a market in which the prices of securities fully and immediately reflect all available information in the market. The increase or decrease in stock price due to the market's reaction to new information that cannot be predictable. The effective market hypothesis assumes that all investors are equally aware of all the available information. Many methods for analyzing and assessing stocks cause problems in the effectiveness of hypothesis. If one investor seeks an undervalued market opportunity while another assesses the stock on the basis of growth potential, the two investors will have a different assessment of the market value. of the stock. Effective market hypothesis includes weak-form, semi-strong form and strong-form efficiency). Accordingly, the weak-form market assumes that the price of securities promptly reflects all information that investors can be obtained from past transaction data: price, trading volume and earnings ratio. Historical price data is publicly available and accessible to investors, as well. Assuming that past data shows future trends, investors will immediately tap and use that information. Secondly, the semi-strong market assumes that all information relating to the company has been publicly disclosed and historical information is reflected in stock prices. Neither fundamental analysis nor technical analysis yielded an extraordinary rate of return to investors. Finally, the strong-form market is strong with all information related to securities, including insider information, is also reflected in stock prices. There is no analysis that could yield a return for investors. Use passive portfolio management strategy.

#### **(ii) Capital asset pricing model - CAPM**

The model describes the relationship between risk and expected return. In this model, the expected return of a security is equal to the risk-free return plus a risk premium based on the system-wide risk of that security. Non-systemic risks are not considered in this model because investors can build a diversified portfolio to eliminate this type of risk. The CAPM model has been developed by William Sharpe since the 1960s and has had many applications ever since. Although there are a number of other models that attempt to explain market dynamics, the CAPM is a conceptually simple and practical application. Like any other model, this model is only a simplification of reality by necessary assumptions, but it still allows us to draw useful applications. The widely used CAPM model was discussed as profitability can be predicted from other financial factors. This has led to the development

and testing of alternative asset pricing regulations, such as the Differential Valuation Theory (APT) and the Present Value Model (PVM). Various evidence of links on the effects of stock returns and macro variables was found in the literature using other asset pricing rules instead. In the context of volatile macroeconomic markets of stock returns, APT assumes that profits are generated by a number of macroeconomic factors. This allows many risk factors to account for asset returns. Chen, Roll and Ross (1986) have argued that stock returns will be affected by any factor affecting future cash flows or the discount rate of those cash flows. In an empirical investigation, they found that the yield spreads between long-term and short-term government bonds, expected inflation, unexpected inflation, nominal industrial production growth and the spread. The interest rate between high and low bonds of the company significantly explains the profits of the stock market.

## ***2.2. Previous research studies***

Domestic and foreign studies have done and tested on macro factors affecting the price of securities. Overseas, in particular, Fama & Schwert (1977), Nelson (1977) and Jaffe & Mandelker (1976), all claim that macroeconomic variables clearly affect income and stock prices promissory note.

Hosseini et al. (2011) market research in China and India came to the conclusion that in the short term, the Chinese stock price index is positively but insignificantly correlated with the M2 expansion of money with the size of 0.701. In the long run, this positive correlation is due to the influx of public funds into the market leading to an increase in the company's earnings, in addition to its cyclical monetary policy. In India, the stock price index is negatively correlated with the M2 expansion of money with a magnitude of (-22.53) due to a counter-cyclical monetary policy. This negative effect is in line with the expectation that when the money supply increases, inflation will increase and profit will increase lower.

Mukherjee and Naka (1995) show that the industrial production index is positively correlated with the expansion of the money supply growth, the increase in the expansion of the money supply can lead to an increase in the discount interest rate leading to There is a negative effect on stock prices in the valuation model, but economic stimulus packages are likely to generate more income for companies that increase cash flow and thereby increase stock prices. Chen, et al. (1986) in the US also concluded that real economic activity correlates positively with stock prices. Fama (1990) researched in the US also found that real economic activity correlated positively with stock prices, similar to the post-war period in the US that also showed positive correlations.

Fama (1990) research in the US showed that measuring the variance of returns of the stock price index before cash flow shocks would require a lot of time data and the shocks impact on expected returns are One way to assess the fairness in stock prices. The variables representing historical data of expected returns and shocks in expected returns account for 30% of the annual share of profit variance in the NYSE market while the product growth rate (manufacturing index industry) represents the expected cash flow, explaining 43% of the profit variance. Combining the capacity of the research variables to account for 58% of the annual variance of stock returns is useful information proving the effectiveness of the market.

In Vietnam, studies of Nguyen Minh Kieu, Nguyen Van Diep and Le Nguyen Hoang Tam (2013) on "Macroeconomic factors and volatility of Vietnam's stock market" using qualitative methods without Perform quantitative research to examine the correlation in the relationship between macro variables with stock prices. In addition, according to research by Than Thi Thu Thuy and Vo Thi Thuy Duong (2015), "The impact of macroeconomic factors on stock price indexes on HOSE", the authors use Regression model using eviews software to check the relationship and co-link between macro variables to VNINDEX, VN30, VN100.

### 3. Methods

#### 3.1. Research methods

The study used descriptive statistical method, self-correlation test to analyze the initial data series, stop test, optimal latency test, Bound test (bounds test). The relationship between VNINDEX and macro variables will be estimated and verified through ARDL (Auto Regression Distributed Lag) model - Bound Test according to Pesaran and Pesaran (1997), Pesaran and Shin (1999), Pesaran and et al (2001). The ARDL model helps us to control endogenous phenomena (Laurenceson and Chai, 2003), simultaneously analyzing the short-term and long-term relationships for different tuple data series (Banjeree et al., 1993). , and are suitable for short-duration data series (Pesaran and Shin, 1999).

Choosing the latency of the ARDL model, Estimating the long-term coefficients of the ARDL model and diagnosing the test: testing the model's wrong shape through Ramsey's RESET test to consider the extent and direction of impact of the ARDL model Macro factors such as inflation, expansion of money supply, exchange rate, interbank interest rates and industrial production index to stock price index at Ho Chi Minh Stock Exchange (HOSE) ). This is also an inheritance from studies abroad and a new point when applying the ARDL model with the delay of independent variables to consider the impact of macro variables on Vietnam's stock market, capital comes after compared to other markets like the US. ARDL is considered a successful, flexible and easy-to-use model for analyzing multivariate time series (Aydin, 2000). The ARDL model allows us to determine the impact of the independent variables on the dependent variable by selecting the appropriate latency to give the most reasonable results.

**Table 1. Variables in proposed model**

Number	Variables	Author(s)
1	Exchange rate	Suriani et al., 2015; Mishra (2004)
2	Inflation	Gallagher and Taylor (2002a, b) Rapach (2002); Spyrou (2004)
3	Interest rate	Fama (1965); Samuelson (1965); Shiller (1989)
4	Oil price	Jones and Kaul (1996)
5	Gross Domestic Product	Paul (2012)
6	Money supply	Mjkherjee and Naka (1995); Fama (1981)
7	Industrial production index	Fama (1990)l Geske & Roll (1983); Chen, Roll and Ross (1986); Tainer (1993)

*Source: Author's collection*

### **3.2. Research data**

Based on the theoretical framework and empirical studies, the authors propose the following research model:

$$VNINDEX_t = f(CPI, GDP, IPI, M2, NER, OIL\_PRICES, POLICY\_RATE)$$

where:

- IPI: industrial production index (taken from the General Statistics Office)
- CPI: consumer price index (representing inflation rate) (taken from the General Statistics Office)
- OIL\_PRICES: oil prices
- POLICY\_RATE: is the interest rate difference
- NER: exchange rate (taken from Worldbank)
- M2: money supply (taken from Worldbank)
- GDP: growth of gross domestic product (taken from Worldbank)

The relationship between VNINDEX and the macro variables in the model will be estimated and tested using the ARDL - Bound Test method. The procedure for performing ARDL Bounds - Test consists of the following steps:

- Step 1: Testing Unit Root Test by methods such as ADF, PP (Phillips-Perron) to ensure the conditions for applying the ARDL - Bound Test method (no stopping variables at level 2).

- Step 2: Establish ARDL model.

- Step 3: Determine the hysteresis structure for the model in step 2. To determine the hysteresis structure, we can use indicators such as AIC, SIC (more suitable in the case of small sample sizes)

- Step 4: Verify the autocorrelation phenomenon in the residual

- Step 5: Test the stability of the model by CUSUM and CUSUMSQ test proposed by Brown et al. (1975).

- Step 6: Perform Bounds Test to verify the existence of long-term relationship between variables.

- Step 7: If the result in Step 6 is to have long-term relationship, we will regress the cointegration equation and limit error correction equation - Unrestricted Error Correction Model to consider the relationship equilibrium in the long run and short-term effects between variables.

### **4. Results**

In Vietnam, the collection of macro data is quite difficult, the use of annual data is inappropriate because Vietnam stock market is an emerging market with a history of only about 10 years. In this study, the data used here is quarterly data, from Q1 2008 to Q4 2016. First we consider whether the variables described above are stationary or not.

Augmented Dickey-Fuller (ADF) Unit root tests and Phillips-Perron are used to check the stationarity of variables:

**Table 2: Unit Root Test**

Variables	ADF		Phillips-Perron	
	Level	1 <sup>st</sup> difference	Level	1 <sup>st</sup> difference
VNINDEX	-4.599398 (0.0041) ***	-6.838830 (0.0000) ***	-4.541095 (0.0048) ***	-17.44747 (0.0000) ***
CPI	-1.360720 (0.8544)	-3.784112 (0.0303) **	-1.110190 (0.9129)	-3.659024 (0.0394) **
GDP	-0.556375 (0.9748)	-1.890869 (0.6351)	-11.63129 (0.0000) ***	-14.27394 (0.0000) ***
IPI	-0.215032 (0.9897)	-1.497080 (0.8089)	-2.828698 (0.1971)	-16.33373 (0.0000) ***
M2	-3.579188 (0.0468) **	-5.192616 (0.0009) ***	-1.001107 (0.9309)	-7.963268 (0.0000) ***
NER	-1.099360 (0.9140)	-4.712295 (0.0032) **	-0.996261 (0.9317)	-4.650856 (0.0037)
OIL_PRICES	-1.846223 (0.6605)	-5.171268 (0.0010) **	-1.981389 (0.5909)	-5.148107 (0.0010)
POLICY_RATE	-3.628850 (0.0467) **	-5.827050 (0.0002) ***	-2.635958 (0.2678)	-5.646613 (0.0003) ***

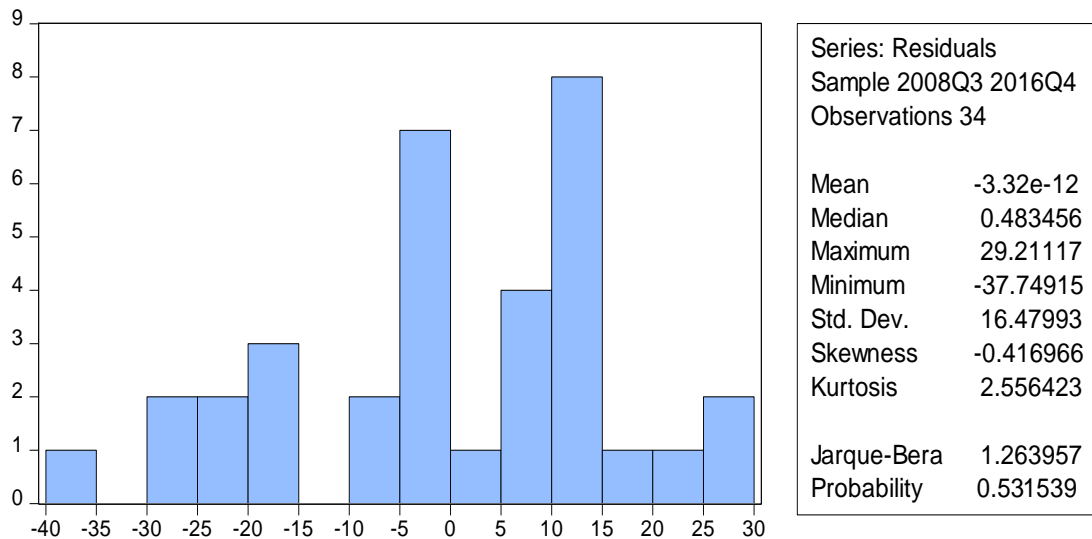
*Source: Analysis of authors*

Note: Values in parentheses ( ) are p-values.

(\*), (\*\*), (\*\*\*) : statistically significant at 10%, 5%, 1%

On the basis of the hypothesis H<sub>0</sub>: the research variable series has a unit root (non-stop) and H<sub>1</sub>: the research variable series has no unit root (stop). p-value <  $\alpha$  with significance level  $\alpha = 5\%$  or  $\alpha = 10\%$  or  $\alpha = 1\%$ . When examining the characteristics of time series data, using the ADF and Phillips-Perron unit addition tests (1988), the authors found that the variables have unit root (individual unit root process), but all stop at the 1st difference) (except variables VNINDEX, M2 and POLICY\_RATE, has no unit root).

By using the ARDL model to provide a very valuable means to test the presence of long-term relationships between economic time series. This model is "autoregressive", in the sense that  $y_t$  is "partially explained" by its own delay values. It also has a "delay distribution" component, in the form of consecutive delays of the explanatory variable "x", the present value of  $x_t$  is excluded from the distributed delay of the structure of the model (David, 2015). Akaike's Information Criterion (AIC) to select the late structure in ARDL model. Next, the study uses RESIDUAL DIAGNOSTICS tests (including variance change and autocorrelation); CORRELOGRAM - Q-STATISTICS (standard distribution of the remainder), the results are presented in the following tables:



**Figure 1: Verifying the normal distribution of residuals**

*Source: Analysis of authors*

According to the result in Figure 4, p-value is greater than 5%, so there is no evidence to reject H0 (the residual has normal distribution). The remainder has a standard distribution through the Jarque-Bera test. The tests for autocorrelation and variance change for residuals as follows:

**Table 3: Autocorrelation phenomenon Test**

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.139864	Prob. F(2,16)	0.8705
Obs*R-squared	0.584207	Prob. Chi-Square(2)	0.7467

*Source: Analysis of authors*

The p-value in Table 3 and Figure 2 (below) is greater than 5%, so there is no evidence to refute H0: There is no autocorrelation. Therefore, the model does not exist the autocorrelation phenomenon.

Sample: 2008Q1 2016Q4

Included observations: 34

Q-statistic probabilities adjusted for 1 dynamic regressor

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob*
		1 -0.082	-0.082	0.2473	0.619
		2 0.083	0.076	0.5085	0.776
		3 -0.222	-0.212	2.4522	0.484
		4 -0.258	-0.311	5.1631	0.271
		5 -0.152	-0.203	6.1390	0.293
		6 -0.209	-0.325	8.0491	0.235

\*Probabilities may not be valid for this equation specification.

**Figure 2: Testing the autocorrelation phenomenon**

*Source: Analysis of authors*



The variance phenomenon is tested in Table 3 as follows:

**Table 4: Heteroskedasticity Test**

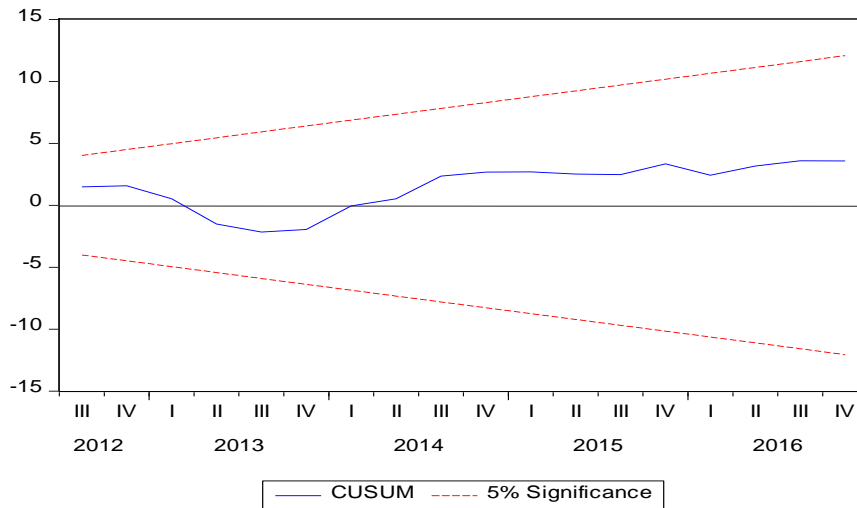
Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.602076	Prob. F(15,18)	0.8372
Obs*R-squared	11.35944	Prob. Chi-Square(15)	0.7267
Scaled explained SS	2.477660	Prob. Chi-Square(15)	0.9999

*Source: Analysis of authors*

The p-value of variance change test (Breusch-Pagan-Godfrey) has a value greater than 5%, so the hypothesis H0 (residuals with variance unchanged) does not have enough evidence to reject it. Therefore, the model has no variance change phenomenon.

The stability of the model is done through CUSUM Test and RAMSEY RESET Test:



**Figure 3: Testing the stability of the model**

*Source: Analysis of authors*

The CUSUM Test shows that the stability of the model is guaranteed within the upper and lower limits with a significance of 5%.

**Table 5: Ramsey Reset Test (Stability)**

Ramsey RESET Test

Equation: UNTITLED

Specification: VNINDEX VNINDEX(-1) CPI CPI(-1) CPI(-2)

GDP IPI M2 M2(-1) M2(-2) NER OIL\_PRICES OIL\_PRICES(-1) POLICY\_RATE C

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	1.364259	17	0.1903
F-statistic	1.861203	(1, 17)	0.1903

*Source: Analysis of authors*

With the Ramsey RESET Test p-value is greater than 5%, so the hypothesis H0: the estimated model is not biased and compatible with no evidence to reject it, so the model has an unbiased and compatible estimate. At the end of the article, we perform bounds test: the procedure of testing the contour of ARDL method for the study is as follows:

Hypothesis H0: there is no co-association between the variables. The test results show that the statistical value F is greater than the upper limit value with a significance of 5%. Thus it is possible to reject the hypothesis H0, and conclude that there exists a long-term relationship between variables in the time series model.

Estimating the long-term coefficients of the ARDL model: shows the results of estimating the short-term coefficients of the ARDL model (1, 2, 1, 0, 0, 2, 0, 1, 0). And estimate the long-term coefficients of the ARDL model with the chosen lags. Thus, the research results show that the Consumer Price Index (representing inflation), M2 money supply, exchange rates and oil prices have an impact on the stock market. In particular, M2 money supply and oil price have the same effect; Consumer price index and exchange rate have opposite effects. This research result is consistent with the research of Le and Dang (2015) and some previous researchers.

## **5. Discussion and Conclusion**

The article has analyzed the macro factors affecting Vietnam's stock market, through the representative of VNINDEX. Thus, according to the research results, in the long term, the Consumer Price Index (representing inflation), the exchange rate and the price of oil affect the stock market. All variables Exchange rate, Consumer price index and Oil price have a positive impact on the stock price index with 95% confidence intervals. This result is consistent with the theoretical basis and the analytical framework above and is consistent with Vietnamese practices and previous studies. Vietnam has more than 17 years of establishment and development of the stock market, but the results show that the one-way relationship from the stock market to economic growth shows that the stock market is still quite young, but consistent with the level of development of a stock market. The economy is developing and still at an early stage compared to the necessary development trend of an economy.

## **6. References**

1. Aydin, H. 2000. Interest Rate Pass-Through in Turkey. *Research and Monetary Policy Department*, 1-38.
2. Chen, N. F., Roll, R., and Ross, S. A. 1986. Economic forces and the stock market. *Journal of business*, 383-403.
3. Fama, E. 1990. Stock Returns, Expected Returns, and Real Activity. *Journal of Finance*, 1089-1108.
4. Fama, E. F., & Schwert, G. W. 1977. Asset returns and inflation. *Journal of Financial Economics*, 5, 115-146.

5. Fama, E. F. 1981. Stock returns, real activity, Inflation and Money. *American Economic Review*, 71, 545-564.
6. Gallagher, L. and Taylor, M. P. 2002a. The stock return inflation puzzle revisited. *Economics Letters*, 147-156.
7. Gallagher, L. and Taylor, M. P. 2002b. Permanent and temporary components of stock prices: evidence from assessing macroeconomic shocks. *Southern Economic Journal*, 345-362.
8. Geske, R. and Roll, R. 1983. The Fiscal and Monetary linkage between Stock Returns and Inflation. *The Journal of Finance*, 38(1), 1-33.
9. Hosseini, S. M; Ahmad, Z. and Lai, Y. W. 2011. The Role of Macroeconomic Variables on Stock Market Index in China and India . *International Journal of Economics and Finance*, 233-243.
10. Jones, C. M and Kaul, G. 1996. Oil and the Stock Markets. *Journal of Finance*, 1996, 463-91.
11. Mukherjee, T. K. and Naka, A. 1995. Dynamic Relations between Macroeconomic Variables and the Japanese Stock Market: An Application of a Vector Error Correction Model. *Journal of Financial Research*, 233-37.
12. Rapach, D. E. 2002. The long-run relationship between inflation and real stock prices. *Journal of Macroeconomics*, 331-51.
13. Shiller, R. J. 1989. *Market Volatility*. Cambridge, Mass: MIT Press.
14. Spyrou, S. I. 2004. Are stocks a good hedge against inflation? Evidence from emerging markets. *Applied Economics*, 4167-769.
15. Suriani, S.; Kumar, M. D.; Jamil, F. and Muneer, S. 2015. Impact of Exchange Rate on Stock Market. *International Journal of Economics and Financial Issues*, 385-388.

# HELICOPTER MONEY AND THE PROSPECT OF IMPLEMENTATION IN VIETNAM DURING ECONOMIC CRISES

*MSc. Nguyen Thi Tuyen*

*tuyennt@dhhp.edu.vn*

*Faculty of Economics and Business Administration,  
Haiphong University, Haiphong, Vietnam*

## **Abstract**

*As the current COVID-19 pandemic lingers on with its fallout agonizing several economies on the globe, a number of policy instruments have been summoned by governments to cope with the looming recession. Among those instruments is the contentious “helicopter money”, which has received the endorsement of multiple economists while many others consider it a too risky tactic to follow. This paper is going to discuss the suitability of implementing “helicopter money” in the context of Vietnam during economic crises, particularly with a focus on the ongoing novel coronavirus-induced economic downturn. The author also makes an attempt to clarify certain challenges that Vietnamese legislators should better study carefully if “helicopter money” is ever to be deployed, as well as the circumstances and extent of such deployment.*

**Keywords:** *COVID-19, economic crisis, helicopter money, Vietnam.*

## **1. Introduction**

As economic cycles proceed, recession might revisit an economy from time to time. A recession is usually characterized with very low or even negative growth, high unemployment and structural deficits, which then results in long-term social security instability. There are multiple possible factors in play behind each economic crisis, for instance, wars, economic mismanagement, economic bubbles, natural disasters, and the most recent one namely the COVID-19 pandemic. Throughout the history, governments have come up with various policy prescriptions to cope with such arduous recessionary periods. Among those lies the controversial “helicopter money”, whose popularity has been rising these days while countries are struggling in the midst of the COVID-19 pandemic.

Since its first emergence in the second half of the twentieth century, the application “helicopter money” used to be taken into consideration during notorious fierce economic crises in Japan when deflation cast a bleak outlook on the whole economy and reducing interest rate could not do any good. Recently as the COVID-19 continues to rage on in a still unpredictable manner, “helicopter money” has been put on the table again. Although a few countries have taken initial steps in implementing this tactic, it is still open to question whether it is entirely advisable for Vietnam to adopt the same approach.

In this paper, the author is going to discuss the essence of “helicopter money” concept and its pros and cons as well, which is followed by a deeper look into the empirical evidences

of the implementation and arguments over “helicopter money”. The third section of the paper provides readers with a brief overview of some major economic crises in Vietnam since the country’s reunification in 1975, which is accompanied with the author’s reasoning about the suitability of “helicopter money” as a policy prescription during such critical periods and the challenges of enforcing this tactic in Vietnam. The paper is then concluded with some of the author’s final thoughts about “helicopter money” and policy approach in time of economic crises in Vietnam.

## **2. Literature Review**

### ***2.1. The mechanisms of Helicopter money***

The term “Helicopter Money” is used to name an expansionary fiscal policy in which a large sum of money is distributed among the public, with the aim of boosting the economy during recessionary period. It is conventionally suggested that “helicopter money” policy can be implemented through either direct income increments (in cash or via account crediting) or tax rebates, which are financed by the Central Bank printing money, rather than by Government’s borrowing or deduction from its existing spending ([Belke](#), 2018).

Generally, helicopter money is expected to raise spending and economic growth thanks to its immediate impacts on aggregate demand. Theoretically, there are four channels through which helicopter money could realize such impacts. Firstly, a direct money transfer from the government would possibly incentivize people to spend more on goods and services. Secondly, in case government’s spending is financed by money printing, there is supposed to be a boost to GDP, employment and income due to extra spending on public projects. Thirdly, since helicopter money is financed by money creation, rather than increased borrowing from Central Bank, it is supposed to associate with a transient raise in inflation expectation, which in turn could possibly lead to further spending motivation for economic individuals. Finally, although helicopter money is usually considered an unconventional alternative to quantitative easing, the implementation of helicopter money policy involves a permanent money supply expansion, rather than a government debt which will ask for future compensation via increased tax or reduction in government’s spending at some point in the future. This makes helicopter money sound a more effective stimulus for household to spend their windfalls (Buiter, 2014).

### ***2.2. Risks of “Helicopter Money”***

Though “helicopter money” might theoretically sound promising in boosting demand and pulling an economy out of an economic stagnancy quagmire, it is still highly controversial whether the pros can outweigh the cons once such an instrument is implemented. Unlike many other policies, helicopter money is not a reversible strategy, which asks for significant prudence over using it as a solution to revive the economy.

One of the main risks associated with helicopter money is that it might result in excessive price increases and ruin the central bank’s financials. Proponents of helicopter money would argue that raising prices is one goal of helicopter money to deal with deflation and stagnancy during an economic recession. However, the concerns do not lie in such a

transient increased price level, which is indeed desired to help the economy out of a liquidity trap. Instead, it is the central bank's losing control over inflation even when the liquidity trap is no longer present that causes a major concern. This comes from the conventional view that helicopter money is financed by the central bank printing new money, which is then transferred to the public or used to monetize government debt without any corresponding assets or claims on the central bank's balance sheet. Therefore, the implementation of helicopter money is conventionally associated with a permanent increase in money supply, which consequently raises the public's inflation expectation and in the worst scenario would lead to realistic hyperinflation once such a policy is believed to be repeated (Heise, 2016).

It is posited that helicopter money would immediately boost aggregate demand due to the augmented income that the public would spend on more goods and services. However, the raised expectation of inflation might well render such a policy futile. Because an income increment coming from helicopter money does not surely improve the purchasing power of economic agents. On the contrary, printing more money, and thus higher inflation, can depreciate the savings of people and make them less well-off even during a deflation period. Consequently, people might become more prudent in their spending decisions and would possibly prefer saving more especially when their pessimistic economic outlooks are further compounded by future price instability (Dowd, 2018). In case helicopter money is used as a means of government's debts monetization, Krugman explains "a deficit ultimately financed by inflation is just as much of a burden on households as one ultimately financed by ordinary taxes, because inflation is a kind of tax on money holders" (Belke, 2018).

An increase in money supply as a result of the implementation of helicopter money could also raise concerns over the depreciation of the domestic currency on the foreign exchange market. The prospect of higher inflation and lower interest rate owing to a monetary expansion are the possible factors that discourage investors and speculator from keeping the currency, which in turn drags down the value of the domestic currency. Such currency depreciation is expected to be favourable for exports as the price of domestic goods and services would become cheaper in terms of other currency. However, it could likely deal a blow to import activities as the prices of foreign products become higher in terms of domestic currency, and thus raise the domestic price level further. It follows that there might be some crowd-out effect on the price competitiveness of some export products, which use some imports as their major inputs (Bogdan, 2017).

What makes helicopter money a less desirable policy is the risk of jeopardizing the long-term independence of the central bank and blurring the institutional separation between monetary and fiscal policy. Once helicopter money is channeled through economy in the form of government debt monetization, it might set a dangerous precedent for both legislators and other economic agents. Legislators might establish the tendency of turning to helicopter money to facilitate the government spending or tax cuts again, instead of more sustainable policy instruments. If economic agents perceive such behavior of the government as habitual, they would no longer hold trust in the monetary system, especially the stability

of their currency as well as domestic price level. Such loss of trust is undeniably devastating to the whole socio-economic system (Belke, 2018).

The proponents of helicopter money generally expect that aggregate demand would increase in time of economic recession as people are given a specific amount of money and spend their windfalls on more goods and services. However, as previously discussed, the public's decisions between consumption and saving do not depend solely on the one-time supplement to their current incomes. Instead, they are influenced by several economic and psychological factors, such as expectations of future income and inflation, etc. Even in case all such economic and psychological factors support the public's decisions to raise current consumption, standard models suggest that economic agents typically divide every unit of income increment into both consumption and saving. Therefore, the likely impacts of helicopter money on aggregate demand and output could be much humbler than expected, which also diminish over time (Dowd, 2018).

### ***2.3. Implementation, empirical evidence and arguments over “Helicopter Money”.***

The term “helicopter money” was first coined by Milton Friedman in 1969. It was initially intended as a classroom hypothesized circumstance rather than a serious policy proposal, to discuss the consequences of a permanent increase in money base, which was believed to never be repeated by the public (Bogdan, 2017). It was not until the 1990s that this idea gained significant attention among economists and policy makers as a helpful instrument to combat deflation and free the economy from a “liquidity trap”.

When the economy is undergoing very slow or no growth, “helicopter money” can possibly be prescribed to boost aggregate demand and thus create some desired moderate inflation. Such proposition has been applied to solve the economic issues in a number of countries, in various forms and with different level of adherence to the original idea of “helicopter money”.

Typically, when an economy slows down, legislators would likely think of decreasing short-term interest rate to encourage investment and spending. However, the situation in Japan during the period between 1990s and 2000s posed a much bigger headache to economists and policy makers as the aggregate demand in Japan constantly fell short of production capacity while the short-term interest rate had already fallen as low as zero. At the same time, the normal bond-financed expansion fiscal policy appeared implausible for fear of increasing privately held government debt. Among several policy prescriptions, increasing the public's disposable income was expected to incentivize more spending and heighten the level of economic activity (Bernanke, 2003). Multiple measures were attempted by Japan government, such as reduced tax rate, insurances of tax rebates, raised government's spending on public work projects. However, those measures did not bring about much rejuvenating effects as expected. It was later argued that much of such monetary bailout were inefficiently allocated to unproductive public work projects and failing businesses while, instead, the monetary resource allocation should have followed market rules. In other words, “helicopter money” should have been given directly to people and

allowed them to make their own decisions. More recently, in 2016, during another economic stagnancy period, Japan refused to monetize more government debt due to the concern over uncontrollable inflation and currency depreciation but was reported to implement a mild version of “helicopter money” by issuing long-dated perpetual bonds on a large scale. The money was then mainly used to fund infrastructure projects and improve purchasing capacity of low-income earners.

In the Eurozone, the idea of “helicopter money” gained in popularity during the 2010s. This concept was promoted within the “Quantitative Easing for the People” campaign in 2015. This proposal involved distributing the money created by the European Central Bank directly to eurozone citizens or spending on “much needed public investment such as green infrastructure, affordable housing” (Dowd, 2018). The idea of using helicopter money also appeared to be supported by a majority of Europeans as a survey in 2016 showed that 54 percent of people in the EU responded in favor of while only 14 percent expressed their opposition to helicopter money deployment (Positive Money Europe, 2006). *As the recent coronavirus pandemic cast a heavy shadow on the economic outlook for the EU in the next several months or even years, the debate about whether or not using helicopter money has come into vogue again.* Jordi Galí (2020) argues that a “direct, unrepayable funding by the central bank of the additional fiscal transfers” should be effected as “an alternative to a strategy based on higher taxes and/or more government debt in order to finance such an emergency fiscal programme” prompted by the acute repercussions of the COVID-19 pandemic (Galí, 2020). Stanislas Jourdan (2020) proposes that “helicopter money should be part of a recovery plan to boost the economy” without increasing the public debt burden but “this ideally requires all EU institutions to work together in a constructive manner”. On the other hand, the ECB has so far “avoided looking at helicopter money as a real possibility” to cope with the COVID-19 fallout, due to “concerns over central bank independence, foreign investment”, and the uncertain prospect of how people would use the extra cash (Amaro, 2020).

Throughout the economic history, helicopter money has also caught the attention of legislators in many other countries. Most recently, a number of governments, including Hongkong, the US, Singapore has decided to offer their citizens direct cash amid the aftermath of the coronavirus pandemic. Those transfers are aimed to ease the economic fallout of the outbreak, kick up demand and spur economic growth after social distancing periods (Amaro, 2020).

### **3. The possibility of implementing “Helicopter Money” policy in Vietnam during economic shocks**

#### ***3.1. Economics crises in Vietnam and the Government’s responses.***

This section of the paper is going to provide an overview of major economic crises in Vietnam during the 1980s, the late 2000s and the most recent one related to the COVID-19 outbreak. Generally speaking, these economic crises were caused by different factors and impacted the economy in various ways and at various scales. Consequently, the policy schemes that were employed by the government to help the economy get over those tough periods were also highly flexible.



From the national reunification in 1975 to 1985, Vietnam was confronted with a plethora of difficulties under the centralized economic mechanism. The economy remained dominated by small-scale production mainly based on simple labor rather than the application of technology, which failed to produce enough food and consumer goods. To make matters worse, the ownership regimes, initially expected to concentrate all the available resources for reconstructing the country by promoting the public ownership of production means, later became an obstruction of economic development since the private ownership was not fairly respected (Diem, 2011). Meanwhile, the distribution of income was intended to satisfy the principle of egalitarianism but turned out to greatly reduce people's motivation for hard-work and renovative ideas. Consequently, during the 1980s, Vietnam was reported as "one of the poorest countries in the world" (The World Bank, 2004) with about 70 percent of its population living below the poverty line (Shaw, 2018). The gross domestic product per capita in 1985 was estimated at approximately USD 130, which made Vietnam among the five most impoverished economies in the world (The World Bank, 2004). As the government became impatient in its effort to break out of the economic crisis, money printing was resorted to as a source of financing the government's increasing budget deficits, which further pushed the country into another terrifying nightmare of hyperinflation. By 1986, the annual inflation in Vietnam had soared to 487 percent (The World Bank, 2004).

In response to this crisis and with the benefit of hindsight from the previous policy failures and achievements, in 1986, Vietnam initiated its radical economic and political innovation campaign, namely "Doi moi". "Doi moi" essentially entailed replacing the centrally planned economy with the "socialist-oriented market economy", which embraced the concept of a multi-sector economy, affirmed the recognition of private ownership, and relaxed the State's control over investment and foreign trade (Vuving, 2013). In 1987, the new Law on Foreign Investment was passed and quickly harvested the reward as dramatic waves of foreign direct investment were attracted into the economy which amounted to roughly 10 percent of GDP in 1994 (Vuong, 2014) and made Vietnam one of the largest FDI recipient among transitional developing countries in proportion to its economy's size (The World Bank, 1994). In addition, further renovative measures in the "Corporate Law" and "Private Enterprise Law" in 1990 greatly boosted domestic production and trade, while the Land Law revised in 1993 granted farmers more land rights and security, which incentivized them to raise agricultural products. In another effort to stabilize the macro-economy, especially to curb the rate of inflation, the government cut down its spending and modified the tax system to raise more revenue, which helped to alleviate the budget deficit from 8.4 percent of GDP in 1989 to 1.7 percent in 1992 (The World Bank, 2004). By the late 1990s, most of Vietnam major economic malaises had been resolved. Agricultural productivity and output rose significantly, which was not only sufficient to satisfy domestic demand, but also used for exports. Vietnam became the world's third largest exporter of rice in the early 1990s, and the second largest exporter of coffee in the late 1990s. In the years after the implementation of Doi Moi Campaign, the annual growth rates showed an upward trend from just below 3 percent in 1986 to approximately 9.5 percent in 1995 (The World Bank, 2004).

Another recent economic crisis occurred during the late 2000s. Shortly after Vietnam officially became a member of the World Trade Organization in 2007, which is regarded as a cornerstone in its endeavor toward a liberalized economic model, the country was faced with another economic downturn under the influence of the global economic crisis. Vietnam's GDP growth rate plunged from 7.13% in 2007 to just above 5.6% in 2008 (The World Bank, 2020), then fluctuated from then on but has never recovered its prime peaks before the crisis. Meanwhile, the macro economy had fallen into drastic turbulence, which involved high rates of inflation (roughly 23.1% in 2008), large trade deficit, massive business shutdowns (Vuong, 2004), and increase in non-performing loans rate within the bank system. Many enterprises had to scale down their production or modify their business plan to cope with the reduced demand and higher production cost, especially higher loan interest rate. There was a sharp fall in export revenues due to the decreased demand from major export markets which was severely affected by the global economic crisis, including the US, EU and Japan. At the same time, Vietnam also witnessed a downward trend in newly invested capital, and critical disruption in stock and real estate market. Such slowdown in economic activities unarguably led to the deterioration in people's living standard, especially the susceptible low-income group.

In response to this economic crisis, Vietnamese Government put forward several measures to retrieve macro-economic stability and social security steps by steps, including measures to stimulate consumption and investment, policies to promote production and exports, supports for low-income people. Enterprises were offered tax reduction or tax extension. The size of income tax reduction that small and medium companies which created a large number of jobs were eligible for amounted to remarkably 30% (Pham, 2009). In addition, individuals were allowed to defer their income tax payment, while the VAT tax on some goods were also cut half, which was intended to raise individuals' spending. Such measures were not powered by the Government's debt financing, but rather a contractionary fiscal stand, in which the Government managed within its tight budget and controlled overspending at an acceptable level. In terms of monetary policy, the government endeavored to reduce the lending interest rate to support domestic enterprises while keeping the exchange rate flexibly and efficiently to facilitate exports. The government also created more favorable conditions so that enterprises could gain access to credit support packages more easily. Such economic solutions played an important role in controlling inflation, moderating trade deficit and improving economic growth in the following years (Pham, 2009).

By the end of 2019, the whole globe was confronted with another crisis, which has been continuing up to present with no certain ending date. This pandemic has obviously taken heavy tolls on several economies all over the world, including Vietnam. Though having succeeded in containing the spread of the virus within the community, Vietnam's economic activities have been seriously disrupted during the first quarter of 2020, especially when the pandemic has exerted destructive impacts most of its strategic trading and investment partners, such as the US, China, the EU. Vietnam's gross domestic products fell dramatically to 3.8 percent in the first three month of 2020, as compared to 6.8 percent in the same period in 2019

(GSO). It is also reported that from the beginning of the year up to April 2020, 35000 enterprises have halted their operations (VCCI) (Van, 2020). The major difficulties that most surviving enterprises have to deal with come from the sudden contraction of demands for goods and services, the disruptions of production inputs and the shortage of capital and cash flow. As the economic pillar has been shaken by the pandemic, other social security elements in Vietnam are also at risk, which affects the low-income groups the most (VCCI, 2020).

From the beginning of the outbreak, apart from strict measures to contain the spread of the coronavirus, Vietnam government has also taken proactive actions to alleviate the adverse impacts of the pandemic on the domestic economy. A socio-economic relief package of 62 trillion VND was launched via the Decision 15/2020/QĐ-TTg and Resolution 42/NQ-CP. It mainly focuses on helping people whose incomes have been severely reduced or whose jobs have been lost due to the pandemic, which makes it impossible for them to maintain the minimum living standards. The income assistance to each affected person which can be up to 1.8 million VND per month and for the maximum of 3 months starting from 1 April is scheduled to be financed directly through the government budget. As per Decree 41/2020/ND-CP, the government's incentives to ameliorate the economic aftermaths of the COVID-19 outbreak also include tax breaks, tax payment delays, tax reductions and exemptions, electricity bill discounts of 10 percent for 3 month starting form 1 April, and land rent fees delay for impacted businesses, households and individuals, which can add up to 180 trillion VND. In addition, the central bank of Vietnam has lowered several operating rates while commercial banks have already reduced interest rates and many types of service fees, applied more favourable terms to enhance enterprises' access to business loans, and allow debt restructuring and debt payment delay. To boost the domestic market further, the government has also accelerated the disbursement of public investment. The total capital which hasn't been disbursed in 2019 and which has been planned for 2020 is calculated at USD 30 billion. It is expected that such public investment would incentivize industrial production and services, hence create more jobs and improve income for workers, while at the same time, contribute to the infrastructure development which is essential for growth in the long term. These measures have proved to be especially helpful to individuals and companies in the most heavily affected sectors, such as tourism, education and training, hospitality industry, processing industry, textiles and foot ware, transportation, and banking (Falak, 2020).

In short, it is clear that the government's responses to economic crises differ and depend on the nature of each economic crisis. There are various tools which have been used by the government, including printing money and income transfer. However, these two instruments have never been incorporated as one single measure in Vietnam so far. While money base expansion during the early 1980s caused the most terrible hyperinflation period in Vietnam, income transfer has been used largely as a measure to mitigate a business downturn due to a negative economic shock or as a measure to redistribute income within the community, which aims to raise the living standards of disadvantaged people. These empirical evidences provide some insight into the possibility of implementing "helicopter money" in the context to Vietnam economy.

### ***3.2. Outlooks for the implementation of “Helicopter Money” in Vietnam.***

#### ***3.2.1. The legitimacy of employing “Helicopter money” in Vietnam.***

Powerful as it may sound as a bold move to rescue an economy from the verge of a great recession with falling demand and stagnant production, “helicopter money” obviously contains several risks, which make it a much more pricey policy in case of inappropriate implementation. With the previous painful experience of galloping inflation during the 1980s, the government of Vietnam would certainly be much more precautionous as to utilize such a policy which involves swelling the monetary base as “helicopter money”. And as far as the empirical evidences have shown, “helicopter money” has only been considered during the time of extreme economic recession whose repercussion spread throughout the whole economy, when the interest rate was already flat, and the national budget deficit had already reached an alarming level.

However, the rationales for “helicopter money” must not be solely contingent on the severity of the economic crisis. As a matter of fact, the natures or the roots of an economic crisis play a decisive role in devising a rescue scheme. For instance, giving people extra income to spend would have been a futile tactic because it could not solve the major problems dragging Vietnam economy down in the 1980s, which included the inefficient centralized economic mechanism that defied all market rules, the absence of fair recognition of private sectors and reasonable protection of private property rights. Consequently, as the central bank print more money to finance the government spending at that time, it only worsened the situation, without doing any good to domestic production. As regards the economic crisis in Vietnam during the late 2000s, “helicopter money” could not have had a chance of being put on the table either. This crisis occurred under the influences of the contemporary global financial crisis which racked several major export markets of Vietnam, coupled with the turbulence within the banking system which heavily suffered from bad debts when the domestic real estate market collapsed in 2010. Though this crisis cost hundreds of thousands of enterprises and millions of jobs, sharply diminished domestic demand and disrupted production, employing “helicopter money” to revive demand and boost production was still out of the question since it would definitely inflate the price level and interest rate, which had already too high for companies to access loans from banks. The government apparently had more viable choices including restructuring the bank system, carefully revising its spending to leave more room for a stimulus package which aimed to back enterprises via interest rate reduction, tax reduction or tax payment delay.

The crisis related to the novel coronavirus pandemic, which takes a heavy toll on the economy worldwide, has brought “helicopter money” in vogue recently. There are a number of reasons which seemingly qualify the implementation of “helicopter money” in several countries, including the US, Hongkong, and Singapore. This pandemic has unavoidably entailed the nationwide compulsory and strict social distancing periods when people are asked to stay at home and businesses satisfying “inessential” needs are required to close for weeks. These economic shutdowns have negatively affected individuals and businesses in

almost all sectors, causing rising unemployment, dwindling income and mounting debts burdened on individuals, households and companies. People have become much more prudent over their spending which is financed by an income already lessened as a result of the pandemic. Therefore, such tactics as loan rate reduction or tax exemption, tax payment delay might help to alleviate the financial malaise but their effectiveness in boosting production is completely open to question as almost all consumers have already gotten financially worse off and less willing to spend. It follows that giving everyone an extra sum of money directly and unconditionally could probably trigger a surge in demand and thus spur production and the economy to faster growth.

Though distributing direct cash to the public might sound promising in helping the economy recover from such crisis as the COVID-19 pandemic, the choices over the source of finance for this money nationwide distribution scheme would render different possible impacts on other economic variables such as the domestic price level, the interest rate, and exchange rate. Conventionally, “helicopter money” is considered to be financed by the central bank printing money. However, such movement could highly likely incur rampant inflation and destabilize the macro-economy, especially when there has already been a bitter precedent in Vietnam after the 1975 reunification. Therefore, the scenario of “helicopter money” being implemented in its conventional form in Vietnam looks hugely risky and almost unacceptable to a majority of Vietnamese legislators. Instead, the country could possibly consider deploying the concept of “helicopter money” during economic crisis periods in a more relaxed approach, which entails using other sources to finance such policy rather than expanding its monetary base.

### *3.2.2. The challenges of employing “Helicopter money” in Vietnam.*

Though “helicopter money” might be qualified as a solution to some extreme economic crisis, its efficiency is contingent on a number of factors. In this section, the paper is going to further discuss the challenges of putting “helicopter money” into effect, using the current COVID-19 pandemic and economic crisis as a case study.

First of all, the effectiveness of such monetary grants would depend hugely on the income elasticity of demand. The more elastic is demand in response to changes in income, the bigger is the impact that an additional income would have on spending and vice versa. Therefore, it is of great importance that policymakers have some understanding of the income elasticity of domestic demand, which would then give a good idea of the size of the economic bailout and its corresponding impact on aggregate demand. It is also worth to note that the income elasticity of demand differs among goods, i.e. as income increases, spending would possibly increase for some goods (normal and luxury goods), while it would possibly decrease for others (inferior goods). And the size of the income increment would largely decide the outcome as well. This follows that the assumed rise in aggregate demand would influence sectors in the economy differently. In case of such crisis as the COVID-19, as many people’s wallets have already drained after weeks of social distancing and business freeze, the financial support from the government would highly likely prioritize the spending on essential goods, which has already been the main concern of low-income people and

people who suffer the worst by the pandemic. It follows that sectors whose outputs satisfy basic needs might benefit more from such “helicopter money” tactic while the impacts on other sectors which have also been badly affected by the pandemic, like tourism, export processing, finance and banking, might be quite modest. Moreover, the unpredictability of the pandemic cast a much bleaker outlook for the national and global economy, which reasonably drives people to save more on their incremental income. Meanwhile, for a minority of the public with high-income, a small “once in a life time” increase in income (relative to their current and usual income) would only has little to no impact on their current spending, which supposedly has already enough to fulfil their current needs. Therefore, the financial aid would produce much larger effect on aggregate demand if it is targeted at the part of the public who are the most likely to spend their extra income immediately, rather than spread among all individuals nationwide.

#### **4. Discussion and Conclusion**

Though initially used as a class example to illustrate the impacts of expanding money base, “helicopter money” has attracted the attentions of several economists and policymakers since it was firstly coined by Milton Friedman. The conception appears so propitious in time of economic recession that it has been suggested on the table as a policy prescription in countries such as the US, the EU, and Japan during the recent economic downturn caused by the coronavirus pandemic. However, in the context of Vietnam, the Government should better pay more careful thoughts on such a tactic. “Helicopter money” in its conventional form, which involves the Central Bank printing new money, would be of little application to Vietnam up to now. In the worst scenario, it could bring about uncontrollable hyperinflation and exacerbate macro-economic instability during recession. In addition, the central bank of Vietnam still has room for less risky measures, such as reducing the interest rate, and quantitative easing, in order to boost domestic demand and production. Nevertheless, the implementation of “helicopter money” approach in a more relaxed way, which rules out monetary base expansion, might possibly provide some positive assistance in the endeavour to stabilize the macro-economy, and social security during time of economic crises. Finally, it must be emphasized that to help an economy get out of a crisis definitely requires a combination of multiples policy measures, rather than relying on just one single supposed transcendent instrument.

#### **5. References**

1. Amaro, S. (4/2020), *Europe could opt for ‘helicopter money’ as the coronavirus destroys economic growth, experts predict*, cnbc.com, <https://www.cnbc.com/2020/04/23/could-europe-opt-for-helicopter-money-to-deal-with-coronavirus.html>
2. [Belke, A.](#) (2018), *Helicopter Money: Should Central Banks Rain Money from the Sky?*, [Intereconomics](#), Volume 53, 2018, Number 1, pp. 34-40.
3. Bernanke, B. (4/2016), *What Tools Does the Fed Have Left? Part 3: Helicopter Money*, Brookings Institute, Advisor Perspectives, Inc. (2020).

4. Bogdan, M. (3/2017), "Helicopter Drop": Perspectives on Modern Central Banking Challenges, *The Romanian Economic Journal* (2017) no. 63.
5. [Buiter](#), W. H. (8/2014), *The Simple Analytics of Helicopter Money: Why it Works - Always*, *Economics*, Vol. 8, August 2014, DOI: [org/10.5018/economics-ejournal.ja.2014-28](https://doi.org/10.5018/economics-ejournal.ja.2014-28)
6. Dezan Shira & Associates (2020), *Vietnam Business Operations and the Coronavirus: Updates*, Vietnam Briefing, <https://www.vietnam-briefing.com/news/vietnam-business-operations-and-the-coronavirus-updates.html/>
7. Diem, P. (2011), *Ownership regime in Vietnam's post-1945 law*, Vietnam Law and Legal Forum magazine, <https://vietnamlawmagazine.vn/ownership-regime-in-vietnams-post-1945-law-4382.html>
8. [Dowd](#), K. (2018), *Against Helicopter Money*, *Cato Journal*, Vol. 38, No. 1 (Winter 2018).
9. Falak. A. (2020), *Vietnam Issues Incentives to Counter COVID-19 Impact*, Vietnam Briefing, <https://www.vietnam-briefing.com/news/vietnam-issues-incentives-counter-covid-19-impact.html/?hilite=%27incentive%27>
10. Galí, J. (3/2020), *Helicopter money: The time is now*, VoxEU.org, <https://voxeu.org/article/helicopter-money-time-now>.
11. Glewwe, P.; Agrawal, N. & Dollar, D. (2004), *Economic Growth, Poverty, and Household Welfare in Vietnam*, Washington, DC: World Bank. © World Bank. <https://openknowledge.worldbank.org/handle/10986/15010> License: CC BY 3.0 IGO.
12. Heise. M. (2016), *Why helicopter money should be kept on the ground*, World Economic Forum, <https://www.weforum.org/agenda/2016/09/why-helicopter-money-should-be-kept-on-the-ground/>
13. Pham, T. T. (2009), *The Impact of the Global Financial Crisis on Vietnamese Economy*, Asia-Pacific Rural and Agriculture Credit Association, <https://www.apraca.org/the-impact-of-the-global/>.
14. Positive Money Europe (2006), *54% of Europeans are in favour of helicopter money*, <https://www.positivemoney.eu/2016/10/poll-helicopter-money/>.
15. [Positive Money Europe](#) (2020), *Helicopter Money Is Still On The ECB's Table*, <https://www.positivemoney.eu/2020/05/helicopter-money-ecb/>
16. *Shaw, N. (2018), Vietnam has reduced poverty, but progress is still to be made*, The Borgen Project, <https://borgenproject.org/vietnam-has-reduced-poverty-but-progress-is-still-to-be-made/>
17. The World Bank (1994), *Viet Nam - Country assistance strategy (English)*. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/464901468329080735/Viet-Nam-Country-assistance-strategy>

18. The World Bank (2020), *GDP growth (annual %) - Vietnam*, <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=VN>
19. Van, P. (2020), *Covid-19 could bankrupt 50 pct of Vietnamese enterprises: VCCI*, Vnexpress.net, <https://e.vnexpress.net/news/business/economy/covid-19-could-bankrupt-50-pct-of-vietnamese-enterprises-vcci-4081637.html>
20. Viet Nam News, *Record number of businesses stop operations in Q1*, <https://vietnamnews.vn/economy/684961/record-number-of-businesses-stop-operations-in-q1.html>
21. Vuong, Q. H., (2004), *The Vietnam's Transition Economy and Its Fledgling Financial Markets: 1986-2003*, Working Papers CEB, No. 04-032.RS, Université Libre de Bruxelles.
22. Vuong, Q. H. (2014), *Vietnam's Political Economy in Transition (1986-2016)*, Université Libre de Bruxelles - Solvay Brussels School of Economics and Management Centre Emile Bernheim.
23. Vuving, A. L. (2013), *Vietnam in 2012: A Rent-Seeking State on the Verge of a Crisis*, Southeast Asian Affairs (2013), pp. 325-347, [ISEAS - Yusof Ishak Institute](#).



# TAX ADMINISTRATION TO IMPROVE TAX COMPLIANCE: THE LESSONS FROM THE UNITED STATES, THE UNITED KINGDOM AND BULGARIA

*MA. Mac Thi Hai Yen*

*yenmh@neu.edu.vn, haiyen.qlkt@gmail.com*

*Faculty of Management Science,*

*National Economics University, Hanoi, Vietnam*

## **Abstract**

*This paper focuses on the experiences of tax administration in three selected economies the United States (US), the United Kingdom (UK), and Bulgaria. By analyzing and comparing the tax administrative approaches, policies, frameworks, and performances of the three countries, the study is an attempt to identify lessons that are suitable for applying in the context of Vietnam. The analysis starts with an overview of tax administration and tax compliance, follows by investigating how those three countries implement tax administration to improve tax compliance and the level of tax compliance they achieved. Finally, the paper jumps to a conclusion and provision of recommendations on tax administration to improve taxpayers compliance in Vietnam.*

**Key words:** *tax administration, tax compliance, taxpayers.*

## **1. Introduction**

Improving tax administration has long been a matter of concern to those concerned with any country to function, to benefit from the opportunities afforded by globalisation or to rebound from the blows it may deal out. In addition, the tax system constitutes one of the major interfaces between citizens and state in any country so how taxes are administered may affect not only the political future of the government of the day but also, more fundamentally, public trust in government. Tax administration may thus play a critical role not only in shaping economic development but in developing an effective state.

The objectives of tax administration across the globe encompass not only raising revenue to fund government services but also to do so in a way which does not impose unnecessary compliance burdens on taxpayers. Regarding with tax administration and its relation to tax compliance, this paper analyses the tax administration in three selected economies United State of America (USA), United Kingdom (UK) and Bulgaria. Each country in the group of three are different in approach, policy and framework, implementation of tax administration. Therefore, the study aims to identify relevant and suitable lessons for the context of Vietnam, a developing country. The analysis starts with an overview of tax administration and tax compliance, follows by investigating how those three countries implement tax administration to improve tax compliance and the level of tax

compliance they achieved. Finally, the paper jumps to a conclusion and provision of recommendations on tax administration to improve taxpayers compliance in Vietnam.

## **2. Overview of tax administration and tax compliance**

Tax administration is the link between the statutory foundation and the operative tax system. The tax administration implements and enforces tax laws, and receive their mandates by law. Tax administration plays a key role in determining the level in which the objective of taxation is realised such as determining the overall fiscal deficit, the relative tax burden on sectors and income classes, and the efficiency of the economy.

Tax administration can be seen as the way and manner that taxpayers are assessed and are made to pay their taxes due to the government. The tax administration is charged with the responsibility of assessing, collecting and monitoring tax payers' compliance with the tax laws and regulation. These activities include identification and registration of taxpayers, processing of tax returns and third-party information, examination of the completeness and correctness of tax returns, assessment of tax obligations, collection of taxes and provision of services to taxpayers.

The objectives of most tax administrations are to ensure compliance with tax laws and to improve taxpayers' customer service experiences. In fact, low tax compliance is a matter of serious concern in many developing countries, limiting the capacity of their governments to raise revenues for developmental purposes. There are many factors contribute to this weakness, such as: corruption, a large informal sector, weak legal systems, ambiguity in tax laws, high marginal tax rates, paucity of adequate information and accounting systems, a culture of noncompliance, and ineffective tax administration. Thus, tax administration should take into cognisance the peculiarity of the environment in which it is operating and adopt the best suited strategies that would ensure easy compliance of the taxpayers.

The actions of taxpayers - whether due to ignorance, carelessness, recklessness, or deliberate evasion - as well as weaknesses in a tax administration mean that instances of failure to comply with the law are inevitable. Good tax administration requires strong technical capacity by the administrative agency but also a well-designed tax. The administrative agency should be able to identify and evaluate the effects of both current tax policies and tax policies under consideration, be able to simplify the current tax system if needed, within the economic and political spectrum, maintain a connection between the rule of law and tax administration. Furthermore, better understanding of the motives of taxpayers and their attitudes towards taxation can improve both voluntary compliance and the efficiency of the tax administration.

## **3. The experiences of tax administration to improve tax compliance in United State, United Kingdom and Bulgaria**

### **3.1. USA**

In the United States, the Congress passes tax laws and requires taxpayers to comply. The taxpayer's role is to understand and meet his or her tax obligations. The IRS is a bureau

of the Department of the Treasury which is organized to carry out the responsibilities of the secretary of the Treasury under section 7801 of the Internal Revenue Code. The IRS role is to help the large majority of compliant taxpayers with the tax law, while ensuring that the minority who are unwilling to comply pay their fair share. The secretary has full authority to administer and enforce the internal revenue laws and has the power to create an agency to enforce these laws. The IRS was created based on this legislative grant.

The IRS strategic goals are:

- Empowering and enabling all taxpayers to meet their tax obligations by making it easier for them to understand and meet their filing, reporting and payment obligations.
- Protecting the integrity of the tax system by encouraging compliance through administering and enforcing the tax code the American tax system is based on voluntary compliance and supported by appropriate enforcement.
- Collaborating with external partners proactively to improve tax administration partnerships with our stakeholders enrich service to taxpayers.
- Cultivating a well-equipped, diverse, flexible and engaged workforce Our employees are committed to serving the American taxpayer.
- Accessing advanced data, usability and analytics to inform decision making and improve operational outcomes.
- Driving increased agility, efficiency, effectiveness and security in operations by streamlining and simplifying business processes to serve taxpayers better and improve our stewardship of taxpayer resources.

### **Taxpayer service provision**

#### ***Taxpayer Advocate Service - TAS***

Taxpayer Advocate Service (TAS) is an independent organization within the IRS, Congress created it under the 1996 Taxpayer Bill of Rights. Many taxpayers turn to the Taxpayer Advocate Service (TAS), which provides assistance with returns and helps resolve problems with the IRS. The TAS in FY 2017, the TAS received more than 167,000 new requests for taxpayer assistance. The TAS also conducts analysis and recommends changes to help the IRS administer the nation's tax system (Bipartisan Policy Center, 2019).

Over the last 20 years, TAS has worked more than 4.4 million cases resulting from problems with IRS systems or processes. That history with individual and business taxpayers' problems gives TAS unique insight, perspective, and information that could be a key resource for identifying areas in need of improvement as the IRS develops a comprehensive customer service strategy. (Annual report 2019). In its most recent report to Congress, the TAS recommended legislative action to provide direction to the IRS about eligibility for federal grantees, to set standards for developing expertise and expanding VITA services, and to increase federal funding to meet growing demand for these services (Bipartisan Policy Center, 2019).

### ***Volunteer Income Tax Assistance - VITA***

The Volunteer Income Tax Assistance (VITA) program offers free tax help to people who generally make \$56,000 or less, persons with disabilities and limited English speaking taxpayers who need assistance in preparing their own tax returns. IRS-certified volunteers provide free basic income tax return preparation with electronic filing to qualified individuals.

In addition to VITA, the Tax Counseling for the Elderly (TCE) program offers free tax help for all taxpayers, particularly those who are 60 years of age and older, specializing in questions about pensions and retirement-related issues unique to seniors. The IRS-certified volunteers who provide tax counseling are often retired individuals associated with non-profit organizations that receive grants from the IRS (Bipartisan Policy Center, 2019).

In 2010, the Corporation for Enterprise Development's Self-Employment Tax Initiative, the National Community Tax Coalition, and the IRS's Stakeholder Partnerships, Education and Communication (IRS-SPEC) initiative joined forces to develop a pilot program to test the expansion of VITA assistance to include Schedule C preparation. Pilot sites prepared a total of 5,741 Schedule C or C-EZ tax returns during tax year 2011. More than 85 percent of filers at the pilot sites had an AGI below \$30,000 in the prior year, suggesting that low- and middle-income entrepreneurs are operating businesses to fill household income gaps. On average, 46 percent of self-employed taxpayers who filed at these locations were men, and 54 percent were women; in addition, roughly 30 percent were black, 27 percent were Hispanic or Latino, and 29 percent were white. Across all sites, nearly one-third of self-employed filers lived in dual-language households. This prevalence of self-employed filers for whom English is likely a second language underscores the need for taxpayer services such as those offered at VITA sites, especially in low- income and minority communities (Bipartisan Policy Center, 2019).

In FY 2017, 3.6 million taxpayers made use of the Volunteer Income Tax Assistance (VITA) and Tax Counseling for the Elderly programs. VITA sites serve an important need, especially in low- and moderate-income communities, where many taxpayers require help with tax issues and tax preparation and where eligibility for complicated tax credits such as the EITC and CTC is prevalent (Bipartisan Policy Center, 2019).

### ***Free File***

Free File is a partnership between the IRS and the Free File Alliance, a group of industry-leading private-sector tax preparation companies that have agreed to provide free federal tax preparation assistance to eligible taxpayers. The main objectives of this program is to: 1) Provide greater access to free, online tax filing options; 2) Make tax filing and preparation easier and reduce burden on individual taxpayers; 3) Increase growth of e-filing to reach 80 percent of returns filed electronically (Bipartisan Policy Center, 2019).

The group aims to make this program available to 70 percent of taxpayers nationwide, or approximately 105 million filers, with a particular focus on economically disadvantaged and underserved communities. Taxpayers with an AGI of \$69,000 or less may

be eligible to use the Free File software at no cost, while higher-income taxpayers can use Free File Fillable Forms - an electronic version of IRS paper forms (Bipartisan Policy Center, 2019).

Since the program launched in 2002, the total number of individual (federal) tax returns filed in the United States has increased by 15 percent and e-filing has increased by 180 percent. In tax year 2004, the number of Free File users peaked at 5 million taxpayers, by 2017, that number was about 2.5 million taxpayers. There are three of 12 Free File providers offer services to all ages, and five limit usage to people who are under age 60. Besides, several updates to Free File for the 2019 filing season have added more consumer protections and seek to increase take-up, with a focus on ensuring consistency and quality in the information taxpayers receive (Bipartisan Policy Center, 2019).

### **Tax policy - the Earned Income Tax Credit (EITC) and the Child Tax Credit (CTC)**

The EITC and the CTC are two provisions in the tax code which are among the most important anti-poverty policies implemented by the federal government. Low-income tax filers who qualify for these credits can use them to realize a negative effective tax rate, meaning that their “refundable” credits exceed their gross tax liability. In these cases, the filer receives a net positive transfer or payment from the government.

#### ***The Earned Income Tax Credit (EITC)***

The EITC, introduced in 1975, is a wage subsidy targeted at low-income families; it was designed to encourage work by linking the credit to earned income and therefore, became a benefit for working people with low to moderate income. To qualify, taxpayers must meet certain requirements and file a tax return, even if they do not owe any tax or are not required to file. EITC reduces the amount of tax taxpayers owe and may give them a refund.

In 2013, 87 percent of EITC expenditures took the form of payments that reduced taxpayers’ liabilities below zero. According to a 2016 study, the EITC costs the federal government \$68 billion per year and reaches 28.8 million tax filers—that’s about 20 percent of all tax filers and 44 percent of all filers with children (Bipartisan Policy Center, 2019).

Many hail the EITC as one of the most effective programs for low-income Americans; this praise is based on a large body of literature that has documented the EITC’s ability to encourage work and reduce poverty. A recent report by the Center on Budget and Policy Priorities (CBPP) cites this literature in summarizing the program’s benefits:

"A highly regarded study found that EITC expansions are the most important reason why employment rose among single mothers with children during the 1990s—the EITC was more effective in encouraging work than either welfare reform or the strong economy. ... In 2016, the EITC lifted about 5.8 million people out of poverty, including about 3 million children. The number of poor children would have been more than one-quarter higher without the EITC. The credit reduced the severity of poverty for another 18.7 million people, including 6.9 million children."

Another recent study that attempted to account for the long-term impacts of the EITC on children's education and employment outcomes concluded that each dollar spent on the program had a net cost of only 13 cents. The EITC also improves health outcomes, and in fact is more cost-effective than many other health interventions (Bipartisan Policy Center, 2019).

### *The Child Tax Credit (CTC)*

Introduced in 1997, the CTC is a more recent provision. It is structurally similar to the EITC, though less targeted to low-income filers and not fully refundable. The CTC is an important tax credit that may be worth as much as \$1,000 per qualifying child under the age of 17 depending upon taxpayer's income. A qualifying child for this credit has to meet the qualifying criteria of six tests: age, relationship, support, dependent, citizenship, and residence. The credit is limited if taxpayers modified adjusted gross income is above a certain amount. The amount at which this phase-out begins varies depending on taxpayer filing status. For married taxpayers filing a joint return, the phase-out begins at \$110,000. For married taxpayers filing a separate return, it begins at \$55,000. For all other taxpayers, the phase-out begins at \$75,000. In addition, the CTC is generally limited by the amount of the income tax taxpayers owe as well as any alternative minimum tax taxpayers owe. Taxpayers may be able to claim the Additional Child Tax Credit if the amount of taxpayers CTC is greater than the amount of income tax they owe (Bipartisan Policy Center, 2019).

In 2017, CTC expenditures totaled \$54 billion per year. The CTC has since expanded in several ways due to the Tax Cuts and Jobs Act of 2017, and in 2019 is projected to total \$122 billion. Its current nominal maximum credit of \$2,000, though substantially less than the maximum EITC credit (around \$6,431), reaches far more people (Bipartisan Policy Center, 2019).

In 2018, the CTC and the EITC together provided on average \$800 for households in the lowest-income quintile, and about 30 percent of these households received one or both of these refundable credits. These credits together provided an average of \$1,400 to households in the second-lowest quintile, and with about 30 percent of that quintile receiving one or both credits. The Tax Policy Center, citing estimates from the Congressional Budget Office, has stated that the CTC and EITC together "lowered the effective tax rate for low-income households from about 0.5 percent in the early 1980s to its negative value today." According to these estimates, 20 percent of filers in 2018 had marginal individual income tax rates at or below 0 percent (Bipartisan Policy Center, 2019).

### **3.2. UK**

In United Kingdom, Her Majesty's Revenue and Customs (HMRC) are a non-ministerial Department established by the Commissioners for Revenue and Customs Act (CRCA) 2005, replacing the Inland Revenue and Customs and Excise. CRCA vested responsibility for the administration of the tax system in Commissioners appointed by the Queen. The Commissioners are drawn from the department's top management. HMRC mission is to collect the money that pays for the UK's public services and help families and individuals with targeted financial support. HMRC strategic objectives are: 1) collecting

revenues due and bear down on avoidance and evasion; 2) transforming tax and payments for customers; 3) designing and delivering a professional, efficient and engaged organisation.

In specific, HMRC are responsible for safeguarding the flow of money to the Exchequer through our collection, compliance and enforcement activities make sure that money is available to fund the UK's public services facilitate legitimate international trade, protect the UK's fiscal, economic, social and physical security before and at the border, and collect UK trade statistics administer Statutory Payments such as statutory sick pay and statutory maternity pay help families and individuals with targeted financial support through payment of tax credits administer Child Benefit are a high volume business; almost every UK individual and business is a direct customer of HMRC aim to administer the tax system in the most simple, customer focused and efficient way administer the Government Banking Service Responsibilities

### **The government's approach to addressing tax avoidance, evasion and other forms of non-compliance**

The government will continue to build on the steps it has already taken to address tax avoidance, evasion and other forms of non-compliance across all parts of the economy. This includes monitoring and developing new measures to tackle emerging threats and challenges.

While technological developments have brought significant benefits to the economy, in some circumstances they have also created new opportunities for tax avoidance and evasion. For example, the digital communications revolution means marketed avoidance schemes can reach greater audiences, the significant growth of online platforms and marketplaces has facilitated VAT fraud by overseas sellers, and while globalisation has supported growth it has also created opportunities for more opaque offshore tax arrangements. Hence, the government committed to ensuring that the tax system keeps pace with change. At Spring Statement 2018, the government published a position paper on corporate tax and the digital economy, looking at the impact on the tax system of the digital economy sector. At Budget 2018 the government also announced a call for evidence on the use of modern technology and software in enabling sales suppression, and thus evasion, of tax due (HM Revenue & Customs, 2019).

#### ***Tax administration in regard to marketed tax avoidance***

The UK has led the way on combatting online VAT fraud. This has been both through taking ground-breaking action domestically, as well as through substantial contributions to multilateral discussions at the Organisation for Economic Co- operation and Development (OECD). As Chair of the OECD Working Party on Consumption Taxes, through extensive engagement with the OECD's private sector-led Business and Industry Advisory Committee, and through bilateral contacts, the UK has steered the agenda and driven forward work to combat online VAT fraud.

Since the formation of HMRC's Fraud Investigation Service in 2016, HMRC has used its powers 11 times to acquire data from intermediaries that facilitate the trade of

businesses online, across different sectors of the digital economy. HMRC is using this new data to make it harder than ever to hide tax liabilities in the digital economy, and to prevent traders from gaining an unfair advantage by evading tax obligations. As a result, more individuals have been convicted for criminal offences relating to arrangements which have been promoted and marketed as tax avoidance schemes, resulting in over 100 years custodial sentences and more than 7 years suspended sentences being ordered. HMRC has a success rate of around 90%, since 2015-16, for avoidance cases taken to litigation by taxpayers on the substantive issues, with many more choosing to settle before their cases get that far (HM Revenue & Customs, 2019).

Furthermore, HMRC succeeded in tackling online VAT Fraud with: almost 60,000 overseas online sellers applied for VAT registration between March 2016 and December 2018; about £200 million of unprompted VAT declared on returns by overseas online sellers; 4,800 joint-and-several liability notices were issued regarding non-compliant overseas online sellers since September 2016; 7,600 investigations were opened into these sellers up to the end of 2018; £186 million of non-compliant sellers; and seven online marketplaces have signed up to an agreement with HMRC to provide data about sellers on their sites to help combat the fraud (HM Revenue & Customs, 2019).

#### *Tax administration in regard to offshore and offshore structures*

In order to ensure a level playing field, HMRC is at the forefront of international efforts to crack down on those who set up and use complex offshore structures in an attempt to avoid or evade tax. In addition, the government has introduced substantial new penalties to sanction and deter those that seek to evade tax offshore.

In April 2015 the government introduced the DPT, which counters the contrived arrangements used by some multinational companies to divert profits from the UK and minimise their UK tax liability. It helps to ensure that the tax paid by multinational companies in the UK is commensurate with the activities that they undertake in the UK. By the end of April 2018, the DPT measure had delivered £700 million since its introduction. In the year ending April 2018 alone, the DPT measure collected £388 million that would otherwise have gone unpaid. In addition, HMRC investigations of profit diversion have delivered substantial amounts of additional Corporation Tax and VAT arising from businesses changing their arrangements and paying Corporation Tax on their profits in line with their economic activity and unwinding aggressive structures (HM Revenue & Customs, 2019).

At Autumn Budget 2017, the government went further and announced that it would bring in new rules to target multinational businesses that hold intangible property, such as copyrights and patents, in low-tax jurisdictions to artificially lower their tax bill and gain an unfair competitive advantage.

At Budget 2018, the government announced the introduction of targeted profit fragmentation legislation that prevents UK businesses from avoiding UK tax by arranging for their UK-taxable business profits to accrue to entities resident in territories where



significantly lower tax is paid than in the UK. The taxable UK profits will be increased to the actual, commercial level (HM Revenue & Customs, 2019).

Besides, The UK is at the forefront of multilateral action through the G20 and OECD to address Base Erosion and Profit Shifting (BEPS) by multinational companies, by reforming international tax standards to realign taxation of profits with the underlying economic activities and value creation.

### ***Tax administration in regard to the hidden economy***

In recent years, the government has invested in HMRC to ensure it has the right tools and resources to tackle the hidden economy. For example, the government has invested in: 250 extra hidden economy caseworkers to tackle unregistered businesses (2015); new geographic risking technology, analysts and caseworkers to rollout a new integrated approach (2017); compliance officers to deal with online traders trying to hide their VAT liabilities (2017) (HM Revenue & Customs, 2019).

To support these investments, the government has extended HMRC's access to third-party data which helps identify those seeking to hide how much they owe. This includes data from merchant acquirers and aggregators who process credit and debit card payments on behalf of retailers (since 2013), online intermediaries, providers of electronic stored-value payment services (since 2016) and Money Service Businesses (since 2017). Access to this data means HMRC is uncovering hidden businesses, and HMRC caseworkers can collect more in unpaid tax. These changes have led to HMRC bringing in an additional £187 million in tax since 2013; and HMRC's action in tackling the hidden economy helps to show honest businesses that the government is on their side (HM Revenue & Customs, 2019).

The government also constantly works against organised tax crime in all its forms. HMRC uses the full range of criminal and civil powers to investigate fraudsters and to tackle organised crime groups. HMRC generated or protected £3.3 billion in compliance yield in 2017-18 as a result of investigations into, and enforcement action against, organised crime. Since 2010, over 880 serious organised criminals have been brought to justice.

### ***3.3. Bulgaria***

In Bulgaria, the National Revenue Agency (NRA) is a specialized state body under the Minister of Finance. The main task of the NRA is to administer taxes and social security contributions, as well as to collect other public and private state receivables. The Agency's mission is to promote voluntary payment by offering new and modern services to facilitate its clients. The main functions of the NRA are related to servicing citizens and business representatives in connection with their tax and social security obligations. The Revenue Agency also enforces collection of overdue budgetary commitments, as well as claims issued

by other government bodies that have not been paid on time. The NRA represents the state in commercial insolvency cases as well.

### **The presumptive taxation in Bulgaria**

Bulgaria applies two presumptive taxes. The older is *the patent tax*, introduced in 1998 along the lines of the classic IMF policy advice on tax administration reform. The recent one is a minimum tax on labor expenses, introduced in 2003 as *minimum insurance income thresholds (MIITs)*.

Apart from them, there are various elements of presumptive taxation in the business tax structure of Bulgaria. The personal income tax for instance, has statutory expense deductions for self-employed farmers (70 percent) professionals (35 percent) and rent earners (20 percent). There are presumptive tax arrangements in the CIT law as well. Insurance companies, organizers of gambling and lottery games, and telecommunication service providers pay corporate taxes on their gross receipts. Since 2005 the sea cargo industry is given the option to choose between paying corporate tax based on the capacity of the ship, or on the standard tax base (Konstantin P, 2005).

#### ***The patent tax***

The Bulgarian patent tax is a fixed-sum proxy for income tax with multiple rates, differentiated by economic activity, location and the service or output capacity of the business unit. Its introduction in 1998 was driven by concerns about the post-communist boom of the informal economy and the large weight in it of small traders and service providers. Its design bears the signs of these leading concerns. The patent tax does not allow any choice between it and the standard income taxation. It unconditionally lists the groups of taxpayers that are liable under it. The obligation concerns both legal and natural persons whose activity is in the list of the patent tax, and whose gross income is less than a specified threshold. Even though it is a part of the Personal Income Tax Law, it is applied as well to the corporate income of limited liability companies included in the patent list (Konstantin P, 2005).

Furthermore, it does not reduce the accounting costs of the “beneficiaries”. Under the patent legislation, they need to record net income according to the provisions of the accountancy law. In the case of sole proprietors, this requirement is justified by the need to calculate insurance income. In result, even though they pay fixed-sum patent tax, as a substitute of personal income tax, they still need to calculate their personal income for the purpose of their own social insurance liabilities. This entails higher cost not only of voluntary compliance, but of enforcement as well: insurance inspectors need to verify compliance with the corporate income legislation, for which they may not have adequate expertise or third-party data (Konstantin P, 2005).

The evolution in the coverage and the structure of the Bulgarian patent tax in the seven years since its introduction are indicative of the inherent controversies and difficulties of reconciling simplicity, efficiency and equity objectives in a presumptive tax design. As it affects relatively large groups of taxpayers, whose interests at that are clearly defined along professional

and sectoral lines, and even locations, it has always been in the center of the politics of taxation and among the most criticized and frequently amended pieces of legislation.

On balance, the changes and adjustments of the patent tax brought it far from the initial objective of simplicity and low enforcement cost. In 2005 the Bulgarian patent tax schedule has over 900 rates, differentiated horizontally in 9 groups according to location; and vertically in over 100 services. It uses wide range of indicators to estimate taxpayer's average income capacity. Above all, this makes it costly to enforce. In small cities, the tax is overvalued relative to actual number of consumers, while in larger cities and resorts with large number of temporary residents and visitors it may be undervalued (Konstantin P, 2005).

Furthermore, relative to the revenues from the patent tax, adjustment and enforcement costs appear excessive. After all improvements and adjustments its revenue effect is negligible.

Summing up, the Bulgarian experience with the patent tax, over the years, its coverage has been narrowed by dropping activities from the list and lowering the turnover ceiling to BGL 50000, while the advantages over the standard income tax have shrunk. On the other hand, in its present form it does not make much sense neither as an instrument of raising revenue efficiency, nor as an instrument of reducing small businesses' compliance costs.

#### ***Minimum insurance income thresholds - MIITs***

The MIITs were introduced in 2003 as a countermeasure to wide spread practices of insuring employees at the level of the statutory minimum monthly wage instead of the actual wage. Underreporting of wages resulted in widening pension fund deficits. MIITs were set by sectors and job categories at levels supposedly closer to the actual wage levels. In result the economy average MIITs exceeded the minimum wage by 46.4 percent (table 6). The differential has shrunk since the introduction, but this reflects unprecedented 25 percent increase in the minimum wage in 2005, rather than keeping taxes low. In practice they operate as a lump sum minimum presumptive tax on labor expenses. Actual wages, in the range between the minimum monthly wage and the minimum insurance income threshold are taxed at regressive average tax rates above the statutory SIC rates of 42.7 percent. Large wage disparities between the micro business sector and the rest of the business economy indicate that micro business ventures are most likely to encounter these excessive tax rates. Moreover, even though large enterprises may have large share of low paid workers too, they have better opportunities to spread these excessive costs on the whole labor force, including through underreporting higher wages. Therefore rising MIITs together with rising minimum wage requirements provide strong incentives to the micro business to employ unregistered or part time labor (Konstantin P, 2005).

The facts have shown that the the MIITs has significant impact on small business compliance. In specific, the MIITs provide opportunity for the administration to raise effective rates, which has been actively employed in the first two years. Rising minimum wage requirements together with rising MIITs provide strong incentive to employers either

not to register labor, or to use full-time employees as “part-timers”. Moreover, annual upward adjustments create expectations of growing labor costs for low-paid workers.

However, this design is susceptible to ever-lasting adjustments and growing complexity. In 2003 the new system was launched with 48 groups of activities, and 9 qualification or job levels. By 2005 it expanded to more than 600 rates. Besides, the effect of the MIITs in regard to compliance at the higher wage/income levels is far from certain. Practically it addresses only evasion at the lowest wage levels. As for the higher wage levels it may even create perverse incentive to increase underreporting if the MIITs are perceived by employers as the safe lower limit of underreporting of wages. There is also strategic incentive to underreport wages, as MIITs are set on the basis of reported insurance incomes in the previous year. The MIITs was also largely interpreted by small entrepreneurs as an attempt by the administration to collect from employers who pay minimum wages, what it fails to collect from larger tax evaders and debtors (Konstantin P, 2005).

*In summary*, the common feature of these presumptive taxes and methods of defining the tax base is that all of them seem to be more or less a policy response to enforcement failures rather than an instrument for raising voluntary compliance of small entrepreneurs. The elements of imputed taxation in the corporate income tax do not target the small business at all. The MIITs are applied to all employers irrespective of their size, but place at a disadvantage the smaller ones. The patent tax is targeted at the small business, but its effect in terms of revenue efficiency through reduced compliance and enforcement costs is far from certain.

#### **4. Discussion and Conclusion**

In conclusion, from the perspective of tax administration, there are some ways to improve tax compliance of taxpayers, which have been implemented in such countries as the United States, the United Kingdom, and Bulgaria. As analyzed, the United States is more concerned about adjusting tax services and tax policy to encourage taxpayers' compliance, especially supporting taxpayers with disabilities or low-income. With another approach in administering tax, UK has focused on solutions to restrict tax avoidance, evasion, and other forms of non-compliance while Bulgaria applies the presumptive taxation as an administrative tool to improve tax compliance. These are all good experiences for Vietnam to improve the tax system and thus, increase taxpayers' compliance. The paper finally comes up with some proposals which are expected to contribute to tax compliance improvement in the recent context of Vietnam as below:

##### ***A proper tax compliance framework***

It is necessary to develop a tax compliance model. This model reflects the different conditions of taxpayers economically, psychologically and socially, compliance from both sides, is not simply the duty of the taxpayer and this is also multiplication. The model needs to clearly determine tax rates and tax schedules for taxpayers as well as family allowances. In parallel, the government should issue more programs to help taxpayers who are low-income, elderly or with disabilities.

### ***A proper tax compliance framework***

It is necessary to develop a tax compliance model. This model reflects the different conditions of taxpayers economically, psychologically and socially, compliance from both sides, is not simply the duty of the taxpayer and this is also multiplication. The model needs to clearly determine tax rates and tax schedules for taxpayers as well as family allowances. In parallel, the government should issue more programs to help taxpayers who are low-income, elderly or with disabilities.

### ***Presumptive tax***

A presumptive tax is believed to be a central instrument of reducing the compliance and enforcement costs of taxing the hard-to-tax but it can hardly be a perfect substitute of the standard tax schedule, especially if it is overloaded with equity objectives. It should be regarded rather as a complementary instrument that can help the tax administration in transition countries in the short and medium run to handle the challenges of the shadow economy and the large hard-to-tax sector. As a complimentary instrument its best place is in the system of local taxes. Therefore if it is to be used as a central tax, it may be best to apply it as a tax on gross receipts.

### ***Taxpayer education and taxpayer service***

The importance of taxes for the functioning of the state is not always apparent to the taxpayer. Similarly, individual tax liabilities as well as requirements to comply with the tax system such as filling out different tax forms might be unknown or difficult to understand. By means of taxpayer education and taxpayer service, citizens can be informed and educated about the tax system and be assisted in their attempts to comply with the tax system.

### ***Endeavours to strengthen national tax law enforcement***

The liberalization of goods and financial markets and the increased international mobility of capital flows pose a new challenge for countries on the field of taxation. In contrast to purely domestic tax issues, international modes of tax evasion and avoidance can hardly be solved unilaterally by a single country. Given the low levels of revenues in many developing countries, the revenue shortfall due to tax evasion and avoidance at the international level causes severe problems to fund essential programs. Hence, there is a necessity to solve the problem on an international, regional and bilateral level. The transnational nature of these challenges commands actions to be taken at the international level through enhanced exchange and cooperation among countries to promote transparency of MNEs' activities.

Moreover, to strengthen regional and international cooperation in tax matters, countries can participate in international networks, forums, organizations, etc. The establishment of and participation in such networks are key to pool information and to facilitate the exchange of best practice approaches and lessons learned. Likewise, regional fora are important as they contribute to exchange of best practices between developed and developing countries.

Vietnam is entering international economic integration with the participation of international organizations, regional economic communities, and free trade agreements. The development of a shared economy is based on the application of technology to reduce waste in consumption, towards the community, and to use resources effectively. The sharing economy also provides more open access to all of the assets and other idle resources they do not own. When participating in this "playground", the state management agencies in general and the tax administration agencies in particular as well as businesses need to change their minds in the management and law enforcement in the direction of modernization and multiplication, flexible and transparent to build trust with potential.

## 5. References

1. Bipartisan Policy Center (2019), *Tax administration: Compliance, Complexity, and Capacity*.
2. Clement OO, Abiodun RA, Abiola PA (2017), *Tax Information, Administration and Knowledge on Tax Payers' Compliance of Block Moulding Firms in Ekiti State*, Journal of Finance and Accounting, 5(4): 131-138.
3. Das-Gupta, A., Ghosh, S., & Mookherjee, D. (2004). *Tax Administration Reform and Taxpayer Compliance in India*, International Tax and Public Finance, 11(5), 575-600.
4. HM Revenue & Customs (2019), *Tackling tax avoidance, evasion, and other forms of non-compliance*.
5. Konstantin P (2005), *Tax Compliance of Small Business in Transition Economies: Lessons from Bulgaria*, Andrew Young School of Policy Studies, Georgia State University.
6. Lidija H, Mirjana H, Romana KV (2014), *Improving tax administration's services as a factor of tax compliance: the case of tax audit*, Lex localis - Journal of Local Self-Government, Vol 12 No 3.
7. Mansfield, C. Y. (1988). *Tax Administration in Developing Countries: An Economic Perspective*, Staff Papers - International Monetary Fund, 35(1), 181.
8. OECD (2004), *Compliance Risk Management: Managing and Improving Tax Compliance*.
9. Richard MB (nd), *Improving Tax Administration in Developing Countries*, Journal of Tax Administration Vol.1:1.
10. WHO (nd), *Tax administration*, <[https://www.who.int/tobacco/publications/en\\_tfi\\_tob\\_tax\\_chapter3.pdf?ua=1](https://www.who.int/tobacco/publications/en_tfi_tob_tax_chapter3.pdf?ua=1)>.

# **SUSTAINABLE DEVELOPMENT OF BOND MARKET TO CREATE CONDITIONS FOR SOCIO-ECONOMIC STABLE DEVELOPMENT IN VIETNAM**

*Dr. Tran The Sao*

*sao.tt@ou.edu.vn*

*Department of Finance and Accounting, Ho Chi Minh City Open University*

## **Abstract**

*In an open economy increasingly integrating deeply into the world economic community like Vietnam today, if the bond market develops sustainably, safely and effectively, it will create favorable conditions for development. develop socio-economic stability. The paper focuses on analyzing the current situation of Vietnam bond market, clarifying risks for the development of uncontrolled corporate bond market and risks for commercial banks investing in bonds. votes, find the causes and recommend some relevant solutions.*

**Key words:** *sustainable development, bond market, stable development, socio-economic*

## **1. Introduction**

The bond market is a part of the financial market, this is the medium and long-term capital mobilization channel of the Government, financial institutions and businesses. In line with the general trend of the international financial market, in the current period of intensive economic integration, Vietnam's bond market is continuing to grow, including government bonds and bonds. enterprise. However, the hot development of Vietnam bond market recently is also forecasting some risks, necessary solutions are needed to sustainably develop this market.

## **2. Method**

Article implementing qualitative research methods, based on data and documents with specific evidence taking place in 2019 of Saigon Securities Company (SSI), Hanoi Securities Trading Center, Commission securities, the Ministry of Finance, of a number of other agencies and organizations, the author synthesizes, analyzes, compares, evaluates, draws comments and recommends solutions according to the goals of the article.

## **3. Results**

### ***3.1. Overview of the current status of development of Vietnam's bond market***

There are quite a number of reports and statistical results of different organizations and functional agencies on the current situation of the scale of Vietnam bond market development. According to data of the Hanoi Securities Trading Center (HNX), in 2019, the State Treasury mobilized 229,418.5 billion dong of Government bonds through bidding at

HNX, reaching over 90% of the next plan. Issuing plan in 2019, buyers are mainly commercial banks (commercial banks). By the end of 2019, the total volume of Government bonds reached over VND 230,000 billion, the largest scale ever. Also by the end of 2019, the size of Vietnam's bond market has 509 bond codes listed on the domestic stock market, with a listing value of VND 1,162,000 billion, up 3.7% compared to the end. 2018.

In the first 2 months of 2020, up to February 28, 2020, the State Treasury held 26 bidding sessions, with the total winning volume of over VND 16,000 billion, only 24, 25 and 26 sessions with The total winning volume was the highest, reaching VND 4,821 billion, with interest rates gradually decreasing, from 2.71% - 3.55% / year depending on bond tenors. The ratio higher than the winning result of the slab from 19-22 was VND 4,610 billion and VND 3,200 billion of the sessions 15-18.

The total amount of corporate bonds issued in the first 2 months of 2020 is VND 19,398 billion with an average term of 4.75 years, the average interest rate is 10.07% / year. In particular, real estate businesses issued VND 11,639 billion, accounting for 60%. Other groups of businesses issued VND 6,001 billion (accounting for 31%), including Sovico issued VND 2,000 billion, Truong Hai automobile JSC issued VND 2,000 billion, Vinfast issued VND 950 billion ... Meanwhile, only 2 commercial banks issued issuing bonds, which is ACB: VND 230 billion, with term of 10 years; TPB issued VND 552 billion, with a term of 7 years, all bonds are eligible to be included in tier 2 capital of commercial banks as prescribed by the State Bank.

### ***3.2. Specific results of the bond market***

Previously, in 2018, HNX held 189 bidding for Government bonds with a total value of VND 292,150 billion, winning value of VND 165,797 billion, equal to 57% of the bidding value and reached 95% of the offering value. Expected issuance in 2018. The listed value of bonds (including government bonds, government guaranteed bonds, local government bonds) in 2018 reached about VND 1,122,000 billion, up 10.5% compared to 2017, reaching 22, 4% of GDP in 2017 and equivalent to 20.3% of GDP of 2018. Bond transactions were relatively active with an average value of VND 8,834 billion / session. The total value of Government bond transactions in 2018 reached more than VND 711,000 billion, of which repo (repurchase) transactions were more than VND 387,300 billion, accounting for 54.5% of the total transaction value. Especially, in 2019, the winning interest rates of Government bonds for all terms tend to decrease slightly between months.

Generally, by the end of 2019, the winning interest rates of all 3 bond periods will reduce by 1.2% - 1.5% / year on average and 1.4% / year on average compared to the winning bond interest rates. In 2018, quite a large interest expense has been saved for the state budget.

The VND / USD exchange rate was stable, at the end of 2019, it decreased by 0.5% compared to 2018, while in 2018, it increased by only 1%, while Vietnam's Government bond interest rates remained high, calculated on average. Military investment in Vietnam's government bonds still have interest rates difference of 3-4%, becoming attractive to foreign investors. On the secondary Government bond market, foreign investors net bought a total



of more than VND 13,900 billion (calculated from Outright transactions) in the first 11 months of 2019. In the first half of December 2019, foreign investors continued net buying. VND 1,200 billion of bonds, of which the session of December 12, 2019 was net buying of over VND 1,988 billion.

Although Vietnam's Government Bond yields have been on a downward trend in recent years, the current 10-year tenor in 2019 is currently at 3.45%, but compared to other countries. is still significantly higher, so Vietnam can attract cash flow is understandable. Specifically, considering the 10-year standard term, Vietnamese Government Bonds are 376 basis points (bps) higher than German government bonds, 348 bps higher than Japan, 346 bps higher than France. , 306 bps compared to Spain, 267 bps compared to the UK (100 bps corresponds to 1%).

In a broader view, in the period of 2009 - 2019, the Government bond issuance channel has raised VND 1.96 million billion to the State Budget, an average of VND 175,000 billion / year; Government-guaranteed Government guaranteed bonds are VND 385,151 billion, an average of VND 35,014 billion / year; The channel of local government bonds raised VND 36,924 billion, an average of VND 4,615 billion / year. In recent years, the bond capital mobilization channel accounted for 75% - 80% of the total volume of public bonds issued annually.

In 2019, with the goal of restructuring the public debt portfolio in the direction of dual-term loan term of the state budget, strengthening the sustainability of the debt portfolio, the State Treasury focuses on issuing 5-year government bonds. and above, especially Government Bonds with terms of 10 years and over, accounting for 92% of the capital mobilization volume via bond issuance.

Along with Government bonds, in 2019 the corporate bond issuance scale also reached the highest volume in history. In 2019, the total value of corporate bonds issued was VND 280,141 billion, an increase of 25% compared to 2018. As a result, the size of the bond market increased sharply from 9.01% of GDP to 11.3 % in 2019, with total outstanding bonds totaling approximately VND 670,000 billion.

In 2019, a total of 211 businesses offered bonds to the public, there were 129 unlisted businesses. The quality of information and responsibility for information disclosure are therefore relatively limited. An example of transparency is the first time that interest rates are very high compared to the general interest rate level of the capital market, up to 20% per year, issued by Hong Hoang Trading Investment Company in the middle of November 2019.

In particular, real estate businesses are the largest issuers with total issuance, accounting for 41%, followed by commercial banks, accounting for 38%. The next position is, the rest are infrastructure development companies, securities companies and other businesses. The interest rate for issuing corporate bonds in 2019 is higher than the winning interest rate for issuing government bonds and has different interest rates among types of businesses. In particular, the highest interest rate for bond issuance of real estate and infrastructure businesses, banking and financial institutions has the lowest interest rate.

The bond market is a part of the financial market, this is the medium and long-term capital mobilization channel of the Government, financial institutions and businesses. In line with the general trend of the international financial market, in the current period of intensive economic integration, Vietnam's bond market is continuing to grow, especially since the beginning of 2019, despite the risks of the effects of the US-China trade war, Japan - Korea and some other regions of the world. However, the hot development of Vietnam bond market recently is also forecasting some risks, necessary solutions are needed to sustainably develop this market.

Contrary to corporate bonds, government bonds (VGBs) account for a large proportion of Vietnam's bond market today, up to 88.7% of the total scale. The main reason is the risk, when considering to decide to invest in a debt securities, it is easy to recognize that corporate bonds have a much greater risk. This level of risk depends on the issuer's ability to repay the debt. While government bond issuers are Government, which is considered almost insolvent, corporate default is not uncommon.

In fact, during periods of increased state budget overspending, the Government had to issue more bonds to finance the deficit and to repay past-due bonds. This is similar to the business when the state of accumulated losses increases, unable to repay the issued bond debt, it is necessary to issue a new amount of bonds to reverse debts and finance those losses. However, government bonds are still the favored item in many cases of increased budget overspending, while corporate bonds tend to get worse in the eyes of investors if the business is at a loss.

One of the important factors that investors can assess the risk level is the issuer's credit rating. While the Government is rated by reputable credit rating companies in the world (such as S&P, Fitch Ratings), most Vietnamese enterprises do not have ratings from these organizations.

If the Government issues 5-year, 10-year or even 30-year bonds very easily with high market demand, it will be difficult for enterprises to issue such long-term bonds. Investors are afraid to buy corporate bonds largely due to the high financial risk of the business and its associated lack of assessments and ratings on the solvency of the enterprise.

Up to now, about 90% of corporate bonds were issued privately and only 10% listed at the exchange made the information on the corporate bond market not much, affecting the transparency of information and increasing risks in the world. invest. Because there is too little information for investors to analyze and assess risks, corporate bond liquidity in the market is much less.

Currently, bond investors in Vietnam are mainly financial institutions, typically banks, because these are organizations with large capital and capable of assessing and valuing bonds, especially The types of corporate bonds have very little information to identify. However, while government bonds are considered as a highly liquid asset, only behind cash in cash (cash invault) and cash and cash equivalents (Cash & Cash equivalents), and not limited in holding volume, then corporate bond is calculated as a credit and is limited

by the credit ceiling assigned by the SBV to each commercial bank. This significantly limits the demand for corporate bond investment.

The organizations that buy corporate bonds are mostly banks, management companies, professional investment funds, are groups of organizations with large capital, willing to accept risks from buying bonds, while the Public investors are still limited, although this is a huge investment resource.

Regarding the size of capital markets compared to GDP, in the years 2008-2019, bank credit capital was still the largest, up to 130.3% - 138.4% of GDP; followed by the capital to issue shares of enterprises, up to 71.9% - 74.8% of GDP.

The size of the bond market in Vietnam, including corporate bonds and government bonds, is only 36.3% of GDP in 2018, only 38.2% of GDP in 2019 and needs further development.

Bond interest rates are also quite high, from 14.5% to 17% - 20% / year, showing that businesses need capital immediately and cannot take medium and long-term loans from banks. However, the Ministry of Finance should warn to not break interest rates and speculation restrictions.

### ***3.3. Purpose of issuing commercial bank bonds***

In 2019, commercial banks are still the largest corporate bond issuer on the market, offering a total of 117,130 billion bonds and successfully issuing 115,022 billion VND, corresponding to a success rate of 98.2 billion VND. %. The average tenor is 4.1 years and the average interest rate is 7.04% / year, this is the group with the lowest bond interest rates in the market.

In 2019, there were 11 out of 19 banks issuing bonds with a maturity of over 5 years, most of which were BIDV; Vietinbank; Seabank; Lienvietpostbank. The interest rate of long term bonds was much higher, at 7.5-8.5% / year. BIDV issued the most with a total of VND 18,371 billion of bonds issued with terms of 6-15 years, of which 45.7% were 6-year bonds with attached commitment to repurchase after 1 year of circulation. . Vietinbank also issued VND 5,500 billion of bonds with terms of 7-15 years, mainly in the form of issuing to the public.

Commercial banks buy bonds as an investment channel with high interest rates, stable interest rates, low costs and low risks. As for businesses, besides mobilizing medium and long-term capital to invest in projects, there are some cases that are to restructure loans, roll over debts, pay debts that are due. , can conceal the string of debts at some commercial banks.

Compared to lending, the purchase of corporate bonds will help commercial banks be more flexible because commercial banks can sell part of these bonds to organizations, investment funds and individual customers when they need to adjust items. assets on the balance sheet (CDKT). However, some commercial banks may use corporate bond instruments, through complex financial transactions to restructure the issuer's debt or other purposes.

In 2019, bonds issued only had an average interest rate of 6.72% / year, which is equivalent to the interest rate of deposits of large commercial banks. This is the group of commercial banks with the lowest deposit interest rates. Thus, the interest rate of bonds issued by commercial banks is almost unattractive to ordinary investors. In addition, the main buyers of bonds are securities companies, so it is possible that commercial banks have cross-owned each other's bonds. This move stems from two reasons: pressure of raising Tier 2 capital of commercial banks to have room for credit growth, to meet Basel II and the need to meet the roadmap to gradually reduce the ratio of short-term capital for medium and long-term loans. in accordance with SBV regulations. The regulations of the State Bank on tightening the ratio of short-term capital to medium and long-term loans are the pressure that commercial banks must change the capital structure, in the direction of increasing medium and long-term capital.

Commercial banks carry out the guarantee operation in the form of committing to buy all corporate bonds issued if customers do not buy up. For example, if an enterprise issues USD 100 million and only sells USD 80 million, then commercial banks will commit to buy back the remaining USD 20 million, this may also be a cause for the value of debt securities of an The number of commercial banks has increased in recent years. Guarantee operation will affect the value of bond investment of commercial banks but in this situation, this situation is also less common.

#### ***3.4. Warning of risks of investment in bonds to commercial banks***

In 2019, the whole Vietnamese economy has 44 out of 108 large real estate businesses that have issued corporate bonds. If the average interest rate of commercial group bonds is only 6.5% / year, the real estate group will reach 10.24% / year. This interest rate is considered to be much more attractive than savings. Loans from commercial banks have medium and long-term interest rates at 11-13% per year but must follow strict regulations and procedures, must go through very rigorous dossier appraisal, have collaterals and secure transaction registration, through the full Credit Information Center (CIC), then be subject to supervision on disbursement and use. loans,... while corporate bond issuers are not subject to these constraints. Therefore, many businesses have stepped up issuing bonds with high interest rates, especially enterprises in the field of real estate.

In addition, there are signs that businesses issue more bonds to reverse bank debt. In fact, there are many corporate bonds issued, which are bought by commercial banks. Many businesses have commercial bank debt coming due, but there is no source of debt repayment, there is a risk of overdue debt and bad debt. Solving this problem, only issuing corporate bonds and "persuading" commercial banks creditors to buy their bonds. As such, both parties will benefit. Businesses will have money to pay bank loans on time, while commercial banks also "beautify" the balance sheet and do not suffer from rising bad debts. This is why businesses step up bond issuance. In the whole year of 2019, the corporate bond market was about VND 260,000 billion, up 7% compared to 2018.

In recent years, the balance of bond investment in the field of construction and real estate is large at some commercial banks when the real estate market has not recovered

firmly, production and business activities of enterprises are still large. Difficult is one of the risks for commercial banks. Some commercial banks have a large proportion of corporate bond investment in a large proportion of total assets and continue to grow rapidly, investment in bonds for other purposes is high and volatile and difficult to control. There are not even many cases of continuing to invest in bonds with the purpose of restructuring the business debt as analyzed above. Bond investment activities of many commercial banks implicit lack of transparency and investment value may be too much at the enterprise.

Commercial banks buying corporate bonds to roll over debt is not a new way, because this helps businesses extend the repayment period, banks also avoid increasing bad debts. However, this is only a technical solution, applied when some businesses have temporary difficulties in cash flow. The fact also shows that the debt reversal by "way" of bond investment will make the quality of debt recorded in the financial statements not classified correctly. In 2018, the SBV issued Circular 15/2018 / TT-NHNN to prevent this situation. However, recently, this situation is hot again with the wave of investment in corporate bonds of commercial banks.

Although the SBV is tightening real estate credit to protect commercial banks themselves, with the way of investing in bonds, some commercial banks have broken their own safety belts and easily injected money to real estate projects. with a much simpler procedure, without being afraid of being stuck with debt regulation. In the immediate future, the "spleen" of credit and debt rollover can help commercial banks increase profits, hide bad debts, help businesses out of credit limit or until the debt repayment period has not been able to turn over the money that can be temporarily used. But in the long run, this solution will cause bad debt to pay off bad debt.

With the real estate market, raising capital via bonds is too easy and loose control, leading to high capital leverage. In the context of the unstable real estate market, plus big financial leverage, if this market falls into recession, then obviously, real estate businesses will lose their ability to pay debts and go bankrupt.

Developing the corporate bond market to diversify capital access channels and reduce dependence on credit is a positive direction, but this market will only grow healthily if there are many individual investors involved. Once the market is still mainly concentrated via the current banking channel, and commercial banks only prioritize the investment in bonds of familiar businesses, real estate businesses, the system is potentially unsettled, signs of credit disguise. Both businesses and commercial banks will be at risk.

#### **4. Discussion and Conclusion**

It is forecasted that in 2020 and in the coming time in general, Vietnam's bond market will continue to grow to a new scale. In 2020, the total volume of Government bonds will increase by 10 - 12% compared to 2019; The total volume of corporate bond issuance will also increase by 15- 18% compared to the previous year; Government bond interest rate will decrease slightly. The corporate bond issuance interest rate will be stable as in 2019. The Government and relevant ministries will implement many measures to develop stable and

sustainable bond markets, limiting risks to the economy. and investors. Accordingly, a number of orientations are forecast to be implemented

Firstly, functional agencies need to enhance the quality of inspection and supervision of market activities, ensuring compliance with bond investment and credit activities. Strengthening inspection quality, improving the quality and morality of officials in charge of inspection and control of commercial banks are essential, ensuring compliance with bond investment and credit activities. The application is taken seriously.

Secondly, the relevant sectors need to continue developing infrastructure of the corporate bond market, including possible research and establishment of corporate information collection organizations, daily corporate transaction statistics to be transparent. market chemistry. There will be regulations on centralized depository of corporate bonds on the trading floor to be able to better collect information about the business situation, as well as the size of daily corporate bond transactions. This means transforming the decentralization of most corporate bonds into centralized and managed by state agencies. This will help investors easily track daily trading needs, increase the professionalism of the market.

In addition, the authorities need to study can set the standards of financial reporting and periodic information disclosure, typically using the reporting standards according to IFRS, which have been developed by many countries. The world applies. At the same time, researching and developing reputable credit rating agencies to give bond evaluation objectively, according to international practices. The application of reports according to international standards also helps improve the credit rating of the business. Vietnamese authorities continue to promote and accelerate corporate credit rating and international credit rating in Vietnam so that investors can distinguish the credit rating of businesses.

Thirdly, in operating financial policies, the Ministry of Finance and relevant ministries continue to need to closely forecast and assess the situation of corporate bond issuance debt increasing greatly in total national debt / GDP. to take proactive measures to prevent and limit risks to the economy. The Ministry of Finance needs to revise the current regulations on corporate bond issuance, need to tighten and ensure the safety of the bond market.

Fourthly, the relevant ministries and agencies should continue to promote the development of secondary corporate bond transactions, creating a mechanism for the bonds to be wholesale and retail for institutional and individual customers. more broadly, that could create a truly vibrant secondary market. When there is a sufficient number of investors for corporate bonds, the control, transparency requirements, liquidity requirements will increase and create a real bond market. The transparency of information and prices also makes transactions easier.

Fifthly, the concerned ministries and agencies need to continue studying to diversify the structure of corporate bond investors. Thus, the investor structure will automatically be expanded and the corporate bond will be a potential investment channel of the residential area. In fact, bond investors are the financial institutions that have occupied the largest position of the corporate bond market in recent years.

Because not only are the main buyers of corporate bonds, financial institutions also become the key agents to sell corporate bonds to other retail investors. Therefore, selling bonds through financial institutions is an effective short-term solution to expand corporate bond investors. Enterprises will actively cooperate with financial institutions, especially banks, as an intermediary to sell bonds in the primary market. This is a measure that not only supports the development of the corporate bond market but also It also helps disperse the amount of corporate bonds that exist on the balance sheets of commercial banks to other retail investors, minimizing the risk of credit concentration in the financial intermediation system.

Sixthly, the State Bank has issued a document requiring commercial banks to review and strengthen measures to control corporate bond investment activities because of potential risks. The warnings that the SBV is very necessary, but from another perspective, the changes of the bond investment market have shown that the demand for loans and real estate loans of banks and businesses is very large. Therefore, regulators should not immediately tighten corporate bond channels, because that decision could put many real estate businesses at risk and collapse.

In the immediate future, the responsibility of regulatory agencies is to straighten the market in the right direction, create a safe legal corridor for businesses and commercial banks to operate, and impose strict sanctions on commercial banks that deliberately bypass the law. buying bonds to reverse debt in contravention of regulations.

Seventhly, the trend of bond market in the coming time, investment in bonds will continue to grow, commercial banks will also continue to promote this channel to attract long-term capital in the context of the SBV increasingly tightening the capital ratio. short-term medium and long-term loans of the Bank. With the legal corridor that is Decree 163, the Law on Securities, the Law on Enterprises, the Law on Credit Institutions, ... it is necessary to urgently deploy credit ratings for businesses that want to issue bonds to the public and clearly define the required threshold so that investors can participate in the private placement. Vietnamese authorities need to promote and accelerate corporate credit rating and international credit rating in Vietnam, so that investors can distinguish the creditworthiness of enterprise. Besides, commercial banks themselves need to be conscious of actively preventing risks of investing in bonds. Commercial banks, when buying bonds, need to analyze the financial situation, debts, business development capabilities as well as asset quality of enterprises. Commercial banks basically operate basically no difference between normal credit lending and corporate bond investment. If commercial banks skip credit analysis and asset quality, the risk will be more.

## **5. Reference**

1. SSI Securities Company Report - December 2019
2. Financial statements for the end of 2018 and for the fourth quarter of 2019 of selected commercial banks
3. State Securities Commission, available at [www.ssc.gov.vn](http://www.ssc.gov.vn)
4. Hanoi Stock Exchange - HNX and Ho Chi Minh City Stock Exchange (HOSE).

# **GROWTH MODEL OF RISING INCOME (ROMO MODEL) AND ECONOMIC POLICY ORIENTATION IN VIETNAM**

*Dr. Le Ngoc Thong*

*thongleh@yahoo.com*

*Dr. Nguyen Thi Hao*

*haonguyen1841976@gmail.com*

*Department of Political Theory, National Economics University, Hanoi, Vietnam*

## **Abstract**

*The article has used appropriate research methods, in a combination of many factors: document research, field surveys, predictions, ... Thereby, the authors carefully study the content of Romo theory - A theory with many contributions that can be applied in economic policy making in Vietnam in terms of international integration. Since then, the article has concluded, showing some orientations for applying Romo theory in Vietnam's economic policy making: (1) developing a comprehensive knowledge development policy (including common knowledge and professionalized knowledge); (2) formulating and implementing science development policies, truly considering scientific research as a social production industry for adequate investment; (3) formulating and implementing foreign policy, implementing international integration on the basis of determining national strengths that contribute to world resources and planning to prepare conditions to compensate for the use of use world resources satisfactorily, effectively, and in accordance with international law.*

**Keywords:** *Romo theory; policy making; Government; Knowledge; Human capital*

## **1. Introduction**

The formation and development of theories of growth and economic development have now gone through 4 stages. Thereby, researches and demonstrates the movement trend of the factors in the economy: (1) Capital accumulation is increasingly effective; (2) Techniques for increasing role; (3) Human capital increasingly plays a role gradually penetrating, dissolving into other factors; (4) For growth, it is necessary to emphasize knowledge and accumulate professionalized human capital

The theory of the above trend has become the main stream in the theory of economic growth<sup>1</sup>. Since then, it has formed the stages in the development of economic theory in this period from the Capital Accumulation Theory to Technocratic Theory through the Human Capitalist Theory and the New Growth Theory. In particular, under the current conditions of Vietnam, the study of New Growth Theory is of great significance in terms of both scientific academic and practical economic policy formulation.



## 2. Methods

This article uses a combination of methods: document research, field surveys, ... According to the process: From the content of Moro theory, it is compared with the current situation and movement requirements of the Vietnamese economy to show the theoretical applications in policy making. This is reflected in the following research model:

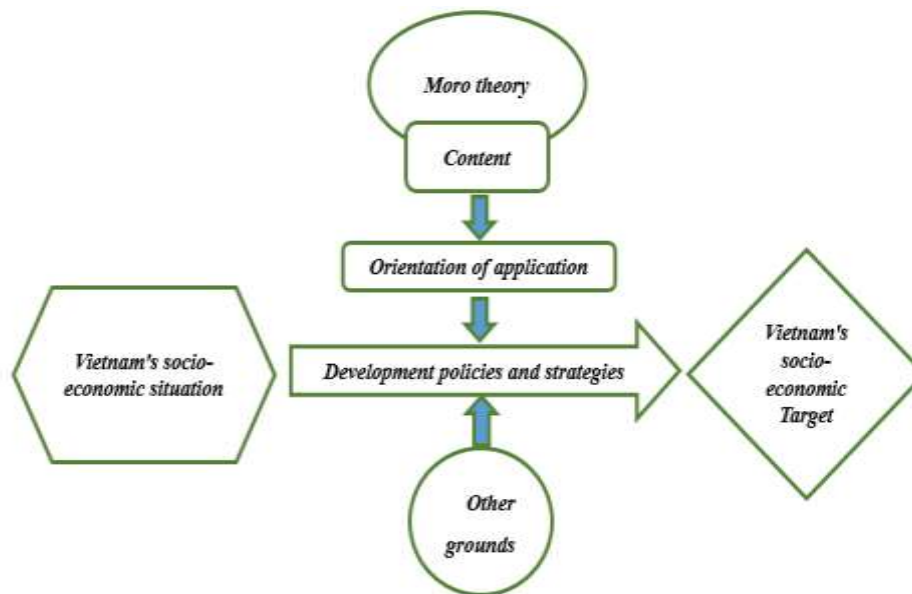


Figure 1. Research model <sup>1</sup>

## 3. Results

### 3.1. "New growth" model - Moro model

#### 3.1.1. Overview of Moro model

The above model is also called the "New growth" model in the "New growth" theory. The theory of "New growth" was made by two economists Romo Ruca (American) and Scost (British). The two men used a new research method: combining mathematicalization with microchemistry to explain modern economic growth in the context of the current internationalized economy. This theory is prevailing in Western countries as well as many other countries of interest, with the main content:

- Incorporate the element of Knowledge and Human Capital into the model of economic growth, concretize technical progress into professionalized knowledge, and expressed in the specific skills of labor force, thereby clearly see the role of science and technology, knowledge for economic growth

- Affirming knowledge of professionalism and accumulation of human capital makes income increase

- While emphasizing technical progress as the decisive factor for economic growth, while simultaneously analyzing the causal relationship of capital investment and technical

<sup>1</sup> Source: Self-authored

progress, articulating the importance of capital accumulation for promoting technical progress and economic growth

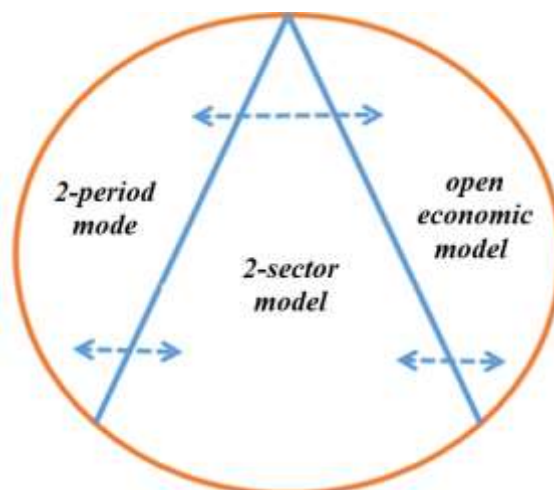
- Developing international trade and international currencies as the driving force of economic growth; emphasizing the impact of international trade on world knowledge accumulation and promoting economic growth.

- Modern economic growth is mainly driven by knowledge and human capital.

A country with a high rate of accumulation of human capital and knowledge has a high level of income and economic growth and vice versa. So, in a capital-rich country, the rate of return is not on a downward trend but is stable or increasing. Therefore, attract foreign capital, so there is a backflow of international capital <sup>2</sup>

### 3.1.2. Concretize the content of Moro model

The structure of Moro model consists of 3 components: 2-period model, 2-sector model, open economic model, according to the following model:



**Figure 2. Structure of Moro model <sup>3</sup>**

#### 3.1.2.1. 2- period model

Accordingly, the accumulation of knowledge leads to increasing income:

$$Q_i = F (R_i K_{xi})$$

In which:

$Q_i$  is the manufacturer's production level

$F$  is the continuous differential production function of all manufacturers

$R_i$  is the professionalized knowledge that an enterprise produces a certain product

$K$  is the common knowledge that all enterprises can use, similar to the scale economic effect

$x$  is the sum of the increase in the input of production factors: labor, material capital of the manufacturer

<sup>2</sup> Tran Binh Trong (2003), Curriculum History of economic theory, Statistical Publishing House, Hanoi, pg 315 - 316

<sup>3</sup> Source: Self-authored

The two-period model, which introduces knowledge as a new factor affecting output, enters the growth model as an independent variable. At the same time, it also divides knowledge into common knowledge and professionalized knowledge. Given that common knowledge can generate "external economic effects", the whole society can buy economies of scale - the benefits of the whole society.

Professionalized knowledge can produce an "intrinsic economic effect" that brings monopoly profits to individual manufacturers - corporate interests. The formation of external economic effects and internal economic effects in production prove that knowledge accumulation is considered an independent factor in economic growth, seen from the process of producing a product, itself not only can generate incremental income but also can bring incremental income for social production.

### *3.1.3. 2 - sector model*

Here divides production into 2 sectors: Consumer products manufacturing sector; Research and exploitation - accumulation of knowledge

The production function of the two sectors is

$$Y = F (A, K_1, L_1, H_1)$$

$$A = (K_2, L_2, H_2)$$

$$K_1 + K_2 = K$$

In which

Y is the production level

L is the total amount of physical labor

H is the total amount of human capital that has been trained

A is technical progress; K is physical capital; Number of symbols 1, 2 represents 2 sectors

This model says, because knowledge accumulation instead of accumulating physical capital becomes the main source of economic growth. How much resources a research and mining industry will use to determine the low or high level of its economic growth rate and income level. Therefore, it is necessary to increase the rate of economic growth, to enter the input resources of the research and exploitation industry to raise the knowledge rate. At the same time, it also divides labor input into two forms: material labor or primitive labor and specialized capitalist human capital, given that only human capital can boost the economy

### *3.1.4. Open economic model*

Romo theory argues that the deployment of economic trade among countries can cause knowledge to accumulate rapidly around the world, thereby raising the overall production level of the world, this point is very significant for poor countries. For international trade, on the one hand, it is possible, through the introduction of technology, to raise the share of productive labor in poor countries. On the other hand, putting technology into savings saves research and exploitation costs of poor countries. Using capital savings in investment can promote the economic growth of poor countries compared to rich countries from two aspects of technical progress and capital investment. The knowledge effect produced by international trade makes it possible for poor countries to develop economically

and close the gap with developed countries in a short time. When analyzing the issue of international economic growth, Romo said that international economic growth within the world is "growth with different characteristics" and the high knowledge accumulation rates of developed countries make the proportion of income factors appear to increase gradually.

He said that the highest level of knowledge accumulation and the difference in the income factor ratio brought about by it is the main cause of the huge difference in the rate of economic growth and the income level of developed and underdeveloped countries<sup>4</sup>

The content of the Romo theory is expressed through the following model:

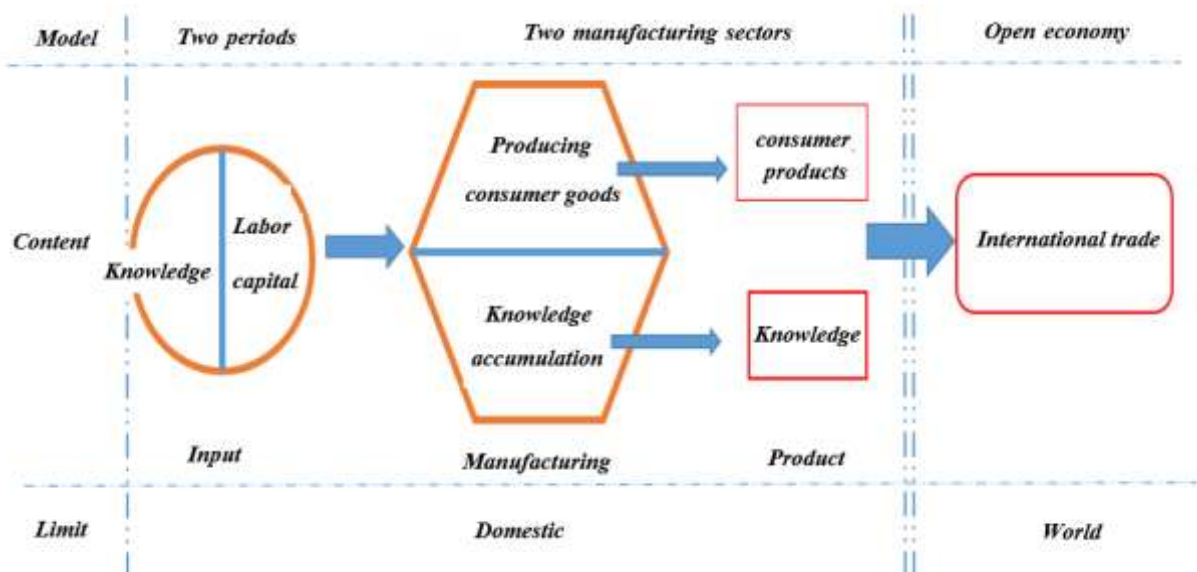


Figure 3. Moro model content <sup>5</sup>

### 3.2. Discussion - evaluation

Moro theory, though not yet comprehensive reflection on the general picture of the world economy in the new era, but showing many new contributions: (1) Affirming the role of two inputs of production: Knowledge and Human capital is specialized (Labor is trained with high quality). In particular, the theory has divided knowledge into two categories: common knowledge that benefits the whole society, professionalized knowledge that brings exclusive benefits to manufacturers. (2) New contributions on the mention of two social production sectors: consumer goods production and the research and exploitation industry. Here, it is really affirming that scientific research is a social production. From there, create more theoretical basis for activities prioritizing scientific research development. (3) Affirming the indispensable role in the era of international integration, firstly from international trade activities. In it, indicate the advantages of entities participating in international trade and the benefits they receive from that participation. A country with a

<sup>4</sup> Bach Khoa Knowledge Research Institute, (1998), Great Market Economic Dictionary, Tien Bo Printing Company, Hanoi 1998, pg 217, 218

<sup>5</sup> Source: Self-authored

high rate of accumulation of human capital and knowledge has a high level of income and economic growth and vice versa. For countries with abundant capital, profit margins do not tend to decrease, but are stable or increasing, thus attracting foreign capital, so there is a reverse of international capital.

With these contributions, Romo theory is really a precursor to the theory of Knowledge Economy.

### ***3.3. Policy orientation in Vietnam***

The content of Moro theory with many contributions can be applied creatively in policy making for each government, in which Vietnam can identify some meanings, effects from this theory theory, and apply in economic policy planning

#### *3.3.1. Current Vietnam conditions*

Vietnam is growing fast but is still low in East Asia. Without intensive reform and maintaining normal growth, the growth rate will decrease, only about 5.7% in the near future, which is lower than the target of 6.5-7.5%. In particular, there is a very clear bottleneck that Vietnam's economy is still lacking in capital but it cannot absorb domestic capital when the saving rate is high but the rate of capital invested is low. Credit grows fast but it is still difficult to borrow money. Business is still hindered ... The level of improvement in productivity over the past 20 years is still lower than that of the region and the world. On the other hand, with a middle income trap and high population aging rate, low investment and productivity growth,<sup>6</sup> .... In this situation, first of all, there must be an appropriate progressive policy system built on the grounds of high persuasion and reliability. For example, like economic theories, ...

#### *3.3.2. Orientation applied from Romo theory*

- Applying from the contribution (1) stated, in the implementation of the corporate social responsibility policy, production facilities: formulating a comprehensive knowledge development policy: both common knowledge and professionalized knowledge. That is related to the development of general education and professional education systems.

- Applying the contribution (2) stated, in developing and implementing science development policies, truly considering scientific research as a social production. From there, invest in the development of satisfactory researches on the labor force - scientists; financial investment - financial resources for scientific research; The government performs the role of state management in the research and exploitation industry. Firstly, it is the guarantee of the legal corridor for this activity. Here should click on the law on intellectual property rights; Orient and use the results of appropriate scientific research

- Applying the contribution (3) stated, in the formulation and implementation of foreign policy, implementation of international integration. First of all, affirmation:

---

<sup>6</sup> Linh Ly, (2019), Socio-economic development strategy 2021-2030: Golden opportunity of Vietnam; posted on <https://thoibaonganhang.vn/chien-luoc-phan-trien-kinh-te-xa-hoi-2021-2030-co-hoi-vang-cua-viet-nam-88967.html>, June 17. 2019

international integration is indispensable in countries in the present era. In this process, the policy requirements of each country need to identify national strengths that contribute to world resources. At the same time, to plan and prepare conditions to compensate for the efficient and efficient use of world resources and in accordance with international law.

#### **4. Discussion and Conclusion**

The study of Moro theory has brought many practical benefits, such as one of the theoretical foundations for the formulation and implementation of Vietnam's economic policy, in the context of international integration today. From how economic theory is applied in construction, policy making also depends on the specific conditions of the country and the consciousness of policy-making subjects..

#### **5. References**

1. Bach Khoa Knowledge Research Institute, (1998), *Great Market Economic Dictionary*, Tien Bo Printing Company, Hanoi 1998,
2. Linh Ly, (2019), *Socio-economic development strategy 2021-2030: Golden opportunity of Vietnam*; posted on <https://thoibaonganhang.vn/chien-luoc-phat-trien-kinh-te-xa-hoi-2021-2030-co-hoi-vang-cua-viet-nam-88967.html>, June 17. 2019
3. The Party Central Executive Committee Session IX (2006), *Report on the five-year socio-economic development directions 2006-2010*.
4. Tran Binh Trong (2003), *Curriculum History of economic theory*, Statistical Publishing House, Hanoi
5. World Bank Research Group, (2007), *"Importance of national governance VI: component indicators and summary of national governance 1996-2006"*. Research document No. 4280

# CONCLUSION AND APPROVAL OF EVFTA: OPPORTUNITIES AND CHALLENGES FOR VIETNAMESE ENTERPRISES

*Assoc.Prof. Dinh Thi Nga*

*nga79qlkt@yahoo.com.vn,*

*MA. Nguyen Thi Quynh Anh*

*quynhanh01121980@gmail.com,*

*Ho Chi Minh National Academy of Politics,*

*Institution of Economics, Hanoi, Vietnam*

## **Abstract**

*In the 21<sup>st</sup> century, new-generation FTAs (new-generation free trade agreements) have been formed with the strong development of globalization, which are not only goods exchange and investment promotion agreements like traditional FTAs but also "non-traditional" contents such as reforms to improve institutions, raising standards and conditions, working environment, even related to issues on democracy and human rights. As a subject of the global economy, Vietnam has always been proactive and active to participate in the international playgrounds, in order to promote extensive integration through the negotiation and conclusion of new-generation FTAs. In addition to the Comprehensive and Progressive Agreement for Trans-Pacific Partnership, EVFTA (EU-Vietnam Free Trade Agreement) is forecast to create an impetus for the transformation of Vietnam's economy. This research paper generalizes some contents of the EU-Vietnam free trade agreement, thereby it analyzes the opportunities and challenges for Vietnamese enterprises and at the same time, it offers some solution orientations for the enterprises in order to help the enterprises take advantage of opportunities and overcome challenges so that they may survive, develop and thrive in a new context.*

**Keywords:** *EVFTA, Vietnamese enterprises, opportunities, challenges*

## **1. Introduction**

After 25 years since the two parties established official diplomatic relations, the relationship between Vietnam and the European Union (EU) has been developing more and more comprehensively. From the framework cooperation agreement (FCA) in 1995, Vietnam and EU signed the Framework Agreement on Comprehensive Partnership and Cooperation (PCA) in 2012 and the most recent agreement is EVFTA. EVFTA Agreement is considered to be an important milestone creating a new breakthrough in relations between the two countries, having a comprehensive impact on all aspects and all subjects in the economy, including the enterprise sector.

In the context that Vietnam has signed open and integration agreements with high-demand markets such as EVFTA, the research shows that Vietnamese enterprises are difficult to survive and develop due to low competitiveness even if conditions of the

protection level are high. The data published by the Ministry of Planning and Investment in the "White Paper on Vietnamese Enterprises" also indicates that the weak status of Vietnamese enterprises' competitiveness is shown in some key points such as: Low labor productivity, small and medium enterprises accounting for more than 95% in the enterprise community, obsolete technology equipment level, lack of capital and being difficult to access capital credit sources. However, when EVFTA comes into effect, no matter Vietnamese enterprises want it or not, they must compete with enterprises from EU equally. In this context, recognizing the opportunities and challenges that EVFTA brings is one of the first important tasks when the agreement has just been signed, which helps the enterprises take the initiative in developing strategies and appropriate schedule to improve competitiveness, to survive and develop in the new context.

The research aims at generalizing the content of the free trade agreement affecting enterprises, thereby it analyzes the opportunities and challenges that the enterprises face in association with the content of EVFTA and suggests a number of orientations on solutions to help enterprises take advantage of opportunities and overcome challenges to survive and develop when EVFTA comes into effect.

The research answers three key questions: What content of the EVFTA agreement affects Vietnamese enterprises? What opportunities and challenges will Vietnamese enterprises face when EVFTA comes into effect? What are the solution orientations for Vietnamese enterprises to take advantage of opportunities and overcome challenges in the conditions of signing EVFTA?

- Overview of the research materials

The research works of Nguyen Dinh Cung and Tran Toan Thang (2017), European Commission (2017), indicate some key content of EVFTA including: tariff elimination; rules of origin; customs and trade facilitation; sanitary and phytosanitary measures (SPS) and technical barriers to Trade (TBT); services and investment; government procurement; intellectual property; competition and SOEs, labour and sustainable development).

According to Nguyen Thanh Cong's research works titled "The impact of the EU-Vietnam free trade agreement on Vietnam's economy", EU's report (2019) titled "EVFTA Report 2019", the EU-Vietnam free trade agreement: perspective from Vietnam generalizes the opportunities brought by EVFTA to the Vietnam's economy, including: (i) Vietnam has the advantage of becoming an attractive investment destination for EU enterprises, especially in industries related to high technology (ii) increase exports to the EU market (iii) promote sustainable economic development. Besides opportunities, these research works also show that when EVFTA comes into effect, some of the difficulties and challenges which Vietnam faces include weak competitiveness of enterprises, poor product quality.

In addition, the research works of Thuy Nguyen (2017), WTO Center and Integration (2019), analyze the opportunities and challenges of specific industries in the context of EVFTA such as textiles and garments, telecommunications, logistics. Accordingly, EVFTA



is both a challenge and a reasonable pressure for enterprises in these industries to reform and improve the competitive quality.

The research of Nguyen Thanh Cong (2017) proposes solutions to make the most use of the benefits to Vietnam's economy when Vietnam participates in EVFTA on the State side, including: proactively signing general recognition agreements and similar agreements in each case with EU; raising awareness of enterprises in dealing with non-tariff barriers; improving the business environment, protecting the legitimate interests of investors and continuing to complete the legal framework on labor, environment and intellectual property.

It can be seen that the above research works are only at the level of generalizing the opportunities and challenges which Vietnam's economy must face, they have not analyzed the opportunities and challenges of Vietnamese enterprises in association with the specific terms in EVFTA.

## **2. Method**

This study majorly employs qualitative research methods that use secondary data sources. By analyzing related data from Ministry of Industry and Trade of Vietnam and WTO Center and Integration, and previous research outcomes. A technique used to analyze the secondary data collected is content analysis that helps to figure out some key contents of EVFTA affecting Vietnamese enterprises. Through this content analysis, this study attempts to answer the three research questions and then provide a comprehensive picture about opportunities and challenges for Vietnamese enterprises when EVFTA agreement is concluded.

## **3. Results**

### ***3.1. Overview on the contents of the EU-Vietnam Free Trade Agreement (EVFTA)***

#### ***Reasons for concluding the agreement***

EU-Vietnam Free Trade Agreement is a new-generation FTA (new-generation free trade agreement) between Vietnam and 28 EU member countries that will be officially concluded on June 30, 2020, and will officially come to effect since August 01, 2020. According to the research, there are three main reasons why this agreement will be concluded:

Firstly, the signing of EVFTA is consistent with the general trend of the world. Research by the WTO Center and Integration, the Vietnam Chamber of Commerce and Industry (2017) suggests that new-generation FTAs are feasible solutions to promote the process of trade and investment liberalization in the context of which WTO's global trade negotiations come to a standstill. In modern international economic relations, the emergence and development of FTAs have contributed significantly to the growth of trade and global economy which helps to increase cohesion and quality of economies. The formation of FTAs is now an indispensable trend in the process of integration and development that countries cannot stand out. So far, most of the member countries of the World Trade Organization (WTO) have participated in at least one FTA. FTAs therefore become a trend that all countries would like to make use of and take advantage of them at this time (Le Dinh Tinh, 2020).

Secondly, Vietnam is the first developing country in the world to sign this agreement with EU and is the fourth country in Asia entering into this agreement (the second country in ASEAN) after Japan, South Korea and Singapore. This is a strategic option of EU in the context of which major countries are adjusting their priority strategies for the Indo-Pacific region, which is forecasted to be a active economic region and a central hub of economic connection and creates the growth motivation of the world. Vietnam is increasingly asserting its reputation in this region, thus Vietnam becomes a bridge to help EU access to the Indo-Pacific region.

Thirdly, EVFTA not only is an opportunity for Vietnam to reduce the risk of being overly dependent on one or a few markets, but also helps Vietnam towards institutional improvement and investment environment improvement and sustainable economic development. As a new-generation FTA, EVFTA contributes to raising the standard of trade liberalization which claims very high institutional requirements as well as production standards in connection with environment and sustainable development, therefore this playground is the driving force for Vietnam's further change, improvement and development.

#### *Some key contents of EVFTA affecting Vietnamese enterprises*

- Commitment on opening markets of goods between Vietnam and EU according to the schedule of eliminating tariffs within 10 years.

According to the research of Nguyen Dinh Cung (2014), the level of commitment on tariff elimination in accordance with EVFTA is much higher than that of Vietnam - Japan and Vietnam - Korea FTAs. Tariff reduction is an opportunity for Vietnamese enterprises to increase their price competitiveness in the EU market, thereby it creates conditions for the maximum opening of the goods market between Vietnam and EU.

- Commitment on creating an open investment environment, to be favorable for both sides' corporate activities

Accordingly, EU's commitment to Vietnam is higher than EU's commitment in WTO and is equivalent to the highest level of EU in recent FTAs (WTO Center and Integration, 2019). Favorable investment environment is one of the important criteria to attract investment from the enterprises, so this commitment of EU to Vietnam is an opportunity for Vietnamese enterprises to expand their goods market and investment market to a potential market like EU.

- Regulations on rules of origin, sanitary and phytosanitary measures (SPS); technical barriers in TBT trade; trade defence (TR)

The regulations on origin rules in EVFTA are higher than the requirements of other trade agreements that Vietnam has participated in such as ATIGA (ASEAN Trade in Goods Agreement) or WTO. Enterprises in the textile & garment and footwear industries are most affected by this commitment, due to the fact that these enterprises are heavily dependent on importing raw materials from some markets such as China, India, and ASEAN countries in which the localization rate is only from 40 to 45% (Ministry of Industry and Trade, Import - Export Report 2019). To enjoy the tax incentives, these enterprises must use cloth produced

domestically or imported from markets signing FTA with EU such as Korea, Japan and some ASEAN countries. If the conditions on the rule of origin are met, EVFTA is an opportunity for textile & garment and footwear enterprises to increase their price competitiveness with China - the number one trading partner on EU's textile & garment exports.

- Commitment on intellectual property. EVFTA creates a high commitment on copyright, inventions, commitments related to pharmaceuticals and geographical indications with a higher level of protection than WTO. This commitment protects the enterprises in the market as well as it promotes creative innovation, research and development activities within the enterprises.

- Commitment on trade and sustainable development, whereby trading activities must effectively implement the basic standards of the International Labour Organization (ILO), ILO conventions, and multilateral environmental agreements that the parties have concluded and joined. These commitments orient the development of the enterprises towards sustainability, not only to ensure profits but also to take care of the interests of laborers and the environmental protection.

### ***3.2. Opportunities and challenges for Vietnamese enterprises when EVFTA agreement is concluded.***

#### ***Opportunities***

EVFTA is considered to be a comprehensive, high-quality free trade agreement, which ensures a balance of interests for participants, thus it opens up many opportunities for Vietnamese enterprises.

First of all, this is a great opportunity for Vietnamese enterprises to enter the extremely potential EU market with 508 million people and its scale of about 18 trillion US dollar. In recent years, EU is known as the second largest export market of Vietnam after Asia (See Table 1, the hereinafter Appendix). However, the actual market share of Vietnamese goods in EU market is still quite modest (See Diagram 1, the hereinafter Appendix), so it can be said that EU is still an extremely potential market of exporting goods for Vietnam.

When EVFTA comes into effect, market opening commitments for goods of EU and Vietnam will bring many opportunities for Vietnamese enterprises. In particular, with EU's market opening commitments, tariffs will be eliminated up to 99.7% according to the schedule (See EU's tariff commitments for Vietnam in Table 2, the hereinafter Appendix for further information), this brings competitive opportunities based on prices for Vietnamese enterprises. In terms of Vietnam's goods market opening commitments, Vietnam commits to eliminate tariffs right after EVFTA comes into effect for EU's goods that belong to 48.5% of tariff lines in the tariff schedule, equivalent to 64.5% of EU's export turnover to Vietnam. Within 10 years from EVFTA's effective date, Vietnam commits to eliminate 98.3% of tariff lines in the tariff schedule, accounting for 99.8% of EU's export turnover to Vietnam. For about 1.7% of EU's remaining tariff lines, Vietnam commits to impose tariff quotas like WTO commitments, or apply a special elimination schedule (WTO Center and Integration,

2020). This is a good opportunity for Vietnamese enterprises to access machinery, equipment and high technology products from EU countries at reasonable prices to improve productivity and improve product quality (See Vietnam's tariff commitments for EU for a number of machinery, equipment and technology products in Table 3, the hereinafter Appendix for further information)

Finally, EVFTA will create an open, transparent and fair investment environment to help Vietnam attract a higher quality new-generation FDI flow, which will contribute to promoting technology transfer as well as improve workmanship of laborers. This contributes to game change, because high quality investment will help Vietnamese enterprises better integrate into global value chains.

### ***Challenges***

However, as a new-generation free trade agreement, EVFTA and EVIPA have large coverage and relatively high requirements, which causes many challenges for the enterprises.

The first barrier relates to rules of origin, whereby in order to enjoy tax incentives as agreed, raw materials must meet a certain percentage in the internal cooperation block. This is obviously a big challenge for Vietnamese enterprises as the sources of raw materials for production of exported goods are mainly from China or ASEAN<sup>2</sup> countries (See table 4, table 5, table 6, the hereinafter Appendix).

In addition, non-tariff barriers on TBT and SPS are also challenges for Vietnamese enterprises when they would like to export to EU market - a difficult market with strict requirements on food hygiene and safety, labeling, environment, etc. The practice in this whole time shows that Vietnam's exports have been largely refused by major trading partners including EU due to SPS or TBT in some key exported goods such as agricultural products. In the period from 2002 to 2010, Vietnam ranked the 9<sup>th</sup> on the import refusal degree of agricultural products (See Table 7, the hereinafter Appendix for further information). The reason for the import refusal for Vietnam's exported agricultural products to EU market is mainly due to antibiotic residues (accounting for 27.3% of cases of refusal) (See Table 8, the hereinafter Appendix for further information). Especially, in the major markets such as USA, EU, and Japan, fishery products were the most refused, and in the period from 2002 to 2010, fishery accounted for 70% of the statistics on refused shipments ( Tran Viet Cuong, Nguyen Thi Hong Mai, Nguyen Quang Hieu, Nguyen Thi Thu Phuong, Spencer Henson, 2013). This requires Vietnamese enterprises themselves to improve a lot of product quality in the direction of being safe for human health, close to the environment.

Finally, when participating in the international playground, Vietnamese enterprises will face *strong competition from* EU enterprises, which are enterprises having good competitive capacity and market experience. Vietnamese enterprises are considered to have

---

<sup>2</sup> According to the Import-Export Report 2019 (2020) of the Ministry of Industry and Trade, China is Vietnam's leading import market in a number of goods being materials and raw materials such as fabrics, fibers, plastic materials, steel, and phone components, etc.

low competitiveness even in the period of strong protection. According to a calculation on the basis of WTO, CEPT and ASEAN-China commitments, although Vietnam's effective rate of protection (ERP) significantly reduced after 2007, in general, it is still twice higher than the nominal rate of protection (NRP) (According to Pham Van Ha et al., 2007 and Truong Dinh Tuyen et al., 2011). The White Paper on Vietnamese Enterprises 2020 of the Ministry of Planning and Investment shows that as of December 31, 2018, 97.2% of Vietnamese enterprises were micro, small and medium-sized enterprises; over 85% of enterprises have revenue of less than 2 billion Vietnamese dong/ year; This leads to an understandable situation of low technology level and non-high quality human resources in Vietnamese enterprises. In contrast to Vietnamese enterprises, EU enterprises often have strong competitiveness in the market with high labor productivity. According to statista's data, in 2018 the average labor productivity in the European Union amounted to 58.5 U.S. dollars in GDP per hour worked. Meanwhile, Vietnam's labor productivity according to the statistics of the General Statistics Office of Vietnam is 4.521 U.S. dollars per year<sup>3</sup>. Most EU enterprises use modern technology, high quality human resources - one of the driving forces to increase productivity. In general, Vietnamese enterprises will be more disadvantaged when they compete equally with EU enterprises, which requires their own efforts for reform and innovation.

#### 4. Discussions and Conclusions

In overall, EVFTA certainly brings many opportunities for Vietnamese enterprises, but this research identifies that this is a "potential" opportunity, while the challenges seem to be the reality existing right in the sight of us. In principle, EVFTA benefits both EU and Vietnam, but in order to avoid "getting less, losing more", the enterprises themselves must have clear strategies and schedules to overcome challenges, thereby they turn potential opportunities into reality. Some orientations for the enterprises are as follows:

Firstly, in order to participate in the international playground, domestic enterprises must understand the rules of the game and use the rules of the game in a way that is beneficial to them. Specifically, the enterprises themselves must clearly know the information and schedule of commitments to make appropriate business strategies. For example, for the removal of tariff barriers, the rules of origin will emerge as a new barrier, the enterprises must develop a schedule to respond to new situations.

Secondly, in order to meet a certain percentage in the internal cooperation block, the enterprises should strengthen investments in supporting industry development, invest in raw material growing areas to minimize dependence on raw materials of foreign suppliers. However, not all enterprises are strong enough to expand their investment in supporting

---

<sup>3</sup> General Statistics Office of Vietnam, <https://www.gso.gov.vn/default.aspx?tabid=382&idmid=2&ItemID=19315#:~:text=N%C4%83ng%20su%E1%BA%A5t%20lao%20C4%91%E1%BB%99ng%20c%E1%BB%A7a%20Vi%E1%BB%87t%20Nam%20t%C4%83ng%20C4%91%E1%BB%81u%20qua%20c%C3%A1c%20n%C4%83m&text=V%E1%BB%9Bi%20m%E1%BB%A9c%20t%C4%83ng%20tr%C6%B0%E1%BB%9Fng%20kinh.6%25%20so%20v%E1%BB%9Bi%20n%C4%83m%202017.>

industries and raw material areas, in this context, the model of linkage among the enterprises together brings much efficiency.

Thirdly, the enterprises themselves must always be proactive in building, improving their production and business capacity, improving quality and model of their products to enhance their competitiveness and branding.

Fourthly, it is necessary to have a mechanism for early investment in human resources, and appropriate incentive policies on material and spiritual benefits for employees, especially highly skilled workers. This is the investment in human resources to create a competitive advantage in integration.

There are some solutions based on orientations mentioned above, in order to deploy them, the enterprises must concretize it into strategies, development plans of the enterprises. Therefore, in order to carry out them, it takes a certain time. However, Vietnam's market opening commitments have a clear schedule, especially for sensitive products, so Vietnamese enterprises still have a chance to change their business methods and enhance their competitiveness.

## 5. References

1. Tran Viet Cuong, Nguyen Thi Hong Mai, Nguyen Quang Hieu, Nguyen Thi Thu Phuong, Spencer Henson (2013), "Using multi-standard decision analysis to identify and prioritize capacity building solutions for sanitary and phytosanitary related to export in Vietnam", STDF (Standard and Trade Development Fund), Workshop on multi-standard decision analysis, WTO, Geneva, June 24-25, 2013
2. Nguyen Dinh Cung, Tran Toan Thang, 2017, *EU-Vietnam Free Trade Agreement: Institutional Impact and Policy Adjustments of Vietnam*, World Publishing House, Hanoi
3. *Pham Van Ha et al. (2007), Assessment of actual protection rates in Vietnam in the process of integration and policy recommendations, Report of the Policy Advisory Group to the Ministry of Finance.*
4. Le Dinh Dinh, *EVFTA from a strategic perspective*, [http://www.tapchiconsan.org.vn/media-story/-/asset\\_publisher/V8hhp4dK31Gf/content/hiep-dinh-evfta-tu-goc-nhin-chien-luoc](http://www.tapchiconsan.org.vn/media-story/-/asset_publisher/V8hhp4dK31Gf/content/hiep-dinh-evfta-tu-goc-nhin-chien-luoc)
5. Eurostat, *International trade in goods*, <https://ec.europa.eu/eurostat/statistics-explained/pdfscache/1188.pdf>
6. Ministry of Industry and Trade, *Vietnam Export-Import Report 2019, Industry and Trade Publishing House*, Hanoi, 2020
7. *Truong Dinh Tuyen et al. (2011). The impact of market opening commitments in WTO and FTAs on Vietnam's production and trade activities and measures for perfecting the mechanism of import and export management for the period 2011-2015, MUTRAP III, Hanoi, in September*

8. Vo Tri Thanh, *How is the competitiveness of Vietnamese enterprises?*  
<http://tapchitaichinh.vn/nghien-cuu-trao-doi/nghien-cuu-dieu-tra/nang-luc-canh-tranh-cua-doanh-nghiep-viet-nam-dang-the-nao-22054.html>
9. WTO Center and Integration, *Vietnam Chamber of Commerce and Industry (VCCI), Summary of EU-Vietnam Free Trade Agreement (EVFTA)*,  
<http://trungtamwto.vn/downloadreq/2125?s=637274600843353008>
10. WTO Center and Integration, *Handbook of Vietnamese Enterprises: EVFTA and Vietnam's telecommunications* <http://trungtamwto.vn/chuyen-de/14712-cam-nang-doanh-nghiep-evfta-va-nganh-vien-thong-viet-nam>
11. WTO Center and Integration, *Handbook of Vietnamese Enterprises: EVFTA and Logistics* <http://trungtamwto.vn/chuyen-de/14709-cam-nang-doanh-nghiep-evfta-va-nganh-logistics-viet-nam>
12. General Department of Vietnam Customs
13. UNIDO (United Nations Industrial Development Organization) (2013), "Meeting standards, dominating the market, East Asia Regional Compliance Report 2013", Vienna: UNIDO
14. General Statistics Office of Vietnam,  
<https://www.gso.gov.vn/default.aspx?tabid=382&idmid=2&ItemID=19315#:~:text=N%C4%83ng%20su%E1%BA%A5t%20lao%20%C4%91%E1%BB%99ng%20c%E1%BB%A7a%20Vi%E1%BB%87t%20Nam%20t%C4%83ng%20%C4%91%E1%BB%81u%20qua%20c%C3%A1c%20n%C4%83m&text=V%E1%BB%9Bi%20m%E1%BB%A9c%20t%C4%83ng%20tr%C6%B0%E1%BB%9Fng%20kinh,6%25%20s%20v%E1%BB%9Bi%20n%C4%83m%202017.>

## THE APPENDIX

**Table 1: Export/ import value by continent, countries in a cooperation block and some major markets within 2 months from the beginning of 2020**

Markets	Export			Import		
	Value (billion USD)	Compared to 2019 (%)	Proportion (%)	Value (billion USD)	Compared to 2019 (%)	Proportion (%)
<b>Asia</b>	<b>19.23</b>	<b>4.2</b>	<b>49.2</b>	<b>29.86</b>	<b>2.0</b>	<b>80.1</b>
ASEAN	3.94	2.9	10.1	4.69	-5.4	12.6
China	5.48	17.4	14.0	9.29	-7.0	24.9
Japan	3.12	6.2	8.0	3.10	11.2	8.3
Korea	2.95	1.0	7.6	7.85	7.0	21.1
<b>Europe</b>	<b>6.49</b>	<b>-5.7</b>	<b>16.6</b>	<b>2.93</b>	<b>5.4</b>	<b>7.9</b>
<b>EU (28)</b>	<b>5.89</b>	<b>-4.6</b>	<b>15.1</b>	<b>2.32</b>	<b>6.2</b>	<b>6.2</b>
Oceania	0.68	14.4	1.8	0.85	19.5	2.3
America	12.23	26.1	31.3	3.27	6.9	8.8
USA	10.26	25.7	26.3	2.18	18.7	5.9
Africa	0.44	5.8	1.1	0.36	-11.9	1.0
Total	39.08	8.4	100.0	37.26	2.9	100.0

*Source: General Department of Vietnam Customs*



**Table 2: Summary of EU's market opening commitments for a number of Vietnam's important groups of goods**

<b>Commitment</b>	<b>EU's tariff commitments for Vietnam</b>
<b>Group of agricultural and aquatic products</b>	
<b>Aquatic products (except for canned tuna and fish balls)</b>	Eliminate immediately about 50% of the tax as soon as the Agreement comes into effect
	The remaining 50% of tax will be eliminated according to the 3 - 7 year schedule
	Particularly, canned tuna and fish balls are applied tariff quotas of 11,500 tons and 500 tons respectively
<b>Rice</b>	Apply a tariff quota mechanism, the amount of imports in the quota is entitled to a tax rate of 0% Completely eliminate import tax on broken rice after 5 years and rice products after 3-5 years
<b>Sugar</b>	Apply a tariff quota of 10,000 tons of white sugar and 10,000 tons of products containing 80% of sugar
<b>Natural honey</b>	Import tax will be completely eliminated as soon as the Agreement comes into effect
<b>Group of industrial goods</b>	
<b>Garment &amp; textile products</b>	42.5% of tariff lines will be eliminated import tax as soon as the Agreement comes into effect
	The remainder will be eliminated import tax on a 3 - 7 year schedule
<b>Footwear</b>	37% of tariff lines will be eliminated import tax as soon as the Agreement comes into effect
	The remainder will be eliminated import tax on a 3 - 7 year schedule
<b>Wood and wood products</b>	About 83% of tariff lines will be eliminated import tax as soon as the Agreement comes into effect.
	The remainder will be eliminated import tax on a 3 - 5 year schedule
<b>Computers, electronic products and components</b>	74% of tariff lines will be eliminated import tax as soon as the Agreement comes into effect
	The remainder will be eliminated import tax on a 3 - 5 year schedule

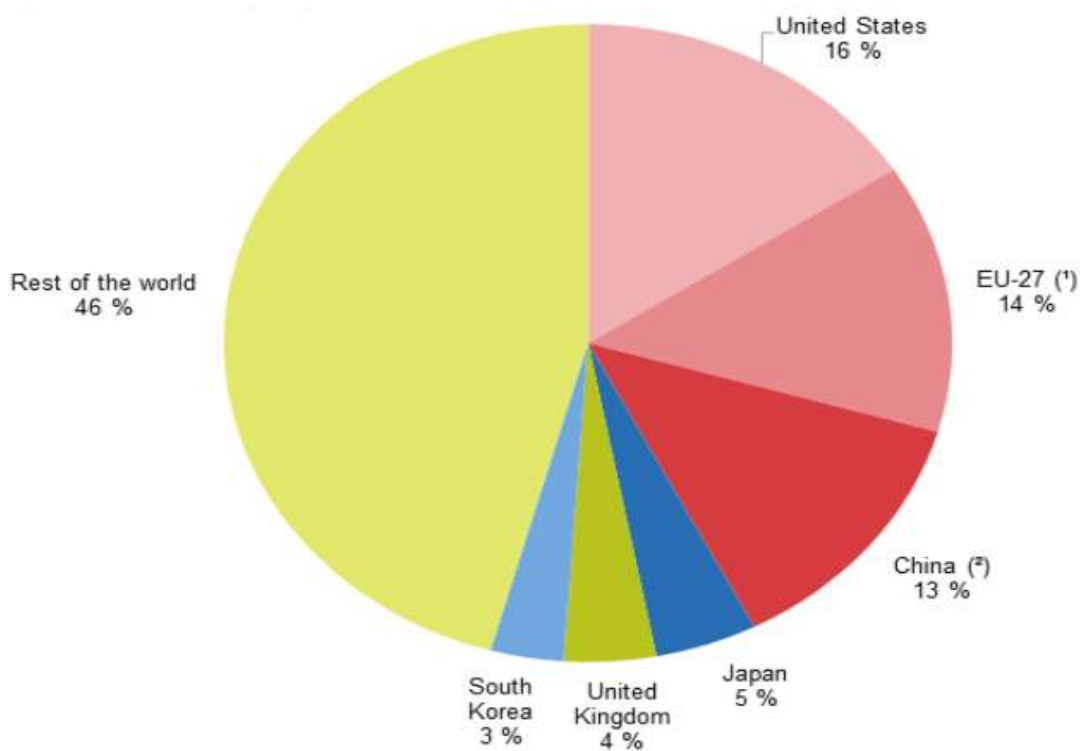
*Source: WTO Center and Integration, 2020*

**Table 3: Vietnam's market opening commitments for EU**

Commitment	EU's tariff commitments for Vietnam
<b>Machinery, equipment</b>	61% of tariff lines will be eliminated import tax as soon as the Agreement comes into effect
	Import tax of the remainder will be reduced to 0% after the maximum schedule of 10 years
<b>Automotive Parts</b>	The import tax will be eliminated after 7 years
<b>Raw materials and auxiliary materials for garment &amp; textile, footwear</b>	About 80% of this group of goods will be eliminated import tax when the Agreement comes into effect
	The remainder is eliminated from 3 to 5 years

*Source: WTO Center and Integration, 2020*

**Diagram 1: Shares in the world market for imports of goods, 2018**



*Source: Eurostat, International trade in goods, <https://ec.europa.eu/eurostat/statistics-explained/pdfscache/1188.pdf>*

**Table 4: Fabric market of Vietnam in 2019**

<b>Markets</b>	<b>2019 (Million USD)</b>	<b>Increase/ decrease compared to 2018 (%)</b>	<b>Proportion of imports in 2019</b>
China	7,735.22	8.98	58.26
Korea	2,023.34	-6.38	15.24
Taiwan	1,606.90	-0.46	12.10
Japan	820.10	8.99	6.18
Thailand	279.43	-3.84	2.10
Malaysia	116.55	12.97	0,88
Indonesia	66.18	7.96	0.0

*Source: Ministry of Industry and Trade, 2020*

**Table 5: Thread and fiber market of Vietnam in 2019**

<b>Markets</b>	<b>In 2019 (Million USD)</b>		<b>Increase/ decrease compared to 2018 (%)</b>		<b>Proportion of imports in 2019</b>
	<b>Quantity (Thousand tons)</b>	<b>Value (Million USD)</b>	<b>Quantity</b>	<b>Value</b>	
China	610.4	1,323.7	20.1	7.4	54.9
Taiwan	173.4	350.0	-3.1	-6.4	14.5
Indonesia	63.0	121.3	4.7	-9.8	5.0
Thailand	71.8	112.7	19.3	-18.9	4.7
Malaysia	18.2	23.5	-12.1	-16.8	1.0
Korea	75.0	174.5	-11.5	-12.8	7.2
India	43.7	100.9	-24.1	-29.5	4.2
Japan	10.7	68.6	-8.2	-14.8	2.8

*Source: Ministry of Industry and Trade, 2020*

**Table 6: Plastic product market of Vietnam in 2019**

Markets	In 2019 (Million USD)	
	Quantity (Ton)	Value (USD)
China	5,143,330	3,229,917,446
India	2,213,766	1,100,501,291
Japan	2,084,416	1,358,341,896
Korea	1,766,653	1,409,222,878
Taiwan	1,595,853	940,013,933
Russia	354,500	184,946,318
Malaysia	312,135	194,496,651
Brazil	304,579	155,090,089
Indonesia	249,244	391,187,506

*Source: Ministry of Industry and Trade, 2020*

**Table 7: Number of refused shipments of Vietnam's agricultural products in major markets from 2002 to 2010**

Markets	2002	2003	2004	2005	2006	2007	2008	2009	2010	2002-2010	Rank
USA	428	333	478	350	315	379	464	358	338	3443	6
EU	67	35	55	124	68	44	54	96	70	613	9
Japan	-	-	-	-	130	165	74	77	117	563	3

*Source: UNIDO data, 2013*

**Table 8: Reasons for refusal to import Vietnam’s exported agricultural products into major markets and refusal rate (%)**

	<b>USA</b>	<b>EU</b>	<b>Japan</b>
Mycotoxins	0.7	3.2	1.2
Additives	8.7	10.8	5.7
Bacterial infection	23.6	23.4	25.8
Veterinary drug residues	3.8	27.3	52.8
Pesticide residues	0.4	2.1	8.9
Other pollutants	4.6	9.1	0.2
Heavy metals	0.0	8.4	0.0
Forgetting/missing documents	10.6	2.5	0.0
Hygiene condition/control	25.4	3.9	4.1
Infection with other microorganisms	N/A	4.8	0.0
Labeling	21.6	0.3	0.0
Packing	0.0	0.6	0.4
Other	0.5	3.7	1.1

*Source: UNIDO data, 2013*

# THE ROLE OF BANK CREDIT ACTIVITIES IN THE DEVELOPMENT OF GREEN ECONOMY IN THE PERIOD

*Dr. Phung The Hung*

*tuehvnh@yahoo.com.vn*

*Trade Union University, Hanoi, Vietnam*

## **Abstract**

*In Vietnam today, bank credit still plays a key role in projects of economic growth and development. Investment bank credit capital for projects must ensure the development of a green economy, environmental protection and climate change. The paper focuses on clarifying the relevant mechanisms and policies, the current status of the banking system, making some comments, assessments, and recommendations for solutions according to the research objectives.*

**Key words:** *bank credit, green economy*

## **1. Introduction**

In recent years, the issues of developing green economy, sustainable socio-economic development, ensuring ecological environment, combating climate change in the world as well as in Vietnam continue to become topical issues. Especially the issues of ensuring food safety due to the use of banned substances in agricultural production, in processing and preservation of food are widespread; the situation of wastes releasing into the water environment causes mass deaths of fish on the large scale, the environmental pollution caused by the activities of factories and human beings is on an increasing level, ... is becoming a topical issue, causing great public opinion. This is one of the main issues raised in developing a green economy today. So how the role of banking credit for developing green economy is systematically explained in the article.

## **2. Method**

Implementing the aforementioned content, the article uses qualitative research methods, based on the analysis, evaluation of documents and data of a number of different agencies and organizations, making comments and suggestions. Relevant solution recommendations.

## **3. Results**

### ***3.1. Sustainable development of the banking system***

The aforementioned situation takes place at a large level, is difficult to control, obviously causing risks for producers, risks for consumers, ... thereby naturally affecting the customers' ability to repay loan debts. Because, an investment project with a loan amount of up to trillions of dong, even tens of trillion dong, if failing to ensure environmental

factors, being suspended from operation, must compensate for damage caused by out. Numerous households and businesses engaged in aquaculture and fishing suffered losses and losses. Products suspected of using banned substances, which are not sold, returned, banned from import, etc. These facts clearly affect directly the fulfillment of customers' obligations in the credit contracts. Bank. Since then, on the one hand, bad debt has been created, on the other hand, credit extension did not expand and other non-credit services were developed. Thus, of course, it affects the sustainable development of the bank. This situation is even more urgent because Vietnam is preparing to implement the commitments of TPP as well as other commitments in the process of international economic integration, which challenges the agricultural production. Considered the biggest in market competition of agricultural products.

In terms of the economy, sustainable development has become a top concern of countries around the world, Vietnam is facing the challenge of ensuring adequate funding for the cause of background development. The economy, while ensuring the sustainable and integrated economic development, is the green economy development for sustainable development.

In terms of banking activities, credit contributes positively to the balanced and harmonious development of economy, environment and society, contributes to hunger eradication, poverty reduction and improvement of the quality of life of the people; avoid the environmental and social risks that many countries have encountered due to the over-emphasis on economic development but neglect the ecological environment; Consistent with the general trend.

On the side of businesses, green credit development is an opportunity for businesses to access preferential loans at home and abroad; opportunity to receive State support. In the long run, avoid environmental risks and bring sustainable development of the business itself.

Currently, cleaner production is becoming a common trend for businesses because cleaner production can help businesses save money through reducing wasted energy, raw materials, additives ... thereby helping Enterprises improve operational efficiency, improve the stability of production and product quality.

### ***3.2. Overview of banking credit activities for developing a green economy***

The SBV issued Directive 03 / CT-NHNN dated March 24, 2015 [1] on promoting green growth and managing environmental and social risks in credit activities; Accordingly, the banking system is required to concentrate resources to provide credits to environmentally and socially friendly projects and production plans, contributing to supporting enterprises in implementing green growth. At the same time, credit institutions are required to consider and implement environmental and social risk management solutions when evaluating borrowers.

In recent years, credit institutions have spent a lot of capital for green projects such as: high technology application in production; new rural development.

Many projects on high-tech vegetable growing, high-tech flower growing, high-tech breeding; loans to buy machinery and equipment to reduce agricultural losses with preferential interest rates supported at 100% for the first two years and 50% for interest in

the third year; coffee rejuvenation in the Central Highlands provinces during 2014-2020 under two methods: re-cultivation and grafting to improve coffee; implement loanation program for afforestation under Resolution 30a ...[3]

The new rural construction program has many contents with many criteria, including sanitation, clean water and rural environment; Rural transportation, wholesale markets, etc. have direct implications for sustainable development and green economy development.

New rural construction is a major policy of the Party, National Assembly and Government, affecting many aspects of more than 70% of the population in the country, taking place in a very wide space of the country. ensure the sustainable development of agriculture and rural areas, minimize environmental pollution and provide safe and hygienic food and agricultural products. In order to implement that policy, the leading solution is capital, including mobilizing capital from the people, local capital from the state budget, international aid capital, enterprise capital, etc. bank credit.

Clearly defining the role of the bank credit solution for new rural construction, the banking sector has actively implemented synchronous measures, from promulgating mechanisms and policies, solving difficulties and directing credit flows into agriculture and rural areas, developing a number of specific policies contributing to the construction of new rural areas, to expanding lending in general. and preferential loans in particular according to the set targets.

### ***3.3. Renovating the current lending mechanism and policy according to the goal of sustainable agriculture and rural development and raising farmers' living conditions, implementing the green economy development strategy.***

To overcome difficulties in meeting the demand of loans of enterprises operating in rural areas, serving agriculture and rural areas or having a large number of customers being farmer households, the State Bank of Vietnam (SBV) has organized conferences and forums to connect commercial banks and businesses in localities to find a common voice, answer questions and so on to lend capital flows. Especially in the field of agriculture and rural areas, the problems of lending policies and mechanisms have been removed by new regulations of the Government. Accordingly, on June 9, 2015, the Government issued Decree No. 55 / ND-CP on credit policies for agricultural and rural development, taking effect from July 25, 2015. , replacing Decree 41, dated 12 April 2010. This is followed by Decree 116/2018 / ND-CP amending Decree 55/2015 / ND-CP on credit policies for agricultural and rural development. [1]

The new policy has supplemented subjects entitled to borrow capital for the development of agriculture and rural areas, including individuals and households living in cities and towns but engaged in production and business in agricultural sector, and customers operating in the agricultural sector but outside the rural areas.

The loan size without collaterals increased by 1.5-2 times compared to the provisions of Decree 41. Specifically, the maximum lending without collaterals was VND



100 million for individuals, family; maximum VND 300 million for business households; Maximum of VND 1 billion for cooperatives and farm owners. In addition, adding two groups of subjects entitled to loans without collaterals. Including: cooperatives engaged in aquaculture or offshore fishing, providing services for offshore fishing, cooperatives operating in agriculture may borrow up to 2 billion copper; unions of cooperatives for aquaculture or offshore fishing, providing offshore fishing services may borrow up to VND 3 billion. [3]

Also according to the Government's regulations, individuals and households that borrow capital from credit institutions are not required to pay the authentication fee for the property mortgage contract at the agency that performs the authentication of the contract or registration fee assigned. secured transactions at the security transaction registry.

The Government also specifically regulates credit policies to encourage the development of agricultural production under the model of linking and applying high technologies. For enterprises, cooperatives and unions of cooperatives that sign the supply and sale contracts for organizations and individuals directly engaged in agricultural production, the lending rate without security assets is up to 70% of the value of the project, the loan plan according to the associated model. For enterprises, cooperatives and unions of cooperatives, who sign contracts to implement associated projects according to the value chain in agricultural production, the loan without asset security is up to 80% of the value of the project, the production and business plan according to the associated model. [4]

In order to limit risks in the agricultural sector, the Government has more specific regulations on the principles and procedures for handling loans at risk of natural disasters, epidemics on a large scale or due to objective reasons. force majeure for borrowers; encourage borrowers to take part in buying insurance in agriculture through the regulation: credit institutions reduce lending interest rates at a minimum of 0.2% / year compared to interest rates of the same type of loans and has a corresponding term. [4]

So in the last 5 years, implementing the policy of building a new countryside as well as international integration, preparing to implement the commitments of the TPP Agreement, ... now the Party and the State, the State Bank of Vietnam have amended , supplementing and completing closely to the requirements of the practice, requesting the Government to promulgate a fairly uniform system of legal documents, and at the same time promulgating a number of relevant regulations under its jurisdiction, including including: policies on agriculture and rural areas, relating to rural household production; preferential credit policies; Policies related to granting credit to policy-making households and disadvantaged areas. The above policies have created a quite complete legal framework for credit institutions, especially for the Bank for Agriculture and Rural Development of Vietnam (Vietnam Bank for Agriculture and Rural Development) and Vietnam Bank for Social Policies ( VBSP), nearly 1,200 People's Credit Funds (PCFs) are operating in rural areas, .... The practice has proved that these are important documents that create a premise and great conditions for credit activities for agricultural and rural development in the trend of integration and building farmers according to the Party's policy. [3]

***3.4. Monetary and professional policy management tools The Central Bank now contributes to building a new countryside and developing sustainably agricultural production, protecting ecological environment.***

Since May 2012, the State Bank of Vietnam has regulated the ceiling interest rate for local currency loans in five priority areas, in which, mainly in agriculture and rural development, flexibly adjusting interest rates according to market movements. In addition, the loan interest rate is usually lower than the lending interest rate in other fields from 1.5% - 2.0% / year for the VND lending interest rate in VND. [3]

The SBV also stipulated a lower reserve ratio for commercial banks with a higher proportion of agriculture-rural loans, encouraging the expansion of credit flows to this sector. Besides, the refinancing mechanism of the State Bank also encouraged commercial banks to expand No-NT loans. The State Bank of Vietnam has also issued specific regulations on lending for rice export, purchasing of temporarily stored rice, lending for building iron-shell ships for offshore fishing, lending for reducing agricultural losses and credit policies for people. shrimp farming and tra farming, coffee replanting, etc. [3]

In the years 2018 - 2020, the local currency interest rate (VND) of loans to customers of credit institutions for the above priority areas only fluctuates around 6-7% / year. Generally, in the total structure of outstanding loans in the economy, the interest rate for domestic currency loans from 10% / year or less accounted for 70.4%. [3]

***3.5. Deployment of commercial banks in service of new rural construction and sustainable agricultural production development towards green economy***

By the beginning of 2020, the system of commercial banks with 100% state capital and state-owned joint stock commercial banks will dominate in our country, including 4 banks: Vietnam Joint Stock Commercial Bank for Foreign Trade of Vietnam, Vietnam Joint Stock Commercial Bank for Industry and Trade Nam, Bank for Agriculture and Rural Development of Vietnam, Joint Stock Commercial Bank for Investment and Development of Vietnam, (merged Mekong Delta Housing Development Bank). In addition, there is the Vietnam Bank for Social Policies, which lends to poor households, households to get loans for job creation and households to borrow loans under other policies. There are also cooperative banks (cooperative banks) and nearly 1,200 PCFs operating in rural areas; Vietnam Development Bank (VDB), implementing the preferential credit policy of the state, other commercial banks also expanded lending to agriculture - rural areas and farmer households. [3]

In recent years of renovation in general and the recent focus on new rural construction (2011-2015 and 2016-2020) in particular, the rural economy and agro-forestry-fishery production households provide a large volume of goods for domestic consumption, especially many items for large export turnover. Besides, the life of farmers and the rural face have changed substantially. One of the important causes is the credit support for this vast economic sector. [2]

Programs to solidify canals, develop rural roads, aquaculture establishments, rural trade villages, and foreign-funded loan programs for the construction of new rural areas. In addition to the loan capital, domestic commercial banks and foreign banks in Vietnam also provide non-refundable capital to communes to build rural transport systems, clean water supply systems in rural areas and schools. study, health facilities, remove temporary houses for poor households, reservoirs and clean water tanks for highland people, build community houses, provide classroom equipment and facilities, health stations ...

### ***3.6. Deploying major policies in the field of sustainable agriculture and rural development of the whole banking industry***

In terms of lending to purchase rice, this is the field that brings a large export turnover to the economy, involving jobs and income of millions of farmer households. Regarding the implementation of the pilot lending program for agricultural development under the Government's Resolution No. 14 / NQ-CP. The SBV has cooperated with the Ministry of Agriculture and Rural Development and the Ministry of Science and Technology to select 28 enterprises nationwide to implement 31 projects in 22 provinces and cities. These enterprises participate in the pilot lending program of linking models and high-tech applications in agricultural production. Selected businesses operate mainly in the fields of: rice trading; cultivating and processing aquatic products for export; hi-tech agricultural production in cultivation, husbandry, ...; safe vegetable production; planting and processing sugar cane; catching, purchasing, processing and consuming seafood products; Production of other agricultural products, such as rubber latex, tapioca starch and maize Those enterprises operate in almost all regions of the country: the Red River Delta, the Mekong River Delta, the Central Highlands, the Southeast, North Central and Central Coast; Northern Midlands and Mountains.[2]

Regarding the implementation of the support policy to reduce agricultural losses under the Prime Minister's Decision No. 68/2013 / QD-TTg, of November 14, 2013, there are also positive results. The total outstanding loans to various customers under this program amounted to approximately VND 3,300 billion. [2]

Implementing the credit policy to support offshore fishing in accordance with the Government's Decree No. 67/2014 / ND-CP dated July 7, 2014 on a number of fisheries development policies, August 15, 2014 , The Governor of the State Bank of Vietnam has issued Circular No. 22/2014 / TT-NHNN guiding the implementation of this policy; at the same time, coordinate with a number of localities and concerned ministries and organizations to organize on-site implementation conferences to better disseminate policies, as well as grasp difficulties and take measures to remove them. Commercial banks have signed contracts to build and upgrade 271 ships, with a total of VND 2,908 billion, outstanding loans of VND 1,120 billion. The fishermen and shipowners' households have been disbursed as prescribed loans, deployed to build steel-shell ships with larger capacity, and the loan term is over 10 years. [2]

Regarding the implementation of credit policy for shrimp and catfish farmers under Decision No. 540 / QD-TTg, dated April 16, 2014 of the Prime Minister, the Governor of the State Bank issued Circular 26/2014 / TT -NHNN, dated September 16, 2014, providing for the SBV's refinancing of credit institutions in VND. [2]

Credit institutions have frozen debts for more than 11,668 disadvantaged borrowers, with the frozen loan amounting to more than VND 777.52 billion. In addition, credit institutions continue to promote new lending, lending for effective projects in this field. [2]

Regarding policies on the field of aquaculture, processing and export of aquatic products. outstanding loans for fishery nationwide reached VND 66,500 billion. [3]

Regarding lending for coffee rejuvenation in the Central Highlands region, the Vietnam Bank for Agriculture and Rural Development (NHNoRARD), the leading and strongly implementing this program, held a workshop at Dak Lak, a forum in Lam Dong to promote implementation results, has been positively responded by localities. Up to now, more than 6,000 customers have borrowed more than 725.38 billion dong. [3]

Other programs, such as building a new countryside, developing traditional industries in the countryside, developing dairy farming, raising pigs on a large scale and industrial methods, ...; developing farm economy, developing agricultural processing industry, labor export ... are also interested in timely lending of commercial banks.

#### **4. Discussion and Conclusion**

Firstly, it is necessary to promote green credit activities and implement the SBV's mandate for the National Green Growth Action Plan for the period 2014-2020, in the period of 2021-2025, the SBV needs to develop solutions. more specifically to promote green credit-banking products, helping businesses realize green growth. The implementation of solutions from the banking industry will contribute to orienting the bank credit flow "flowing" into green, environmentally friendly projects, thereby bringing benefits.

The SBV needs to urgently review, adjust and perfect the banking and credit institutions in line with the green growth goals. Commercial banks with a large proportion of loans in agriculture should be allowed to use refinancing credit as well as funding from foreign organizations through re-lending or guaranteeing by the State Bank or the Government. with preferential interest rates to make investments that bring high efficiency.

Secondly, the concerned ministries and agencies need to continue renewing and perfecting laws, mechanisms and policies towards synchronizing with the policy of restructuring the economy and transforming the growth model; institutional reforms to support businesses in restructuring and technological innovation.

The Government should focus on breakthrough solutions to better attract resources, implement public-private partnerships in green investment, as well as develop mechanisms and solutions to take advantage of sources. domestic and international forces for green growth.

Thirdly, the lending of investment projects, commercial banks can only assess financially, not environmental assessment. Therefore, the ministries, agencies and functional

agencies need to strengthen the institutional improvement, issue specific measures, enhance the quality of project evaluation stages, enhance inspection and control on hygiene and safety. food, on the use of banned substances in agricultural production, on the operation of factories, enterprises, ...

Fourthly, in the recent renovation period, especially in recent years of integration, as well as forecasts in the years 2021 - 2025, commercial banks in general, the main ones are state-owned commercial banks. continuously shifting credit capital to safe and effective fields, contributing to the sustainable development of the economy, directing loan capital to priority areas, ensuring the environment to actively contribute to the implementation of the national goals. building a new countryside in accordance with the operating orientation of the State Bank and the Government's guidelines. That diversion also contributes to economic restructuring, restructuring agriculture and rural areas to improve credit quality and quality of agricultural products when implementing the TPP. However, not all commercial banks have conditions to expand agricultural credit - rural households and farmers. Because this depends on the development of the web attached to the cost and efficiency brought about; Depending on their experience in credit operations and credit risk management by industries, etc. Therefore, it is forecasted that in the years 2021 - 2025, it is forecasted for many years after the Vietnam Bank for Agriculture and Rural Development still holds the largest market share in credit. this field.

Consistent with the goal of "Tam Nong", Agribank continued to implement economic programs under the direction of the Government and the State Bank, promoting lending under Decree 55/2015 / ND-CP, followed by Decree 116/2018 / ND-CP amends Decree 55/2015 / ND-CP [2] on credit policies for agricultural and rural development; loan programs for food, aquatic products, coffee, livestock, rubber trees, pepper, cashew; New Rural Construction; Lending for pilot models of linkages in the production chain, consumption of agricultural products and models of high technology application in agricultural production ... It is forecasted that in the period to 2020, among commercial banks, Vietnam Bank for Agriculture and Rural Development will continue to be an important state financial instrument for the Government and the State Bank to implement the solution of bank credit capital for agricultural and agricultural development. village. That requires the Government and the State Bank of Vietnam to continue to have strong measures to accelerate the restructuring of this commercial bank, as well as measures to deal with the mechanism of refinancing, handling bad debts, etc. Vietnam Bank for Agriculture and Rural Development.

In the years 2021 - 2025, the Government needs to deduct about 10% of the sale of state-owned shares in Vinamilk, FPT, ... in this phase to increase charter capital for Agribank; At the same time, the SBV should resolutely request Agribank to drastically implement the approved restructuring project, focusing on streamlining personnel at the Head Office and many branches in Hanoi and Ho Chi Minh City.

In addition, mechanisms and policies should continue to encourage credit institutions to compete for credit investment in sustainable agriculture and rural development. Therefore,

the SBV's specific management measures on granting licenses to open transaction offices and branches of credit institutions, as well as the required reserve ratios, loan interest rates, and interest rates, etc. should continue to be flexible. more activities according to the above goals.

Fifthly, in recent years, the implementation of credit policies for large programs on agricultural and rural development towards sustainability has been drastically and strongly implemented by the banking industry. However, the synchronous coordination, solving difficulties and obstacles ... of the concerned ministries and branches and localities are still slow, especially in the fields of agricultural product consumption, agricultural and fishery extension, vocational training. For farmers, using the prohibition in agriculture, ensuring water hygiene of agricultural production .... There is a very limited and urgent need to be overcome. In order for bank credit capital to meet the goals of policies more timely, there will be a more active and synchronized participation of ministries and localities, especially the implementation of Decree 55/2015. / ND-CP, Decree 116/2018 / ND-CP amending Decree 55/2015 / ND-CP on credit policies for agricultural and rural development. [2]

Sixthly, Insurance policy plays an important role for credit institutions to expand safe and effective credit capital for agricultural and rural development in the direction of integration, sustainability, environmental protection, but implementation. not as effective as expected.

Therefore, it is necessary to review, review and closely evaluate the implementation process over the past time to effectively implement the Government's Decree 55/2015; Decree 116/2018 / ND-CP amends Decree 55/2015 / ND-CP on credit policies for agricultural and rural development in the near future.

Seventhly, commercial banks should continue to be proactive, stick to active participation, expand safe credit capital, effectively implement the policies of agricultural and rural development, green economic development strategy of the Party. and the Government; continue to improve the qualifications of credit officers who are knowledgeable in the field of agriculture - rural areas, agricultural market in appraising loan projects.

Eighthly, the Government and ministries, localities need to have more specific and drastic solutions, strongly restructure agricultural production, accelerate vocational training in rural areas, revise planning and investing strongly and effectively for agricultural, forestry and fishery extension.

During the renovation period, especially in the current years of intensive integration, credit policies and credit solutions have the strongest and most effective impacts on agricultural-rural development and farmer households. directions of commodity production, safety, environmental sanitation, realizing the national goal of building new rural areas towards sustainability and at the request of green economy. However, the forecast in the coming time poses a lot of challenges for this field, especially joining the TPP and the banking credit solution is still at the leading position, requiring stronger competition. , perfecting further policies and more comprehensive coordination of the whole economy, of all levels and branches.

## 5. References

1. <http://vbpl.vn/nganhngnhanuoc/Pages/vanban.aspx?idLoaiVanBan=21&dvid=326>
2. [http://www.sbv.gov.vn/webcenter/portal/vi\\_intra/menu/trangchu/qlnhvv?\\_afrLoop=2480263122274000#!%40%40%3F\\_afrLoop%3D2480263122274000%26centerWidth%3D80%2525%26leftWidth%3D20%2525%26rightWidth%3D0%2525%26showFooter%3Dfalse%26showHeader%3Dfalse%26\\_adf.ctrl-state%3D128zd2fxlk\\_53](http://www.sbv.gov.vn/webcenter/portal/vi_intra/menu/trangchu/qlnhvv?_afrLoop=2480263122274000#!%40%40%3F_afrLoop%3D2480263122274000%26centerWidth%3D80%2525%26leftWidth%3D20%2525%26rightWidth%3D0%2525%26showFooter%3Dfalse%26showHeader%3Dfalse%26_adf.ctrl-state%3D128zd2fxlk_53)
3. [http://www.sbv.gov.vn/webcenter/portal/vi\\_intra/menu/trangchu/cstt/ccccstt?\\_afrLoop=2480335149585000#!%40%40%3F\\_afrLoop%3D2480335149585000%26centerWidth%3D80%2525%26leftWidth%3D20%2525%26rightWidth%3D0%2525%26showFooter%3Dfalse%26showHeader%3Dfalse%26\\_adf.ctrl-state%3D128zd2fxlk\\_136](http://www.sbv.gov.vn/webcenter/portal/vi_intra/menu/trangchu/cstt/ccccstt?_afrLoop=2480335149585000#!%40%40%3F_afrLoop%3D2480335149585000%26centerWidth%3D80%2525%26leftWidth%3D20%2525%26rightWidth%3D0%2525%26showFooter%3Dfalse%26showHeader%3Dfalse%26_adf.ctrl-state%3D128zd2fxlk_136)
4. [http://www.sbv.gov.vn/webcenter/portal/vi\\_intra/menu/trangchu/ttsk?\\_afrLoop=2480383874912000#!%40%40%3F\\_afrLoop%3D2480383874912000%26centerWidth%3D80%2525%26leftWidth%3D20%2525%26rightWidth%3D0%2525%26showFooter%3Dfalse%26showHeader%3Dfalse%26\\_adf.ctrl-state%3D128zd2fxlk\\_173](http://www.sbv.gov.vn/webcenter/portal/vi_intra/menu/trangchu/ttsk?_afrLoop=2480383874912000#!%40%40%3F_afrLoop%3D2480383874912000%26centerWidth%3D80%2525%26leftWidth%3D20%2525%26rightWidth%3D0%2525%26showFooter%3Dfalse%26showHeader%3Dfalse%26_adf.ctrl-state%3D128zd2fxlk_173)

# THE IMPACT OF OWNERSHIP STRUCTURE ON THE PERFORMANCE OF COMMERCIAL BANKS - THE CASE IN VIETNAM

*Dr. Nguyen Thi Hoai Phuong*

*phuongnh@neu.edu.vn*

*School of Banking and Finance, National Economics University, Vietnam*

*M.Fin. Mai Tuan Anh*

*mtanh@uneti.edu.vn*

*Faculty of Finance and Banking, University of Economics -*

*Technology for Industries, Vietnam*

## **Abstract**

*Since the global crisis in 2008, the Vietnamese economy has encountered many macroeconomic issues such as unreasonable growth structure, high inflation rate và declining national competitiveness, etc. Accordingly, a comprehensive restructuring of credit institutions will be implemented to ensure a utility, modern and safe development of banking system by 2025. This paper examines the relationship between the ownership structure and the technical efficiency of Vietnamese commercial banks. The evaluation of the bank's technical efficiency allows research to rank and compare the effectiveness of each bank in the selected samples of both high and low efficiency bank groups in order to formulate and recommend specific policies for improvement. The research results have shown that the performance of Vietnamese commercial banks in the period of 2011-2017 has a significant and negative correlation with the credit growth, net interest margin and ownership concentration coefficient. Meanwhile, the foreign ownership variable has a significant and positive impact on the technical efficiency of Vietnamese commercial banks.*

**Key words:** *ownership structure, bank's performance, ownership concentration, foreign ownership, technical efficiency.*

## **1. Introduction**

In the 2008-2018 period, hot credit growth together with unreasonable capital structure of banks led to a rapid increase in banks' total assets. This is the direct consequence of massively raising equity of commercial banks. Banks increased equity in order to invest for infrastructure, enhance financial capability, strengthen competitiveness and maintain capital adequacy ratio (CAR) following Basel standard. Some small banks to avoid bankruptcy have to raise capital at all cost, thus making their performance more risky, as well as the status of cross-ownership in banking sector more severe. The change in ownership ratio will have inevitable impact on the performance of credit institutions, which



can be positive or negative (Meckling, 1976). Therefore, it is essential to select an optimal ownership structure to positively affect the performance of banks in the context of their need to increase owner's equity, change structure and enhance operational efficiency.

## **2. Literature review**

### ***2.1. International researches***

(Meckling, 1976) has laid the foundation for the study on relationship between ownership structure and business performance. Ownership structure is determined in two aspects: ownership concentration and ownership mix (Gusory & Aydogan, 2002).

#### *a. Ownership concentration*

In Germany, Moldenhausser (2008), by using cross-sectional data of 245 non-financial companies on Frankfurt Stock Exchange in 2003 and the two stage regression model, studied whether insider ownership has positive effect on business performance. Eklund (2008) used data of 80 non-financial Nordic companies and found a positive relationship between ownership concentration ratio and performance in terms of profit, growth, and risk, but a negative impact on corporate value. In Asia, studies on ownership structure have also been conducted in such countries as China. By analyzing data of companies listed on the Chinese stock exchange, Xu (1999) found a positive correlation between ROE and ownership ratio of major shareholders, as well as a positive relation between ownership concentration and profitability of enterprises. Or Wen (2010) studied the data of 50 Chinese banks and found the linear relationship between ownership concentration and profitability of state-owned and state-dominated commercial banks. Balsmeier and Czarnitzki (2015) investigated the relationship between block ownership and employment growth, the proxy for firm performance, in 28 Central and Eastern European countries and found an inverted U-shaped relationship by using the OLS. While the result was robust for the nonEU-member countries, the relationship vanished in the subsample of the EU members. Based on these results, the authors proposed that firms in well developed countries do not need blockholders' 15 monitoring over management.

#### *b. Ownership mix*

Ownership mix includes different forms of ownership determined by shareholder's characteristics such as foreign ownership, state ownership, private ownership, etc.

- Foreign ownership

Most studies show the positive correlation between foreign ownership and business performance. Research of Park (2011) was conducted with a database of 945 industrial companies listed on Tokyo Stock Exchange. The study pointed out the non-linear relationship between foreign ownership and corporate value. In another study, OlagB (2009) investigated the impact of foreign ownership on Russian enterprises in the 2002-2006 period. The result showed the positive influence of foreign ownership on performance, in case of capital flows from developed countries, but not those from other countries. In India, Sytse D. (2002) carried out research on over 1,000 enterprises here. The group of authors used the

OLS regression method và found the evidences on positive relationship between foreign ownership and business performance. Studies in China produced a similar result. L.Meggison (2001), Saul E. (2008), Weiz (2004) pointed out that foreign ownership is better than other forms of ownership. David Greenaway (2009), using data of over 21,000 companies in China in the 2000-2005 period, found the positive relationship between foreign ownership and such indicators as ROA, ROS and labor productivity. A unique feature in this study is that the author discovered an inverted U-shaped relationship. Business effectiveness increases when ownership ratio increases to 47-59%, then it decreases.

- State ownership

Thomsen & Pedersen (2000) used the data of 2610 companies in 12 European countries for 6 years (1990 - 1995) and found the opposite effect of state ownership on business performance when this ratio exceeds 66%. In China, some studies on ownership structure such as Wei&Varela (2003)'s research, conducted on 252 companies on the Shanghai Stock Exchange, found the U-shaped relationship between state ownership and business performance. Studies showed that a state ownership ratio of more than 25.6% has positive impact on business performance. Research of Tian & Estrin (2008) produced the same result when using data of 9,000 companies listed on Chinese Stock Exchange. When state ownership ratio exceeds 25%, it will positively affect business performance. A similar result came from Yu (2012)'s study on companies on Chinese Stock Exchange. In 2009, study of Li (2009) suggested that the fluctuation of state-owned businesses' performance depends on that of profit. State capital has a negative impact on business performance, but only on highly profitable enterprises. Those with average business result are not significantly influenced. For firms in the financial sectors, study of Kobeissi (2005), using data of banks in the Middle East and North Africa, found that privately-owned and foreign-owned banks are the most effective, while state-owned banks are the least effective.

- Private ownership (shareholding of board of directors)

Studies of Morck (1988) and Ram Mudambi (1998) found the non-linear relationship between the ownership ratio of board of directors who are members of board of management and business performance. In German, study of Moldenhausser (2008) using cross-sectional data of 245 companies in this country, pointed out the negative relationship between the ownership of board of directors and the performance of enterprises. Loderer & Martin (1997), using Tobin's Q index and regression model 2SLS, investigated that business performance has negative impact on the board of directors' shareholding.

## ***2.2. Domestic researches***

Viet (2012) have tested the existence of the "benefit convergence" and "blocking" effects through the correlation between the shareholding ratio of the Board of Directors and the performance of enterprise. Meanwhile, Trinh (2012) used data of 3,400 companies listed on HOSE and HNX in the 2006-2012 period. The author identified the positive correlation between foreign ownership and business performance. Study of Viet (2012) used financial

data of companies on Vietnam's two stock exchanges with regression method and two dependent variables namely ROA and Tobin's Q. The author made a conclusion about the non-linear relationship (inverted U-shaped) between foreign ownership and business performance. Accordingly, the efficiency of a business will increase when foreign ownership ratio increases, but will decline when this ratio exceeds 31%. Mau (2012) pointed out the relationship in the commercial banking system of Vietnam, which is the ownership of two banks or of a bank and an enterprise. Thien (2013) investigated the relationship between ownership structure of the board of directors and the performance of commercial banks. The author also identified the positive correlation between foreign ownership and the performance of banks. Vinh (2014) studied the impact of concentrated ownership structure of 259 companies listed on HCM City Stock Exchange (HOSE) in the 2007 - 2012 period. The result showed that the more concentrated the ownership, the better the performance and the higher the corporate value.

Tran et al. (2014) discovered the negative impact of state ownership on firms' accounting profitability (ROA, ROE) and labor productivity (value added per employee) in the examination of an unbalanced panel data set from more than 2,000 firms during 2004-2012. Meanwhile, using a sample of listed companies on the HOSE from 2007 to 2012, Phung and Hoang (2013) found that state ownership had a bell-shaped relationship with Tobin's Q and ROA. Hoang (2015) establishes an econometric model to evaluate the impact of foreign ownership and state ownership on firm performance. The results show that state ownership has negative impact on performance of listed construction companies, while foreign ownership has positive impact on performance of the companies. In addition, the empirical results of impact of ownership structure on performance of Vietnam Stock Market listed construction companies show that state ownership and foreign ownership have non-linear relationship with the firm performance. Hue (2017), the empirical findings show negative relationships between state ownership and firm profitability and positive relationships between foreign ownership and firm profitability. Lai (2017), examines the effects of ownership structure on firm performance in the Vietnamese Stock market using a sample of 76 manufacturing companies listed on the Ho Chi Minh Stock Exchange during 2007-2015. Descriptive statistics reveal a significantly concentrated ownership structure in the manufacturing companies listed on the HOSE.

In this paper, we do focus on the impact of *Ownership concentration and Foreign ownership* on the performance of Vietnamese commercial banks.

### **3. Research methodology**

#### **3.1. Research Resources**

The sample used in the study is panel data of 24 Vietnamese commercial banks. Data is collected from 2011 to 2017, including 168 observations. The analysis of 24 commercial banks is due to: (1) the availability of data related to the variables used in the model; (2) banks that are included in the model are banks that can represent the entire system in terms of assets, equity, market size, and operational areas. The necessary data will be collected

from Bankscope data supply. This is a prestigious database in the world, storing data of more than 10,000 credit institutions worldwide. The bank data collected from Bankscope sources include income statement, balance sheet and financial indicators. Besides, some special information such as information about the bank ownership will be researched and collected from the annual report of commercial banks.

### **3.2. Research method**

This paper will use the method of random effect stochastic frontier analysis (SFA) parameter to measure the performance of commercial banks. SFA method was based on the theory of technical efficiency, which was raised in 1951 based on research of (Koopmans, T.C., 1951). Also, (Farrel, 1957) was the first to propose a method of building a borderline of production to measure the technical efficiency of each enterprise. After estimating the performance effectiveness of Vietnamese commercial banks, the research continues to apply the Tobit regression model to assess the impact of ownership structures on the bank's performance. This is a common method used to estimate censorship data. Because the characteristics of the bank's efficiency index estimated by SFA method are limited in scope (0; 1], the Tobit model is most suitable to assess the relationship between ownership structure and operational efficiency of banks.

### **3.3. Research model**

In order to obtain the overall evaluation of the commercial banks' performance due to the influence of ownership structure, research will use the measure of commercial banks' technical efficiency as dependent variables. Regarding the ownership structure of banks, research uses two variables that reflect the level of foreign ownership and the concentration of ownership. In the theoretical basis, the efficiency measures estimated from the SFA model will be limited to (0; 1), so the use of ordinary least squares (OLS) model or similar models may lead to biased estimates. Thus, the Tobit regression model is considered to be the most suitable to estimate the effect of independent variables on the technical efficiency of banks.

Based on studies that have been carried out as research by (Turk\_Ariss, R., 2010), the regression model has the following form:

$$\begin{aligned} \text{Efficiency} = & \alpha_1 + \alpha_2 * \text{CO} + \alpha_3 * \text{FO} + \alpha_4 * \text{LERNER} + \alpha_5 * \text{GROSS\_LOANS} \\ & + \alpha_6 * \text{MS} + \alpha_7 * \text{NIM} + u \end{aligned} \quad (1)$$

In which:

- Efficiency: is the performance of bank I at year t, and is measured by technical efficiency with a constant return to scale assumption (TE\_CRS).
- Concentrated ownership (CO): measures the concentration of ownership in commercial banks and is measured by the ownership ratio of the five largest shareholders (regardless of ownership type)

- Foreign ownership (FO): is the ownership ratio of foreign shareholders at commercial banks, including ownership of foreign entities and ownership of foreign organizations.

- Lerner: Index measuring the competitiveness of commercial banks in the system

- Gross\_Loans: Measuring bank I's credit growth in year t compared to year t-1

- MS: Market share of commercial banks I at time t.

- NIM: Net interest margin, calculated by net interest income on the average profit-taking assets.

With u as random error

The research model was developed to test the following hypotheses:

- *Hypothesis 1: Concentrated ownership has a significant impact on the performance of Vietnamese commercial banks.*

- *Hypothesis 2: Foreign ownership has a significant impact on the performance of Vietnamese commercial banks*

- *Hypothesis 3: The banks' market power has a significant impact on the performance of Vietnamese commercial banks.*

#### **4. Measuring the performance of Vietnam's commercial banks**

##### **4.1. Statistical description of variables**

The study collected statistics of 2 output variables and 3 input variables from financial statements of 24 commercial banks.

**Table 1. Statistical summary of variables in the SFA model**

Year	Target	Variable name				
		Interest income (Y1)	Non interest income (Y2)	Labor (L)	Capital (K)	Deposite (Depo)
2011	Average	13809912	1110955	1094421	1249447	62736599
	Maximum value	77104416	5491965	9787234	5621700	390987798
	Minimum value	1453945	53323	76137	73120	4206413
	Standard deviation	17726278	1418542	1935030	1385481	91578502
	Number of observation	24	24	24	24	24
2012	Average	12105091	1006737	1128816	1620506	75384056
	Maximum value	50660762	3659778	8694575	6841365	446112745
	Minimum value	1380296	32821	122081	69066	6620203
	Standard deviation	12923470	1137632	1752198	1863839	104048847
	Number of observation	24	24	24	24	24

Year	Target	Variable name				
		Interest income (Y1)	Non interest income (Y2)	Labor (L)	Capital (K)	Deposite (Depo)
2013	Average	11335253	1120163	1118698	1877001	93109394
	Maximum value	58976961	5840520	8124236	7080388	530760488
	Minimum value	1156361	75561	132923	68365	8793274
	Standard deviation	14425471	1551845	1677381	2103047	122540760
	Number of observation	24	24	24	24	24
2014	Average	11350224	1329523	1238352	2051136	113434447
	Maximum value	57855581	6027985	8142298	8894803	612481486
	Minimum value	984333	20964	137869	79024	11323101
	Standard deviation	14005412	1838887	1699020	2388759	144562684
	Number of observation	24	24	24	24	24
2015	Average	12257266	1575659	1429016	2259059	136514450
	Maximum value	57345278	7948899	8136400	8665767	709816250
	Minimum value	1313359	44250	171013	134016	12492463
	Standard deviation	14602803	2303820	1804261	2719052	173252077
	Number of observation	24	24	24	24	24
2016	Average	14694929	1806124	1683500	2431702	162628997
	Maximum value	68011928	9493530	9327335	10623575	814683060
	Minimum value	1370478	77565	192562	144374	13655344
	Standard deviation	17942433	2610593	2105436	2969824	208580600
	Number of observation	24	24	24	24	24
2017	Average	18007719	2472328	2121465	2571428	190163578
	Maximum value	80266508	10559421	10843519	11436527	936849383
	Minimum value	1503240	48920	178378	184448	14509214
	Standard deviation	21922979	3311602	2547995	3154566	248263998
	Number of observation	24	24	24	24	24

*Source: Data are summarized from financial statements of 24 Vietnam's commercial banks from 2011 to 2017*

Table 1. summarized statistical result of average, max, min value and standard deviation of input and output variables indicated in the model estimating technical efficiency for 24 Vietnam's commercial banks.

#### 4.2. Assign marginal efficiency measurement model SFA

As stated in the theoretical basis, to estimate the technical efficiency of commercial banks, it is necessary to specify the exact form of production function. In the previous studies, the commonly used production function are Cobb-Douglas and Translog, therefore, in this part, the author will use one of the two functions and test the suitability of the function form with the data set. The two proposed functions have the following general equations. Suppose there are  $i$  banks to be evaluated, all use 3 different inputs to produce  $Y$  output in  $t$  period.

Translog function has the following form:

$$\begin{aligned} \ln(y_{it}) = & \alpha_0 + \alpha_1 \ln(L_{it}) + \alpha_2 \ln(K_{it}) + \alpha_3 \ln(D_{it}) + \beta_1 (\ln(L_{it}))^2 \\ & + \beta_2 (\ln(K_{it}))^2 + \beta_3 (\ln(D_{it}))^2 + \beta_4 \ln(L_{it}) \ln(K_{it}) \\ & + \beta_5 \ln(L_{it}) \ln(D_{it}) + \beta_6 \ln(D_{it}) \ln(K_{it}) + v_{it} - u_{it} \end{aligned} \quad (2)$$

Cobb-Douglas function form

$$\ln(y_{it}) = \alpha_0 + \alpha_1 \ln(L_{it}) + \alpha_2 \ln(K_{it}) + \alpha_3 \ln(D_{it}) + v_{it} - u_{it} \quad (3)$$

Test statistic is:  $LR = -2[L(H_0) - L(H_1)]$ , in which  $L(H_0)$  is a logarithm value in the constrained model, and it is considered the null hypothesis  $H_0$ ; and  $L(H_1)$  is a logarithm value of logical function in the general marginal mode, and it is considered the alternative hypothesis  $H_1$ . This statistical test has approximate distribution when chi square ( $\chi^2$ ) or when chi square with the degree of freedom is equal to the difference between corresponding parameters in the null hypothesis and alternative hypothesis.

Using software Front 4.1 to run the model, the result is presented in the table 2 below:

- Test the suitability of model with data set. Hypothesis  $H_0$ : Function Cobb-Douglas is suitable with the model, corresponding to the condition that the coefficients  $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = 0$  with the degree of freedom equal to 6. The calculated statistical value LR is 13,535, greater than the critical value with the level of significance of 1% and 5%, rejecting  $H_0$ . Therefore, Translog function is suitable with data set.

- Using Translog function to proceed to the next test. With the hypothesis  $H_0$ : technical efficient displays constant returns to scale, provided that the parameters of the corresponding hypothesis is  $\alpha_0 + \alpha_1 + \alpha_2 = 1$  and  $\beta_1 + \beta_2 + \beta_3 + \beta_4 + \beta_5 + \beta_6 = 0$  with the degree of freedom equal to 2. The statistical tested result LR is 3,370, lower than the critical value at the level of significance of 1% and 5%, therefore, there's no basis to reject hypothesis  $H_0$ . The conclusion is that the model's technical efficiency displays constant returns to scale.

- The third hypothesis that needs to be verified is the distribution of inefficient noise. Hypothesis  $H_0$ : Distributed noise is semi-standard, with degree of freedom equal to 1. The calculated statistical value LR is 2,302, lower than the critical value at the level of significance of 1% and 5%. Therefore, there's no basis to reject hypothesis  $H_0$ . Conclusion: ineffective noise has semi-standard distribution.

- The fourth test with hypothesis H<sub>0</sub>: technical inefficiency is constant over time with degree of freedom equal to 1. The calculated statistical result LR is 42,899, greater than the critical value, therefore, the hypothesis H<sub>0</sub> is rejected, which means that technical inefficiency changes over time.

- The final test is for the hypothesis that there is no technical inefficiency, with degree of freedom equal to 2. The calculated statistical result LR is 143,78, greater than the critical value, thus, the hypothesis H<sub>0</sub> is rejected, which means that there is a technical inefficiency in the estimating model.

**Table 2: The calculated result for the variables in the SFA model**

Hypothesis H <sub>0</sub>	Statistical value LR	Critical value		Decision
		1%	5%	
1. The Cobb-Douglas function is suitable with the model (degree of freedom equal to 6)				
H <sub>0</sub> : $\beta_1 = \beta_2 = \dots = \beta_6 = 0$	17,535	16,074	11,911	Rejected
2. Technical efficiency is constant return to scale (degree of freedom equal to 2)				
H <sub>0</sub> : $\alpha_0 + \alpha_1 + \alpha_1 = 1$ và $\beta_1 + \beta_2 + \dots + \beta_6 = 0$	3,370	8.237	5.138	Non-rejected
3. Inefficiency noise has semi-standard distribution (degree of freedom equal to 1)				
H <sub>0</sub> : $\mu = 0$	2,302	5,421	2,706	Non-rejected
4. Technical inefficiency is constant over time (degree of freedom equal to 1)				
H <sub>0</sub> : $\eta = 0$	42,899	5,421	2,706	Rejected
5. There is no technical inefficiency (degree of freedom equal to 2)				
H <sub>0</sub> : The estimated result using the OLS method is more suitable than the MLE method	143,78	8.237	5.138	Rejected
<i>Critical value is checked from the critical value table of combined distribution <math>\chi^2</math></i>				

The general conclusion from statistical tests allow us to select model to calculate technical efficiency of Vietnam's commercial banks. Accordingly, the production function suitable with 24 commercial banks' data set is the Translog function form with technical inefficiency that changes over time and inefficient noise in the form of semi-standard distribution.

#### **4.3. Estimated result of technical efficiency by SFA model**

After all the tests have been carried out, the selected function form is suitable with data set. We can calculate the technical efficiency of each bank in each year, with the support of Frontier 4.1 software, the measurement of technical efficiency and ranking of commercial banks in the system is presented in the table 3 below.



**Table 3. Evaluation of technical efficiency of 24 Vietnam's commercial banks  
in the 2011-2017 period**

No.	Bank	2011	2012	2013	2014	2015	2016	2017
1	An Binh Bank	0.893	0.882	0.855	0.841	0.833	0.843	0.847
2	A Chau Bank	0.910	0.898	0.874	0.859	0.851	0.853	0.859
3	Agribank	0.896	0.861	0.876	0.871	0.864	0.869	0.872
4	Bac A Bank	0.933	0.913	0.892	0.874	0.868	0.875	0.880
5	BIDV	0.906	0.881	0.896	0.887	0.880	0.883	0.887
6	Vietinbank	0.909	0.900	0.886	0.873	0.868	0.873	0.876
7	Eximbank	0.911	0.905	0.881	0.861	0.846	0.841	0.837
8	HD Bank	0.915	0.894	0.848	0.854	0.859	0.876	0.878
9	Lien Viet Bank	0.916	0.901	0.882	0.870	0.868	0.873	0.871
10	Military Bank	0.895	0.887	0.867	0.859	0.845	0.846	0.846
11	Maritime Bank	0.912	0.897	0.884	0.883	0.887	0.851	0.850
12	Nam A Bank	0.895	0.892	0.850	0.868	0.858	0.855	0.849
13	NCB	0.897	0.891	0.866	0.871	0.855	0.845	0.859
14	PG Bank	0.895	0.874	0.844	0.833	0.815	0.827	0.828
15	PVcomBank	0.819	0.847	0.683	0.790	0.773	0.805	0.811
16	SCB	0.901	0.914	0.906	0.892	0.886	0.877	0.873
17	Sacombank	0.896	0.882	0.856	0.844	0.827	0.816	0.831
18	Phuong Nam Bank	0.893	0.882	0.867	0.850	0.826	0.827	0.834
19	Techcombank	0.907	0.895	0.870	0.859	0.856	0.850	0.852
20	Tien Phong Bank	0.901	0.867	0.865	0.872	0.871	0.885	0.881
21	Viet Capital Bank	0.894	0.886	0.839	0.823	0.847	0.834	0.847
22	Vietcombank	0.894	0.885	0.866	0.853	0.847	0.850	0.854
23	VIB	0.917	0.894	0.856	0.843	0.841	0.840	0.864
24	VP Bank	0.910	0.904	0.891	0.876	0.891	0.904	0.900
Average		0.901	0.889	0.863	0.859	0.853	0.854	0.858
Maximum value		0.933	0.914	0.906	0.892	0.891	0.904	0.900
Minimum value		0.819	0.847	0.683	0.790	0.773	0.805	0.811
Standard deviation		0.020	0.016	0.042	0.022	0.026	0.024	0.021

*Source: calculated based on banks' statistics*

The average technical efficiency of 24 Vietnam's commercial banks tends to decrease in the 2011 - 2015 period, reflecting the common difficulty of Vietnam's banking industry since the economic crisis in 2008 - 2010. Although in the 2008-2010 period, the size and credit growth of the industry increased, the general economic difficulty and the consequence of high NPL ratio in the whole industry led to the banks' inefficient

performance. A series of measures were proposed by the government and State Bank to help the banking system solve the bad debt problem. Commercial banks in this period were not only affected by bad debt but also subject to the government regulation in order to reduce lending rate for the economy. In fact, the average interest rate of Vietnam's credit institutions in this period continuously declined, and only started to increase in the 2016-2017 period.

Banks' technical efficiency only increased in the later period, which is quite consistent with the signals from the banking industry and the positive recovery of the economy in this period. When the bad debt problem was solved by banks, their business performance started to thrive. The stock value of some listed banks has increased again. Especially, banks after the difficult period have restructured their operation, making their operation more effective.

#### ***4.4. Analysis of the results of regression model and conclusion***

To test hypotheses in the model assessing the impact of ownership structure on the performance of commercial banks, the author used the Tobit and linear regression model to evaluate banks' technical efficiency according to the variables reflecting ownership structure such as foreign ownership ratio, ownership ratio of major shareholders, market strength, credit growth, market share and net profit margin of commercial banks. The coefficients in the models analyzing the impact of ownership structure on banks's technical efficiency estimated by Tobit regression are summarized in the table 4.

**Table 4: Estimated results of the Tobit regression model**

Variable	Coefficient	Standard error	z-Statistic	Prob.
C	0.881263	0.007990	110.3000	0.0000
CO	-0.041063	0.008853	-4.638052	0.0000
FO	0.040354	0.015242	2.647643	0.0081
LERNER	0.068863	0.017544	3.925073	0.0001
GROSS_LOANS	-0.083891	0.006089	-13.77639	0.0000
MS	0.056178	0.038609	1.455024	0.1457
NIM	-0.311095	0.055112	-5.644745	0.0000

*Source: The author calculated based on banks' statistics*

The Tobit model's tested result show that except for the regression coefficient of market share variable (MS), other regression coefficients are statistically significant at the 5% level (probability value of statistic z are less than 0.05)

Table 4 shows that the estimated coefficient of Concentrated Ownership (CO) variable is statistically significant at the 1% level, which is true for the negative sign. This

means that for the whole sample, the performance of commercial banks in Vietnam in the period of 2011-2017 will decrease when the concentration ratio of ownership increases, or the larger ownership concentration in commercial banks, the lower their technical efficiency. When other variables remain unchanged, if the centralized ownership ratio increases by 1%, the technical efficiency of banks will decrease by 0.041 unit. The reason here is partly due to the self-interests of interest groups. For the large shareholders group, when they hold the majority vote, they will use it to run the bank in their favor. The issue of centralized ownership in Vietnam's commercial banks becomes even more complicated due to the impact of "cross-ownership". The impact of cross ownership helps a shareholder without holding a controlling interest can still control and operate the bank. However, Circular 46/2018 / TT-NHNN is expected to overcome, or limit cross-ownership issues that are very complicated in Vietnam.

Also with statistical significance at 1%, foreign ownership rate (**FO**) has a positive impact on technical efficiency of commercial banks. Accordingly, the increase in foreign ownership will help commercial banks increase their technical efficiency. This result is completely consistent with research theory. In developing economies, taking advantage of progress in management will help commercial banks improve their performance. With good experience and management level, foreign investors will help businesses use their inputs more effectively to maximize their outputs. However, the rate of foreign ownership in commercial banks in Vietnam is still limited. According to the Decree 01/2014 / ND-CP of the Government, the shareholding ownership ratio of a foreign strategic investor must not exceed 20% of the charter capital of a Vietnamese credit institution, and the total shareholding ownership ratio of foreign investors in a domestic credit institution must not exceed 30%. The issue of loosening foreign ownership ratio in commercial banks is still a controversial topic. And according to most points of view, the banking industry is one of the sectors that is sensitive to national economic security, therefore, it is essential to stipulate the maximum ownership ratio to limit the control of foreign investors. On the contrary, there is also a perception that the banking sector needs to be treated equally with other industries, thus needing to loosen foreign ownership room to increase attractiveness, as well as to comply with international practices.

The next variable is market strength index. As shown in the result of the Tobit model, the variable **LERNER** also has a relationship with technical efficiency, with 1% level of significance. The Lerner index has a positive correlation with the technical efficiency of banks, which means that competition has a negative impact on the technical efficiency. This result is consistent with the theory of bank differences. The reason is that banks in developing countries, especially Vietnam, face more information asymmetry than banks in developed countries due to uncertainty in accounting information, the weakness of bank staff when analyzing credit risk because the market is too young. In addition, the imperfections in competition in the banking system are due to information asymmetry between banks and borrowers in credit activities. Therefore, the bank must take measures to address the problem of opposing choices and moral risks. One of the measures is to maintain long-term relationship

with customers to gather information. Since then, banks can solve the problem of information asymmetry. However, competition in the banking system may shorten the time of credit relations with customers. These differences distort the relationship between competition and efficiency in the banking system. As a result, competition can increase monitoring costs and bank efficiency may reduce due to shortening of time working with customers.

The **GROSS-LOANS** credit growth coefficient has an opposite effect to technical efficiency with 1% level of significance. It doesn't mean that the more banks lend, the higher the efficiency. As credit increases, the risk of lending will also increase, especially with medium and long-term credits, which often have a high level of risk. Because these are credits that strongly affected by changes in the market and the economy. The credit growth race will put banks in the context of loosening credit regulations (the appraisal process is easier ...), while the ability to control credit quality is not guaranteed, thus, making loans become more risky and reducing the efficiency of using capital, increasing operating costs. Therefore, in order to increase the efficiency of credit operations, banks need to minimize operating costs, as well as exploit and develop new products on the basis of modern technology to increase revenue from service which are less risky.

The net interest margin **NIM** coefficient has a negative impact on a bank's technical efficiency with 1% level of significance. With the reduction of the administrative intervention of the State Bank in controlling interest rate band, the movements of interest rates in the monetary market in recent years have been close to the law of supply and demand of the capital market, thus, fluctuation range of lending and deposit rates tends to decrease. This has made traditional banking services face increasingly tough competition. Traditional credit products will face more and more competition, consumers will be smarter, requiring banks to provide more diverse products. If banks still pursue a competitive strategy and expand traditional products, they will have to increase costs and reduce their operational efficiency. Banks that want to improve efficiency are required to pursue a new trend, which is to diversify products, improve service quality of new products, bring more benefits to customers.

Although market share variable (**MS**) is not statistically significant in the above model, it also partly reflects the impact of market share division on banks' performance. Banks with large market share can improve their performance since large market will lead to lower operating cost and bigger profit.

*Conclusion: The above analysis shows that to improve the performance of Vietnam's commercial banks in the coming time, it is necessary to consider expanding the foreign ownership rate and reducing centralized ownership rate. In addition, it is required to strengthen the capacity of managers and credit officers, to enhance exploiting current services and providing new services in order to increase competitiveness in the market. Continue to complete the process of privatizing state commercial banks to create new factors to meet the requirement of financial market in the post-WTO period.*

## 5. References

### *English references*

1. Balsmeier, B., & Czarnitzki, D. (2015). Ownership concentration, institutional development and firm performance in Central and Eastern Europe. *Managerial and Decision Economics*.
2. David Greenaway Alessandra Guariglia & Zhihong Yu (2009), The more the better? Foreign ownership and corporate performance in China, *The European journal of finance*, No. 20 (Page 7-9).
3. Eklund J.E. & Wiberg, D. (2008), R&D and the Persistence of profit, *Journal managerial economics*, No 6(2), Page: 40-54.
4. Gursory & Aydogan (1998), Equity ownership structure, risk taking, and performance: an empirical investigation in Turkish listed companies, *International Global Finance Conference in Istanbul, Turkey*.
5. Kobeissi N (2005), Ownership structure and bank performance: Evidence from the middle East and North Africa (MENA). Working paper 0413.
6. L.Megginson M. Netter (2001), From state to market: A survey of empirical studies on privatization, *Journal of Economic Literature*, No. 39(2), Page: 321-389.
7. Li Sun & Zou (2009), State ownership and corporate performance: A quantile regression analysis of Chinese listed companies, *China economic review*, No 20(4), Page: 703-716.
8. Loderer & Martin (1997), Executive stock ownership and performance: Tracking faint traces, *Journal of financial Economics*, No 45(2), Page: 223 - 255.
9. Meckling Jensen & William (1976), Theory of the firm: Managerial behaviour, Agency Costs and Ownership structure, *Journal of financial Economics*, No 3, Page: 305-361.
10. Moldenhausser, B & Kaserer, C (2008), Inside ownership and corporate performance: Evidence from Germany, *Review of managerial Science*, No 2(1), Page: 1-35.
11. Morck Shleifer, A & Vishny R.W. (1988), Management ownership and market valuation: An empirical analysis, *Journal of financial Economics*, No 20, Page: 293-315.
12. Park Kwangwoo (2011), Foreign ownership and firm value in Japan.
13. Ram Mudambi & Carmela Nicosia (1998), Ownership structure and firm performance: evidence from the UK financial services industry, *Applied financial economics*, No 8(12), Page: 175 - 180.
14. Saul E. J.Hanousek, J.Svejnar (2008), The effect of privatization and ownership in transition economies, *Journal of economics literature*, No 47(3), Page 1 -30.
15. Sytse D. Rejie G, & Rezaul K (2002), Foreign and domestic ownership, business groups, and firm performance: evidence from a large emerging market, *Strategic management Journal*, No 27(7), Page: 637 - 657.
16. Thomsen & Pedersen (2000), Ownership structure and economic performance in the Largest European companies, *Strategic Management Journal*, No 21(6), Page: 689-705.

17. Tian & Estrin (2008), Retained state shareholding in chinese PLCs: Does govement ownership always reduce corporate value?, *Journal of comparative economics*, No 36(1), Page: 74-89.
  18. Wei Z. F.Xei, S.Zang (2004), Ownership structure and firm value in China's privatized firm: 1991-2001, *Journal of financial and Quantitative analysis*, No 40(1), Page: 87-108.
  19. Wei & Varela (2003), State equity ownership and firm market performance: Evvidence from China's newly privatized firms, *Global Finance journal*, No 14(1), Page: 65-82.
  20. Wen Yuajn & Jia, Jngyi (2010), Institutional ownership, managerial ownership and dividend policy in bank holding companies, *International review of Accounting, banking and Finance*, No 2, Page 8-21.
  21. Xu X & Wang, Y. (1999), Ownership structure and corporate governance in Chinese stock companies, *China economic review*, No 10, Page: 75-98.
  22. Yu Mei (2012), State ownership and firm performance: Empirical evvidence from Chinese listed companies, *China journal of accounting Research*, No 6(2), Page: 75-87.
- Vietnamese references*
23. Lai, H.T.,(2017). "Ownership concentration, state ownership and firm performance: Empirical evidence from the Vietnamese stock market", Master thesis, University of Lincoln, New Zealand.
  24. Phung, D. N., & Hoang, T. P. T. (2013). "Corporate Ownership and Firm Performance in Emerging Market: A Study of Vietnamese Listed Firms". Paper presented at the World Business and Social Science Research Conference, Bangkok October.
  25. Tran, N. M., Nonneman, W., & Jorissen, A. (2014). Government ownership and firm performance: the case of Vietnam. *International Journal of Economics and Financial Issues*, 4(3), 628-650.
  26. Hue, N.M, & Lam, D.T (2017), "Impacts of ownership structure on firm profitability among listed firms in Vietnamese securities exchange", *Journal of Economics and Business*, No.33(1), page 23-33.
  27. Hoang,L.D (2015), "The impact of ownership structure on firm performance in Vietnam" , PhD thesis, National Economics University.
  28. Mau, N.D, & Thanh, N.X, (2012), "Ownership structure in Vietnam's commercial banks".
  29. Thien, K.H (2013), "The relationship between ownership structure and performance of state owned and state dominated commercial banks", Sector-level project, Banking Academy.
  30. Trinh, P.B (2012), "A study on the impact of foreign ownership on capital structure and corporate value: Empirical evidences in Vietnam joint stock companies."
  31. Viet, P.Q (2010), "A study on the impact of corporate governance factors on business performance of joint stock companies", PhD thesis, University of Economics, Ho Chi Minh City.
  32. Vinh, V.X (2014), "Ownership structure, business performance and corporate value on Vietnam stock market", *Journal of Development and Integration*, No. 16(26), page 28.

# MACROECONOMICS POLICY AND FINANCIAL STABILITY - SWEDEN EXPERIENCE AND LESSONS FOR VIETNAM

*Dr. Nguyen Thi Hoai Phuong*

*phuongnh@neu.edu.vn*

*MSc. Le Van Chi*

*chilv@neu.edu.vn*

*MSc. Pham Thi Thuy Dung*

*dungpt@neu.edu.vn*

*Department of Monetary and Financial Theories, School of Banking and Finance,  
National Economics University, Hanoi, Vietnam*

## **Abstract**

*The process of international economic integration has brought many development opportunities but also made financial markets become complicated and risky. Over the past 20 years, the world has witnessed many large-scale financial-monetary crises. The losses that these crises have caused to the economy are extremely serious. Consequently, ensuring macroeconomic stability is becoming an important goal in the monetary policy conducting of central banks and governments in many countries around the world. This paper examines the experience of controlling financial markets through the creation of a coherent legal framework as well as the use of macroeconomic policy instruments to control adverse transactions and activities in Sweden financial market, thereby giving lessons for Vietnam.*

**Keywords:** *Financial indicators, financial stability, fiscal policy, monetary policy, systematic risk*

## **1. Introduction**

The introduction should include the rationale of the study, theory, framework, related literature reviews, objectives of the study, and so on. In recent years, macroeconomic stability has always been one of issues that most concern. In particular, maintaining the stability of the financial and banking sector plays an important role in keeping macroeconomic stability. Under the impact of international economic integration, Vietnam's financial system has had many instabilities. Especially in the period after the financial crisis 2008 - 2015, under the impact of external factors such as global economic recession, macroeconomic instability and internal factors such as poor management, moral hazard, Vietnam commercial banking system has undertaken greater risks and faced a greater probability of financial collapse. Therefore, ensuring the stability of the financial system is always an important issue to maintain sustainable growth and help the financial system to strengthen its ability to withstand external shocks.

## **2. Theoretical framework about macro-financial stability**

### ***2.1. Concepts of macro-financial stability***

The concept of "macroeconomic stability" covers many issues and subjects in the economy. However, this study focuses on financial institutions. Accordingly, macroeconomic stability is focused on the stability of the banking system. According to Houben et al. (2004), Garry Schinasi (2004), "Stabilizing the financial sector is the ability of the financial sector to improve the efficiency of allocating economic resources as well as of other economic activities."

On a broader term, European Central Bank (2019) defines "Macroeconomic stability is the combination of conditions under which the financial system, including financial intermediaries, financial markets and financial market infrastructure, is capable of withstand shocks and minimize the risk of disrupting financial intermediation process to ensure a rational allocation of resources to profitable investment opportunities .".

According to the study of the Financial Sector Assessment Program (FSAP) of World Bank (2005), "Financial sector stability related to (1) the environment which may prevent some financial institutions from becoming insolvency and bankruptcy, (2) the condition that can prevent serious disruption of financial services such as investment and deposits, securities and payment services. "

### ***2.2. The need for macro-financial stability***

Financial stability is one of the prerequisites in macroeconomic policies of countries for the following reasons:

Firstly, whether a financial system is healthy or not is reflected by the stability of the financial system. Creating confidence in the financial system will help prevent the chaotic phenomena of the fluctuations in market (insolvency, bankruptcy or default of banks and other financial institutions), thereby minimizing negative impacts on macroeconomic safety of the economy.

Secondly, it is necessary to establish an Early warning system (EWS) to monitor financial indicators, which can help policy makers and market supervisors monitor the system as well as prepare plans to prevent financial system crises.

Thirdly, considering the history of central banks in the world, it can be seen that, in the 19th century, central banks played a major role in preventing financial shocks (Goodhart, 1988). In particular, the function of financial stability is even more focused than the function of monetary stability. After World War II, when the Bretton Woods System was established, it opened a long stable period on the financial markets. Meanwhile, the volatile prices (typical of the oil price shock in the 1970s) has led the central banks to focus more on the role of monetary stability, but not on the role of financial stability, until the 2007 - 2009 global financial crisis. Therefore, to prevent the crisis, many studies (Srdjian & Jelena, 2009; Schoenmaker, 2011) show that after the era of monetary targeting and inflation targeting,



monetary policy planners should look to a new monetary policy framework, paying more attention to the goal of financial stability.

### **3. Maintaining Macro-financial Stability: The Experience of Sweden**

The global financial crisis has seriously affected the Swedish economy. Krona depreciated by 20% against the Euro, the unemployment rate increased from 6% to 10%. Besides, large banks face difficulties in liquidity. Moreover, concerns about banks' asset quality in the Baltic region has led to a sharp decline in stock prices. Swedish government has taken strong measures to reduce the impact of the crisis, restore confidence and stability of the market.

After the global financial crisis of 2007-2009, lessons learned pointed out the weaknesses in the financial system at that time, including the weakness in financial system monitoring and crisis management. An important lesson is that macroprudential supervision should not only focus on the health of individual financial institutions but also macroprudential policy as a whole. Basically, macroprudential policies aim to analyze and prevent systematic risks in financial system. Although before the crisis, macroprudential policies were being developed, lessons from the financial crisis indicated that structures and institutions needed to be provided with adequate and independent authority. This requires the agency responsible for macroprudential to be independent of external pressures both from political factors and from the financial sector. At the same time, there is also a need for accountability. Finally, the institutional structure needs to ensure sustainable and long-term capacity as a basis for decision making (Riksbank, 2013).

#### ***3.1. Characteristics of financial system in Sweden***

The financial sector in Sweden is quite large and is dominated by systematically important financial institutions. Sweden's banking system is relatively large, centralized and connected with each other. The four largest banks Swedbank, Nordea, SEB and Handelsbank account for 85% of total banking assets. Lending is predominant in Sweden and other Nordic countries. Cross-border credit still exists in the Baltic region, with 80% of the lending activities of the four largest banks to households and businesses in Sweden, Denmark, Finland and Norway.

The insurance industry is relatively well developed and accounts for 14% of the total assets of the financial sector. All major banks have subsidiary insurance companies and large insurance companies have bank branches. In addition, there are mortgage and other credit companies, some of which are bank subsidiaries (IMF, 2011).

#### ***3.2. Institutional Frameworks for Financial Stability in Sweden***

A reform that creates an institutional framework for macro policy and crisis management has been conducted in Sweden at the proposal of the Swedish Central Bank (Riksbank). This process has a direct effect on the framework of financial stability in Sweden.

### *3.2.1. Regulatory Framework and financial stability*

In terms of the regulatory framework, Sweden does not explicitly regulate responsibility for a specific agency to play a role in ensuring financial stability. However, each agency will self-recognize its task of financial stability as an official task through memorandums. Specifically, in December 2014, in a Memorandum of Understanding, the Financial Supervisory Authority confirmed "the mission of the Swedish Financial Supervisory Authority is to ensure the stability of financial system, and to prevent the imbalance for the purpose of stabilizing the credit market. At the same time, the Swedish Financial Supervisory Authority will promote comprehensive protection of consumers.". The perception of financial stability requires the coordination of many other agencies (Finansinspektio, 2014).

### *3.2.2. Structural model for financial stability in Sweden*

Financial stability is the responsibility of many agencies including the Central Bank of Sweden, the Swedish Financial Supervisory Authority, the Ministry of Finance and the Financial Stability Council. Riksbank is responsible for promoting safe and effective payment systems. Although Riksbank has no explicit mandate for financial stability, it controls instruments related to financial stability such as providing emergency liquidity assistance (ELA) and systemic liquidity. The Swedish National Debt Office (SNDO) manages stabilization funds (with the Ministry of Finance), the deposit insurance and investor protection system. SNDO is also an agency that supports budget allocation of credit to financial institutions. The Ministry of Finance (MOF) is legally responsible for the financial sector and plays an important role in the crisis management process, especially when using banks to assist financial institutions that are illiquid.

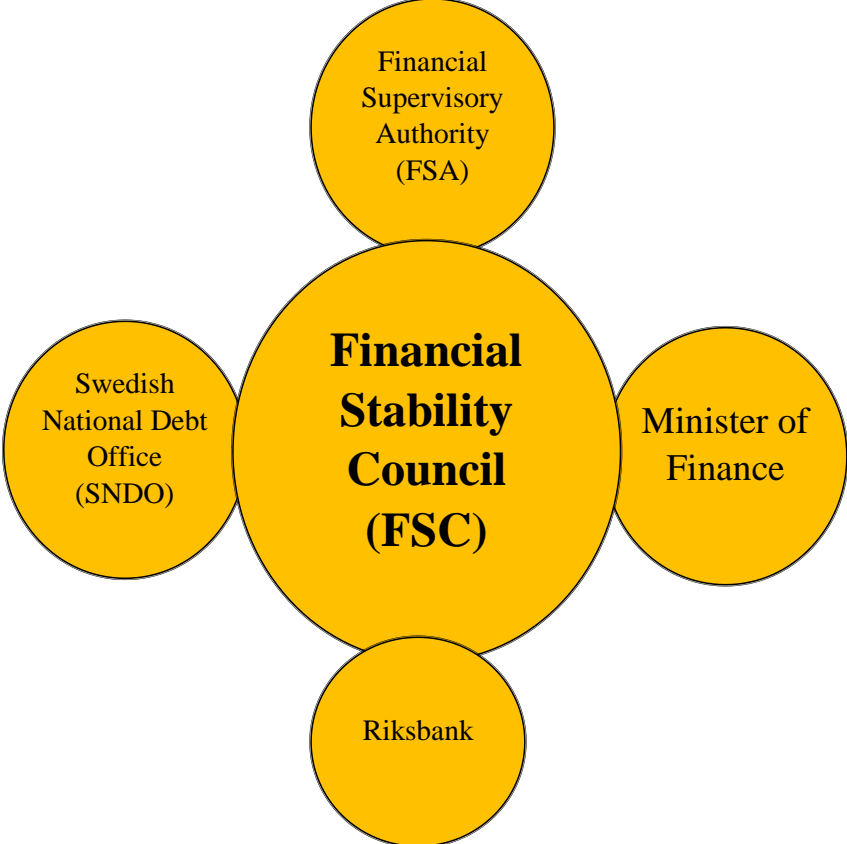
Riksbank does not directly supervise the financial system but still analyzes and assesses system risks through available data provided by the Swedish Financial Supervisory Authority. In addition, Riksbank also provided unbiased reviews about financial system for the market and the Swedish Financial Supervisory itself. This information is very important for Riksbank to provide emergency liquidity assistance. Riksbank publishes financial stability reports twice a year.

The Swedish Financial Supervisory Authority (FSA), established in 1991, is responsible for monitoring and supervising banks, securities, insurance. It has statutory responsibilities for financial stability and consumers protection. In August 2013, Swedish government decided that the FSA would be responsible for the macroprudential policy. FSA monitors and supervises the entire financial system, including 03 sectors: banking, securities and insurance sector. FSA operates independently of Riksbank but is under the Swedish Government. The monitoring and supervision framework of FSA is mainly based on risks and has been promoted since the global financial crisis. The standards and regulations on banking safety in Sweden applied by the FSA are in compliance with Basel III principles. FSA also has close coordination with ECB and other regional supervisory agencies in sharing information and coordinating supervision.

In 2011, the Government established the Financial Crisis Committee (FCC) to study improvements in the regulatory framework. In 2013, FCC proposed the establishment of a Macroprudential Council which chaired by the Governor of Riksbank and consisted of the General Director of FSA and two independent members appointed by the Government. FCC recommends that macroprudential policy should be shared responsibilities by both Swedish Financial Supervisory Authority and Riksbank.

The Ministry of Finance has regulatory responsibilities in the field of finance. The objective of this agency is to ensure stability, efficiency and consumer protection. Financial stability is an important condition to ensure economic stability, so the Ministry of Finance must also follow the development of the financial system at an overall level. FSA and Riksbank can prove the suitability or unsuitability of policies issued by the Ministry of Finance. To ensure the coordination mechanism between agencies in the implementation of macroeconomic policies to ensure the stability of the financial sector, a Financial Stability Council was established. The Financial Stability Council (FSC) which consists of the Minister for Financial Markets, the Director General of the Swedish Financial Supervisory Authority and the Governor of Riksbank is established. The purposes of this council are to discuss issues related to financial stability and measures to prevent the accumulation of financial imbalances, and to discuss the need for crisis management measures.

**Figure 1: Swedish model of financial stability**



*Source: Riksbank (2013)*

### ***3.3. Coordination Mechanism***

As stated above, in order to ensure the coordination among agencies in ensuring financial stability, a Financial Stability Council was established (replacing the previous Macroprudential Council). This is a forum run by the Government, the Swedish Financial Supervisory Authority, the Swedish National Debt Office and the Central Bank of Sweden to discuss issues of financial stability, and necessary measures. prevent imbalances caused by risks and financial crisis. Therefore, this Council is not the policy-making authority. The council includes independent agencies which are responsible for their own fields. The council meets twice a year. The Council's operating mechanism is based on the Memorandum of Understanding among the relevant agencies. The Memorandum consists of 2 parts: (1) the coordination between the 4 agencies mentioned above on financial stability and crisis management, (2) the coordination between FSA and Riksbank relates to financial stability and crisis management only. In addition, the Memorandum also states the responsibility for information sharing. Accordingly, the related parties have responsibilities to notify as soon as possible their assessments and policy implications when they see any threat to financial system stability, including:

(i) notify of events or trends which are important to financial stability; (ii) provide information on preparation plans; (iii) provide international information on this field and consult each other on views related to international cooperation; (iv) provide information on important changes related to internal organization, guidelines and plans for financial stability and crisis management (Riksbank, 2009).

In 2012, Riksbank and FSA signed a memorandum of understanding on the Coordination Council for the macro prudential policy. Accordingly, both agencies play an important role in stabilizing the financial system and preventing crises. The purpose of the Memorandum of Understanding is to prevent systemic risk by establishing a Council to coordinate in macro prudential policy.

In addition, Sweden also established coordination mechanisms with foreign supervisory agencies. Collaboration with foreign agencies is primarily related to the exchange of information, discussion of potential risks, and measures to prevent risks and manage crises. In particular, Sweden is part of the European Central Bank system, participates in European economic and financial committees (EFC), and follows European guidelines. Moreover, Sweden has signed memorandums of understanding for coordinating macroprudential policies at the European level through the European System Risk Management Council (ESRB), and with Northern European and Baltic countries (Riksbank, 2013).

### ***3.4. Policy Analysis and Implementation Tools to Ensure Financial Stability in Sweden***

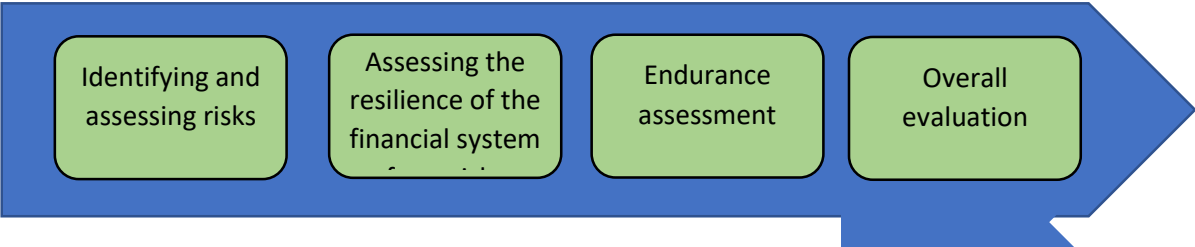
#### ***3.4.1. Policy Analysis Tools***

Analysis/ Supervision process:

Riksbank analyzes financial stability to identify changes and vulnerabilities that can lead to a crisis. The analysis focuses on Swedish banks, markets and financial infrastructure.

Riksbank's financial stability assessment includes: (i) identifying and assessing risks; (ii) assessing the resilience of the financial system from risks; (iii) endurance assessment and (iv) overall evaluation. In line with Riksbank's recommendations, the Financial Stability Report (FSR) is also conducted twice a year to assess the overall financial stability in Sweden (Riksbank, 2013).

**Figure 2: Riksbank’s financial stability assesment process**



*Source: Riksbank (2013)*

**Analysis and Supervision tools:**

As the agency directly responsible for monitoring system risks, based on data collected, the Swedish Financial Supervisory Authority uses many tools to analyze and assess systematic risks and identify systematically important financial institutions (SIFI). Safety rules are applied flexibly between systematically important financial institutions (SIFI) and non systematically important financial institutions (non-SIFI). FSA also uses the CRAFT model to rate banks' systemic risk, in which the banks’ impacts on the financial system are divided into “high, medium high, medium low, and low level”.

**Communication and Financial Stability:**

Communication on financial stability is one of the important components of financial prudential policy. Riksbank pays attention to identifying risks and public warnings in conversations with participants. Riksbank regularly publishes information related to financial stability as well as reports, articles, press releases on the Web. Riksbank also organizes seminars, bilateral meetings with domestic and foreign supervisory agencies on the annual macroprudential policy to create an official forum where policy makers, representatives of the private sector and scholars around the world can discuss, exchange experiences and learn from each other.

**Database for analysis:**

Under Swedish Central Bank Law, Riksbank reserves the right to request information as needed to ensure the stability of the payment system. Statistics Sweden on behalf of Riksbank carries out financial market statistics including data on financial institutions and financial markets. The database is collected monthly, including information on the debt and assets of businesses in the financial market as well as the ratio of loans and deposits at these institutions. In addition to the available data sources, in order to obtain an input database for the Financial Stability Report in Sweden, since 2008, Riksbank has conducted a risk survey

twice a year (April and October each year) to survey about fixed earnings and the foreign exchange market. The objective of this survey is to capture an overall picture of market participants' risk positions and the functioning of financial markets. This survey only addresses the financial system of Sweden. The results of the survey are based on respondents' responses and do not necessarily reflect Riksbank's views on Sweden's financial market.

#### *3.4.2. Macroprudential tools*

In October 2010, FSA introduced a loan-to-value ratio (LTV) for real estate mortgages. An LTV ceiling rate of 85% are applied to all real estate mortgages for both new and additional loans. The average LTV ratio increased from 10% in 1995 to 55% in 2010 and the average LTV ratio for new loans increased to 71% (Martin w Johansson, 2015).

In May 2013, the Swedish Financial Supervisory Authority introduced a minimum 15% risk coefficient for mortgage loans. This measure applies to financial institutions that use an internal ranking approach to calculate the capital requirements for credit risk of mortgage loans. The minimum risk coefficient is given on the basis of an aggregate portfolio for each bank and relates to the average risk weight. This measure is based on pillar 2 as part of the ongoing monitoring process of the Swedish Financial Supervisory Authority. Currently, the Swedish Financial Supervisory Authority has raised the minimum risk coefficient to 25%.

In November 2014, the Swedish Financial Supervisory Authority issued regulations on mortgage installments. The proposed regulations will ensure that new loans are repaid in 2 steps. New mortgages with LTV higher than 70% will pay at least 20% of the principal each year until LTV is 70%. After that, the household will repay at least 1% of the loan each year until LTV is 50%.

Liquidity coverage ratio (LCR) was approved on January 1, 2013. After the financial crisis, the Swedish Financial Supervisory Authority has raised requirements for credit institutions and investment companies' reports to monitor the liquidity indicators according to Basel III (2011). The LCR rate has been applied since 2013 under the guidance of Basel III. This requirement applies to large financial institutions, financial groups and currently there are 8 organizations to comply with. The LCR measures a bank's liquid assets based on a 30-day Endurance Test, assuming no other funding is available.

The Ministry of Finance, the Swedish Financial Supervisory Authority and Riksbank proposed that the capital adequacy ratio of four largest Swedish banks increase to 12% on 1 January 2015. That ratio is higher than Basel 3 requirements. In May 2014, the Swedish Financial Supervisory Authority decided that systematically important banks would keep an additional 3% capital buffers (Svensson, 2016).

## **4. Discussion and Conclusion**

### **Lessons for Vietnam**

From experiences of Sweden, the following lessons can be learnt for the design of a financial stability framework for Vietnam:

(1) Responsibility for the implementation of financial stability should be legislated and assigned to a specific authority

In the case of Sweden, although the responsibility to enforce financial stability is not specifically legislated and undertaken by many authorities, the establishment of the Council of Financial Stability, which is the responsibility for coordinating the implementation of financial stability shows the need for an agency or entity responsible for financial stability. This is entirely appropriate when financial stability is involved in many areas other than the financial sector.

(2) Model of financial stability should be established based on the specific characteristics of each country

In the case of Sweden, there is no specific regulation for which agency is primarily responsible for financial stability, but which is solely responsible for the relevant field. For example, Riksbank and FSA have memorandums of responsibility for ensuring financial stability. These entities are members of the Financial Stability Council. The Financial Stability Council discusses issues related to financial stability only. Final decision still rests with the relevant agencies. Each model has its own advantages. It can be seen that the key to establishing the effectiveness of each model is close coordination between related agencies.

(3) Coordination mechanism

Another problem is the legality of the coordination mechanism. In the case of Sweden, the coordination mechanism is usually not legally binding because it implemented through the Memorandum of Understanding. The financial stability forum operates on voting by majority. Therefore, it is necessary to base on the specific situation of the country to select the coordination mechanism so as to achieve the highest efficiency.

(4) The need to develop an analysis/ supervision process

The experience of Sweden shows the need for developing analytical tools and policy tools to ensure the timeliness of policy. Most countries, for example, have established a macroprudential supervision process. The clearer this process is, the more effective it is. The process may involve different steps, but generally contain the following principles: (i) monitoring and supervising under normal conditions; (ii) risk identification; (iii) risk assessment; (iv) assessing risk tolerance; (v) making policy recommendations.

(5) Criteria for analyzing macroprudential policies

Indicators used to analysis the impacts of risks on financial stability are different among countries. Depending on the characteristics of financial sector as well as the availability of data, appropriate analytical criteria should be selected. However, it is necessary to develop a set of indicators and have specific instructions about how to collect, handle and use the above indicators in the policy analysis /superviosn process. In addition, because the framework for analyzing macroeconomic policies is not standardized such as monetary policies, analytical models should be built based on the database and characteristics of each country's financial sector. Unlike monetary policy, macroeconomic

policies are macroprudential tools which are applied to the whole system, so it is necessary to determine the conditions for applying policies to avoid causing unnecessary burden for the entire financial sector.

#### (6) Coordination between macroprudential policy and monetary policy

Monetary policy and macroprudential policy should be considered as two sides of a problem. In order to achieve financial stability, it is necessary to closely coordinate these two policies. The implementation of monetary policy should consider the impact on macroprudential policies and vice versa. The development of a mechanism for exchanging, unifying objectives and tools for implementing policies as well as identifying side effects is necessary to effectively coordinate the two policies mentioned above. The central bank should lead the macroprudential policy. Despite the implementation of macroeconomic policies is assigned to an agency other than the central bank, the central bank always plays an important role in macroprudential policy. The assignment of the central bank to lead in macroprudential policies also helps to improve the coordination between monetary policy and macroprudential policies.

#### (7) Information sharing is a necessary condition for financial stability

The establishment of the Financial Stability Council in Sweden aims to share information and coordinate implementation. The coordination should be made clear at every stage of the financial stability implementation process, starting with the initial information sharing. Besides, because macro-financial stability is a wide field, it requires analysis and evaluation from many different areas (such as macroeconomics, real economic sector including enterprises, households and markets, real estate market, ...).

#### (8) Communication about financial stability

Because the issue of financial stability is a relatively new issue, covering a wide range, the issue of financial stability is paid attention to by all countries. Usually these countries public the financial stability task as well as financial policy instruments and related agencies. International seminars and forums are also a good communication channel. Publishing regular reports, especially the Financial Stability Report, which is usually conducted every 2 years, in the media is also a useful lesson for Vietnam.

### 5. References

1. Finansinspektionen (2014) [Online] Available at: [https://www.finansinspektionen.se/contentassets/e9720562371742808d03dbae519473cf/fs1404\\_eng.pdf](https://www.finansinspektionen.se/contentassets/e9720562371742808d03dbae519473cf/fs1404_eng.pdf)
2. Garry J. Schinasi (2004), *Defining Financial Stability*, IMF.
3. Goodhart (1988), *Searching for a metric for financial stability*, LSE Financial Markets Group Special Paper Series, Special Paper no 167, May.
4. Houben, Jan Kakes và Garry Schinasi (2004), *Towards a Framework for Financial Stability*, De Nederlandsche Bank.



5. IMF (2011), *Macro prudential Policy: An Organizing Framework*.
6. Riksbank (2009) [Online] Available at: <https://www.riksbank.se/en-gb/>
7. Riksbank (2013) [Online] Available at: [https://www.riksbank.se/globalassets/media/rapporter/arsredovisning/engelska/rap\\_arsred2013\\_140331\\_eng.pdf](https://www.riksbank.se/globalassets/media/rapporter/arsredovisning/engelska/rap_arsred2013_140331_eng.pdf)
8. Schoenmaker, Dirk (2011), *The role of central banks in financial stability*, April 2011.
9. Srdjian M. & Jelena R. (2009), *Inflation targeting challenges by financial crisis*, Economics and Organization, Vol. 6, No. 3, 2009.
10. Svensson (2010), *Monetary policy after the financial crisis*, September 2010.
11. Svensson, L. (2016), “Commentary on Monetary Policy and Financial Stability” (slides), presented at “Challenges to Financial Stability in a Low Interest Rate World,” Annual International Journal of Central Banking Research Conference, Federal Reserve Bank of San Francisco, November 21-22, 2016.
12. World Bank (2005), *Financial Sector Assessment*, The World Bank.

# DEVELOPING HIGH-TECH MARKET AND SUSTAINABLE AGRICULTURE IN ISRAEL: POLICY IMPLICATIONS FOR VIETNAM

*MA Nguyen Thanh Tuan*

*nghiaphuongduc16@gmail.com*

*Political Academy, Hanoi, Vietnam*

*MA Nguyen Duc Hoang Tho*

*14.6.hoangthanh@gmail.com*

*Tran Quoc Tuan University, Hanoi, Vietnam*

## **Abstract**

*In the current climate change context, sustainable agricultural development has become a global issue. Vietnam government has had issued guidelines and policies to develop agriculture sustainably; in which the application of science and technology, high technology in agricultural production is a great orientation. However, there is still a big gap between policy and reality, which requires appropriate policy adjustments to move towards truly sustainable agricultural development. Israel, a country with unfavorable geographical location and natural conditions, has made remarkable achievements in sustainable agricultural development thanks to the application of high technology, which gives useful suggestions to other countries in sustainable agricultural development. By examining the available documents, this paper attempts to present the process of sustainable agricultural development in Israel, in which specially emphasizes the role of the high-tech market in sustainable agricultural development. On that basis, some policy implications are proposed for Vietnam.*

**Keywords:** *High technology, high-tech market, sustainable agriculture, Israel, Vietnam.*

## **1. Introduction**

Agriculture is the physical production sector that initiated the process of social production. History of agricultural development shows that countries have encouraged to maximize the advantage of resources to produce agriculture with high productivity, meeting the increasing demand of people for food and foodstuffs. As a result, the ecological environment is degraded, leading to a decrease in the quality of human life. The process of globalization, urbanization and industrialization of the economy, on the one hand, promotes the development of agricultural production, on the other hand, can cause unsustainable development. Therefore, sustainable development of agriculture has become an indispensable problem not only for one country but also a global trend.

Discussing about the agricultural restructuring trend towards sustainable development, Bui Thi Thanh Huyen (2018) points out that the agricultural structure of the countries is often shifted in the direction of: (i) Promoting the benefits comparative

advantage towards a agriculture with high economic efficiency; (ii) being environmentally friendly towards a green agriculture; (iii) applying high technology and (iv) adapting to climate change or mitigating the negative effects of climate change. The results of this process are reflected in the economic field, and at the same time, they are expressed in both social and environmental aspects. Investigating the agricultural development in EU and Israel countries, Knickel K. et al. (2017) suggests that a highly efficient, equitable and inclusive agricultural system can be achieved if agricultural modernization is in harmony with urgent ecological environment and higher socio-economic requirements. Thus, each country, depending on specific conditions, should focus on the trend of agricultural restructuring and select appropriate agricultural production models in the process of sustainable agricultural development. In order to develop agriculture in an intelligent orientation, harmonize economic benefits with community and environmental benefits, the development of the technology market in general and the high-tech market in particular are considered to be prerequisites.

Deeply aware of the role and impact of science and technology, Vietnamese Communist Party affirms that: “It is necessary to develop science and technology, to make science and technology the truly top national policy and the most important driving force to develop a modern production force and knowledge economy, to improve productivity, quality, efficiency and competitiveness of the economy, to protect environment, to ensure national defense and security” (Vietnamese Communist Party, 2016, pp. 119-120). At the same time, Prime Minister of Vietnam affirms that strengthening the role and impact of science and technology, promoting technological innovation are important to actualize Vietnam’s Sustainable Development Strategy for the period of 2011-2020 (Prime Minister of Vietnam, 2012). In the field of agriculture, Vietnamese Communist Party supposes that “It is crucial to accelerating the restructuring of agriculture, building comprehensive ecological agriculture in the direction of modernity, sustainability in the basis of promoting comparative advantages and reorganizing production, enhancing extensive application of science and technology (especially biotechnology, information technology) in producing and managing agriculture, accelerating industrialization and modernization in agriculture and rural areas in order to increase productivity, quality, efficiency and competitiveness, in order to ensure national food security in the short and long term, to improve farmers' income and life quality” (Vietnamese Communist Party, 2016, p. 92). Thus, in terms of policy, Vietnam is well aware of the trends and possibilities of sustainable agricultural development, the role and impact of science and technology, especially high technology (such as biotechnology, information technology) in sustainable agricultural development. On that basis, Vietnam has issued many legal documents, creating the necessary legal corridor to develop sustainable agriculture, enhancing science and technology, promoting high-tech applications in agriculture.

Up to now, Vietnam's agriculture has developed and achieved important achievements. GDP of the whole industry in the 2008-2017 period reached an average of 2.66%/year, especially reached 3.76% in 2018. Agricultural product consumption markets have been increasingly expanded. Vietnam's agricultural products have been exported to over 185 countries and territories, including many high-quality markets such as the US,

Japan and the EU. Many models of hi-tech agriculture and organic agriculture have been implemented. However, the agricultural production in Vietnam still has small scale, limit labor productivity and unstable consumption market (Ngoc Quynh, 2019). The above achievements of Vietnam are mainly derived from the development of the technology market in general and the high technology market in the field of agriculture in particular.

In recent years, Vietnam has actively developed the technology market in the field of agriculture, manifested in: (1) Developing strongly the supply of plant seeds, technology, machinery and equipment generated from scientific research and technological development activities; (2) increasing the activities of intermediary organizations, focusing on hi-tech agricultural zones, agribusiness incubators and extension centers; (3) applying technology in renovating processes, techniques and methods of organizing agricultural production on a large scale (Luong Van Thuong, Tran Quoc An, 2017; Mai Hoang Thinh, 2019). This fact proves that Vietnam has developed agriculture in the direction of intelligence in order to promote its comparative advantages, as well as timely adapting to climate change, contributing to the actualization of the sustainable agricultural development policy. However, there are still many problems arising in the development of the hi-tech market in agriculture, both in terms of technology supply, as well as the activities of intermediaries. The patent registration administrative procedure is still long lasting which reduces the opportunity for commercialization of the owner. The mechanism for assigning ownership and right to use research results from the state budget is still cumbersome and complicated. In particular, the linkage between research institutes, universities and agricultural enterprises is not cohesive and intrinsic. The operation of hi-tech agricultural zones has not been as effective as expected (except for Ho Chi Minh City Hi-tech Agriculture Park). The operation of agricultural extension centers and extension clubs is still ineffective, raising the need for research on the relationship between high-tech market development and sustainable agriculture thereby suggesting appropriate policy suggestions.

In the next section, the development of high-tech markets and sustainable agriculture is presented. Then, Israel's experience in developing hi-tech markets and sustainable agriculture is investigated. Finally, the article concludes and suggests some policy implications for Vietnam.

## **2. Methods**

By examining previous researches and applying descriptive statistics method, the paper attempts to present systematically the development of high-tech markets and sustainable agriculture. Particularly:

Reviewing published studies to clarify the concept of high-tech market development, sustainable agriculture development as well as the relationship between developing sustainably agriculture and the high-tech market.

In the basis of investigating Israel's high-tech and sustainable agricultural market development experience, in which highlighting the positive impact of high-tech market development on sustainable agricultural development, some policy implications are proposed for Vietnam.

### 3. Results

#### 3.1. Developing high-tech market and sustainable agriculture

##### *\* Concept of high-tech market*

Discussing the terms "science market", "science and technology market", "technology market", Tran Van Hai (2012) approaches from the law on intellectual property and supposes that there is only technology market concept while there is no concept of science market, so there is no science and technology market. Approaching the issue in a broader perspective, from the viewpoint of Marxist - Leninist political economy, Nguyen Van Anh et al (2012) supposes that there exist three concepts: "scientific market", "science and technology market" and "technology market". Depending on specific conditions and circumstances, the above terms can be used appropriately. According to Nguyen Huu Xuyen, Duong Cong Doanh (2014), the gap between scientific research and technological development has been increasingly shortened, the boundary between science and technology is increasingly difficult to separate, so the term "science and technology market" or "technology market" have the same meaning and can be used simultaneously in the current context of Vietnam. Accordingly, the technology market is understood as the place where activities of trading, exchanging and transferring ownership of technological goods are conducted. At the same time, it also includes mechanisms and policies to allocate resources to ensure that technology transaction and transfer take place smoothly and successfully (Nguyen Huu Xuyen, Duong Cong Doanh 2014, p.18).

In fact, in the Vietnamese legal documents, the use of the term "science and technology market" or "technology market" is not consistent. There are differences in the expression of the term "science and technology market". According to the Prime Minister's Decision No. 2075/QĐ-TTg, "The science and technology market is an integral part of establishment of a socialist-oriented market economy institution, which plays a key role in creating an environment to promote creative and technological innovation activities, strengthening national science and technology capacities for the country's socio-economic development" (Prime Minister, 2013). Meanwhile, according to the Ministry of Science and Technology: "The science and technology market is a legal, investment and commercial environment for promoting transaction, exchange and purchase relations related to scientific and technological products and services. This market is operated with the orientation, regulation and support of the state" (Ministry of Science and Technology, 2017).

Within the scope of this article, the authors do not intend to clearly distinguish the terms "science and technology market" and "technology market". We admit that in the current Vietnam context, the term "science and technology market" and "technology market" can be used simultaneously, as the approach of Nguyen Huu Xuyen and Duong Cong Doanh (2014).

Selectively inheriting the points outlined, the authors argue that: The high-tech market is a part of the legal, investment and trade environment in the socialist-oriented market economy. At the same time, it is the place where activities of buying, selling, exchanging and transferring ownership of high-tech goods take place. The hi-tech market is

formed and developed on the basis of some factors, including: legal framework for market transactions, buyer (demand), seller (supply), price and service support activities between buyer and seller. It can be seen that the state plays an important role in the development of technology market (Nguyen Huu Xuyen, Duong Cong Doanh, 2014). In the condition of active support from the state, as well as organizations, intermediaries, the average time from patent to successful commercialization of a technology is from 7 to 12 years (Swamidass PM, Vulasa V., 2009). Therefore, compared to other types of markets, developing the technology market in general and the high-tech market in particular is more difficult due to the narrow market size and heavy dependence on the technology life cycle (Lee SH., 2010).

*\* Sustainable agricultural development and influencing factors*

Nowadays, the term "sustainable development" is so popular that it is used in almost every industry and sector. In each sector, this concept is understood and expressed in different angles. The concept of sustainable development in the World Environment and Development Commission's Brundtland Report - WCED (now the Brundtland Commission) is widely accepted and commonly used. Accordingly, sustainable development is the development that can meet current needs without compromising the ability to satisfy the needs of future generations. In Vietnam, sustainable development is required throughout the process of national development which combines closely, reasonably and harmoniously economic development with social development, natural resources, environment protection and national defense, security and social order and safety ensure (Prime Minister of Vietnam, 2012).

As well as sustainable development, the issue of sustainable agricultural development is also approached from a variety of research perspectives. In the view of FAO, sustainable agricultural development is understood as the process of preserving soil, water, sources of plant and animal breeds, without degrading environmental quality which is suitable in terms of technicality, feasible in terms of economy and acceptable in terms of social aspect (FAO, 1992). Subsequently, sustainable agricultural development is concretized as a process that meets the following criteria: (i) Ensuring basic nutritional needs, both quantity and quality, of current and future generations while still providing a diverse range of agricultural products; (ii) providing long-term employment, adequate income and decent living conditions for people involved in agricultural production; (iii) maintaining and enhancing the production capacity of natural resources and the reproduction capacity of renewable resources without disrupting the function of the basic ecological cycles and the natural balance, non-destroying the socio-cultural properties of rural communities or polluting the ecological environment; (iv) reducing the agricultural sector's vulnerability to adverse socio-economic and natural factors, as well as increasing the self-reliance of agriculture (FAO, 1997). In the current general trend, the agricultural sector over the world is adjusting to a smart orientation to harmonize the economic benefits of agriculture with the benefit of the community and the environment, towards the goal of sustainable development.

In Vietnam, agriculture is an important economic sector, in terms of contribution to GDP and job creation (the workplace of nearly 50% of the labor force), therefore, sustainable agricultural development is an urgent requirement (Vu Trong Binh, 2013). Up to now,

Vietnam has issued many policies to promote sustainable agricultural development, from the "Agenda 21 of Vietnam" to the "Vietnam Sustainable Development Strategy". Agenda 21 of Vietnam was issued together with Decision No. 153/2004/QĐ-TTg of 17/8/2004 by the Prime Minister, related to 3 priority groups focusing on sustainable agricultural development, including: law, economics, engineering and technology. The Vietnam Sustainable Development Strategy was prioritized towards developing production of agricultural products with quality and efficiency, linking domestic production and international markets in order to enhance the efficiency of resource use (land, water, forests, labor and capital), increasing income per unit of arable land hectare, per day of labor, improving the lives of farmers, developing sustainably trade villages (Prime Minister of Vietnam, 2012). The reality of Vietnam's agricultural development shows that Vietnam has been attaching great importance to both economic development, social justice and environmental protection in agricultural development, meeting social requirements in agriculture both now and in the future (Do Kim Chung, Kim Thi Dung, 2013).

It can be seen that, regardless of the approach to sustainable agricultural development, they all converge on economic, social and environmental aspects, in which, economic development needs to be harmonious with social development and environmental protection. Economically, sustainable agricultural development is reflected in the growing quality of the agricultural sector and the restructuring of the agricultural sector towards sustainability and modernization. The quality of agricultural growth is reflected in the dynamics, structure and efficiency of growth. Restructuring the agricultural sector towards sustainability and modernization is the process of restructuring the agriculture sector to allow the maximum exploitation of resources, ensuring a stable growth rate at a high level, promoting comparative advantages and matching with specific conditions of each country and territory. Socially, sustainable agricultural development must ensure social justice, hunger eradication, poverty alleviation and people's lives improvement (especially lives of rural population). In terms of environment, sustainable agricultural development is the process of agricultural development associated with ensuring human living environment.

Investigating the factors which affect sustainable agricultural development in countries, it can be seen that sustainable agricultural development is influenced by many factors such as: (i) Natural conditions and quality of agricultural labor force; (ii) agricultural development policy; (iii) investment resources and science, technology; (iv) product consumption market and the openness of the economy; (v) the process of industrialization, urbanization and planning of agricultural development space (Vu Trong Binh, 2013; Pham Thanh Binh, 2015; Pham Thanh Binh, 2017; Ngo Vinh Khuong, 2016). Agriculture is an economic sector directly affected by natural conditions (soil, water, climate ...). Favorable natural conditions will create great advantages in sustainable agricultural development. The agricultural workforce is a key element of agricultural economic development, and it is also an essential part of agricultural and rural development process in general and sustainable agricultural development in particular. The quality of the agricultural workforce will

determine the productivity and product quality of the agricultural sector (agricultural products) and the sustainable formation and development of agriculture (Vu Trong Binh, 2013). The guidelines and policies for sustainable agricultural development of each country reflect the determination of each nation in the current development of agriculture, which is often related to policies on land, infrastructure investment, development of science and technology market. Policies of each country, if appropriate with the trend and development level of the economy and the unique natural conditions of each country, will promote sustainable agricultural development (Pham Thanh Binh, 2015). Investment is a prerequisite for economic development in general and sustainable agricultural development in particular. A country often bases on specific goals in each stage of development to release an appropriate investment mobilization policy. Scientific and technological level is a direct factor affecting the efficiency of agricultural production in sustainable agricultural development. Countries with high level of scientific and technological development often are leading countries in sustainable agricultural development (Ngo Vinh Khuong, 2016). In the current trend of globalization, countries with high openness of economy (deep and wide international integration) are often associated with large product consumption markets, thereby creating room for sustainable agriculture development (Vu Trong Binh, 2013; Pham Thanh Binh, 2017). In addition, the process of industrialization, urbanization and spatial planning of agricultural development are also factors which can affect sustainable agricultural development of nations.

### ***3.2. Israel's experience in developing hi-tech market and sustainable agriculture***

Being a small country in the Middle East region, with 70% area is desert, Israel is not suitable for agricultural development. Therefore, in order to meet the food requirements of the citizen, Israeli government has advocated developing a high-tech agriculture to produce a large quantity of products with the best quality. Currently, Israeli agriculture accounts for about 2.5% of GDP, 3.6% of export value and has produced itself to meet 95% of domestic food demand (Pham Thi Thanh Binh, 2015).

#### **Israel's natural conditions and achievements in sustainable agricultural development**

<b>Natural conditions</b>	<b>Successful agricultural production</b>
Area 22,072 km <sup>2</sup> (equivalent to Nghe An province of Vietnam)	Agriculture accounts for 2.5% of GDP and 3.6% of export value
70% of the territory is desert, 1% is water. Average rainfall is low, about 500mm/ year	The rate of recycling wastewater used in agriculture is up to 75%.
24.4% of the land is arable land for agriculture	As the No. 1 supplier of agricultural products to the European Union (EU)
2.5% of the population produce agriculture	Ensure 95% of domestic food. A farmer can provide enough farm products to raise more than 100 people

*Source: Pham Thi Thanh Binh (2017).*



It can be seen that the remarkable achievements that Israel has gained in sustainable agricultural development are reflected in the following contents: (i) Invention and application of technology optimize the scarce water resources and saline intrusion to maximize crop production; (ii) developing successfully Kibbutz and Moshav cooperative model which is based on the principle of social equality, cooperation and mutual assistance; (iii) building a “Israeli style” model which links the state, researchers, entrepreneurs, farmers and consultants (Pham Thi Thanh Binh, 2017). Throughout the results achieved in sustainable agricultural development of Israel is the development of science and technology, development of high-tech markets and the application of high-tech fluency in stages, steps throughout set of agricultural production processes. Israel's achievements are vivid examples of the relationship between high-tech market development and sustainable agricultural development. Specifically:

*\*. Policies in R&D, high-tech market development and sustainable agricultural development assistance*

Israeli agriculture is closely linked to the development of science and technology, and there is a close cooperation between governments, businesses and cooperatives in solving difficult problems of agriculture such as genetics, disease control, dry land farming... Investment in R&D is taken from the government budget and mainly through venture capital funds, domestic and foreign capital. R&D investment from the state budget accounts for about 4.4% of Israel's GDP and is always maintained at a higher investment rate than all OECD member countries. Israel's per capita venture capital investment is 2.5 times higher than that of the United States, 30 times than that of Europe, 80 times than that of China and 350 times than that of India. About 43% of Israel's R&D investment is domestic capital, with the remainder from foreign investment (Pham Thi Thanh Binh, 2015).

In the structure of Israeli industrial exports, high-tech goods account for 50% of export value (Ngo Vinh Khuong, 2016). The R&D investment policy in agriculture and the development of the high-tech market, on the one hand, have strongly promoted Israel's sustainable agricultural development, creating high productivity and good product quality, on the other hand, have turned agricultural technology products into commercial products of great value.

*\*. The development of enterprises, research and application organizations, institutes, universities ... is the premise to promote the development of high-tech market and sustainable agriculture.*

Israel has many large agricultural research agencies, typically ARO - Agricultural Research Organization. The ARO is responsible for 75% agricultural researches of Israel. This organization includes 6 research institutes, that perform various research tasks in agriculture. In addition, ARO also manages 4 field research stations, which serve as centers for agricultural product control, agricultural equipment and agriculture gen bank management. The Israel Institute of Technology is at the same level with the Massachusetts Institute of Technology of the United States. Israeli universities such as Hebrew University, Tel Aviv University and Ben Gurion University are all in the top 50 best universities in the world.

Israel is ranked in the group of countries with very high levels of human resource development. 24.5% of this country's people has a bachelor's degree, which is among the highest in the world. Mean while, the Human Development Index (HDI) ranked 19/187 in 2013 (Pham Thi Thanh Binh, 2017). In fact, most major software companies in the world such as Apple, Google, Microsoft ... have research and development branches in Israel to take advantage of high quality human resources. It is the development of Israeli institutes, universities and the presence of the world's leading technology companies that have driven the development of the high-tech market, thereby increasing the level of high technology application on sustainable agricultural development.

*\*. The development of intermediary organizations, high-tech applied research models and support services in agriculture*

The Kibbutz and Moshav cooperative model has been very effective in supporting the sustainable agricultural development of Israel in general and for agricultural technology activities in particular. Through this model, the implementation of agricultural projects and the application of high technology in agriculture are focused, agreed, quickly and effectively. Not only at the major agricultural centers, even at Kibbutz and Moshav cooperatives, there is the presence of research laboratories or representative offices of scientific research institutes. Therefore, the connection of farmers and scientists becomes more tight. It can be said that the Israeli agricultural sector has become a "laboratory" for developing new agricultural technologies, then spread throughout the world.

In addition, Israel has invested significantly in support services such as modern information technology and telecommunications in order to create favorable conditions for agricultural production and trade of agricultural products. For greenhouse production, the entire irrigation, fertilization, temperature and humidity control systems ... are all automated through a technical management software system. Thanks to the development of information technology, Israeli farmers can directly connect with individuals and organizations that have demand for agricultural products to advertise and trade their products. Up to now, Israel has actually built a modern electronic agriculture.

*\*. High-tech applications in agriculture have promoted the development of high-tech market in agriculture.*

Due to the harsh natural conditions, Israel's choice of high technology applications in agriculture is indispensable. To date, more than 80% of Israel's agricultural areas have applied drip irrigation technology, bringing high economic efficiency in agricultural production (Ngo Vinh Khuong, 2016). On the other hand, it is the success of this technology that Israel has exported to the world market, bringing a great source of revenue.

Along with drip irrigation technology, greenhouse technology is also considered as a key to the success of Israeli agriculture. Through the application of greenhouse technology, Israeli agriculture has created a favorable ecological environment for plants, controled diseases and in particular, saved irrigation water. These applications have turned the desert

into a "high-tech green field", brought Israel a lot of revenue; at the same time, contributed to bring Israeli agriculture to the leading position in the world.

#### **4. Discussion and Conclusion**

In the context of current complex and unpredictable climate change, developing high-tech market in agriculture to develop sustainable agriculture has become indispensable for nations. Israel, a country without favorable natural conditions, has created the "Israel miracle", which is a reference lesson for countries like Vietnam in sustainable agricultural development.

Previously, Vietnam used to have favorable natural conditions for agricultural development, such as "golden forest, silver sea". However, due to climate change, unsustainable exploitation of resources and the new standard requirements for agricultural products in the integration process, Vietnam's agriculture needs to have appropriate changes.

To develop Vietnam's agriculture sustainably, there are a number of policies that Vietnam needs to pursue.

Firstly, continuing to grasp thoroughly the policy of making science and technology to truly become the leading national policy of the Communist Party of Vietnam, in order to accelerate industrialization and modernization of rural agriculture.

Secondly, strongly socializing R&D activities in agriculture, ensuring transparency, clarity and specific mechanisms for intellectual property issues, especially the transfer of research results from State budget source.

Thirdly, expanding and promoting the development of hi-tech application zones, clusters and technology nurseries; building hi-tech agricultural zones and clusters suitable to the local conditions and advantages.

Fourthly, strengthening the linkage of the state - business - scientists and farmers; at the same time, building and promoting the development of intermediary organizations, consulting, supporting the production and commercialization of agricultural products.

Fifthly, developing information infrastructure to support the development of high-tech agriculture.

#### **5. References**

1. Bui Thi Thanh Huyen (2018), "The trend of restructuring the agricultural sector of the locality towards sustainable development", *Economy & Forecast Review*, No. 33, p. 101-104.
2. Knickel K., Ashkenazy A., Chebach T.C., Parrot N. (2017), "Agricultural modernization and sustainable agriculture: contradictions and complementarities", *International Journal of Agricultural Sustainability*, Vol. 15, Issue 5, pp. 575-592.
3. Communist Party of Vietnam (2016), *Document of the 12th National Congress*, National Political Publishing House, Hanoi.

4. Prime Minister of Vietnam (2012), *Decision No. 432/QĐ-TTg Approving the Vietnam Sustainable Development Strategy for the period 2011-2020*, 12 April 2012.
5. Ngoc Quynh (2016), "Agricultural development until 2030: Top 10 leading countries in the world in processing agricultural products", *Industry and Trade Electronic Media*, <https://congthuong.vn/phat-trien-nong-Industry-to-the-South-2030-and-o-top-10-countries-in-the-world-of-the-world-world-sa-n-126688.html>
6. Luong Van Thuong, Tran Quoc An (2017), "Developing technology market in agriculture sector", *Vietnam Journal of Science, Technology and Engineering*, No. 11, p. 59-61.
7. Mai Hoang Thinh (2019), "Application of technology 4.0 in agriculture", *Journal of Industry and Trade*, No. 10, p. 68-71.
8. Tran Van Hai (2012), "The terms" science and technology market", "technology market" approach from the law on intellectual property", *Journal of Scientific Activities*, July issue, p. 63-66.
9. Nguyen Van Anh, Le Vu Toan and Dam Quang (2012), "Discussing the terms" science market ", " technology market "and" science and technology market", *Journal of Scientific Activities*, July, p. 50-54.
10. Nguyen Huu Xuyen, Duong Cong Doanh (2014), "Enhancing the management role of the state for the development of technology market", *Journal of Economics and Development*, No. 205 (II), p. 17-22.
11. Prime Minister (2013), *Decision No. 2075 / QĐ-TTg Approving the program on development of science and technology market till 2020*.
12. Ministry of Science and Technology (2017), *Circular No. 01 / VBHN-BKHHCN Regulating the management of science and technology development programs till 2020*.
13. Swamidass P. M., Vulasa V. (2009), Why university inventions rarely produce income? Bottlenecks in university technology transfer, *The Journal of Technology Transfer*, Vol. 34, Issue 4, pp. 343-363.
14. Lee S-H. (2010), "An analysis of technology market from the perspective of technology life cycle", *African Journal of Business Management*, Vol. 4(17), pp. 3641-3654.
15. FAO (1992). *World Food Dry*, Food and Agriculture Organization, Rome, Italy.
16. FAO (1997), Guidelines for the integration of sustainable agriculture and rural development into agricultural policies, <http://www.fao.org/docrep/w7541e/w7541e00.htm>
17. Vu Trong Binh (2013), "Sustainable Agricultural Development: Theory and Practice", *Journal of Economics and Development*, No. 196, p. 37-45.
18. Do Kim Chung, Kim Thi Dung (2013), "Vietnam Agriculture: Challenges and some directions for sustainable development", *Journal of Economics and Development*, No. 196, p. 28-36.

19. Pham Thi Thanh Binh (2015), "Israel's sustainable agricultural development policy and the impact factor", *Vietnam Journal of Science, Technology and Engineering*, No. 6 (118), p. 12-19.
20. Pham Thi Thanh Binh (2017), "Sustainable agriculture development in Israel: Achievements and limitations", *Journal of Africa and Middle East Studies*, No. 2 (138), p. 3-11.
21. Ngo Vinh Khuong (2016), "Agricultural Development in Israel", *Journal of Africa and Middle East Studies*, no.1 (125), p. 14-21.

# IMPACT OF BUDGET DEFICIT ON GROWTH - A CASE STUDY OF SOUTHEAST ASIAN COUNTRIES

*M.Sc. Le Khac Hoai Thanh*

*hoaithanh89@gmail.com*

*Faculty of Economics and Tourism, Quang Binh University, Quang Binh, Vietnam*

## **Abstract**

*This paper explores the impact of budget deficits on economic growth in several Southeast Asian countries during the period of 2009-2019 using estimation methods for panel data (FEM, REM). The research results show that the budget deficit has a positive impact on economic growth within the aforementioned study and is statistically significant at the 5% significance level, foreign investment has a positive effect. It is significant to the economic growth within the aforementioned study and is statistically significant at the 1% level. Meanwhile, inflation has the opposite effect to economic growth.*

**Keywords:** *budget deficit, economic growth, Southeast Asian countries.*

## **1. Introduction**

Over the past decades, the economies of ASEAN countries have maintained their growth momentum, created a new development force and are considered as one of the most dynamic and developed markets in the world. In the current situation, under the impacts of the world economy, ASEAN economy is also greatly affected, but still sustains the growth, continues to stabilize security, politics and is the destination of the investors.

The state budget is the largest centralized monetary fund of the state and an important material tool to regulate the macro-economy. The relationship between budget deficits and economic growth is a fairly extensively researched problem both in terms of theory and empirical testing. Regarding this relationship, the views of different economic schools are also very different (Huynh The Nguyen, Nguyen Le Ha Thanh Na, 2015). The state budget deficit has become a widespread phenomenon in most countries developing countries, including Southeast Asia.

Southeast Asian countries have long been known for large and prolonged deficits. However, economic growth in these countries has been highly appreciated in recent years. Therefore, the study uses data for the period of 2009-2019 of Southeast Asian countries to reconfirm the relationship between deficits and growth in these countries.

## **2. Relations between budget deficit and economic growth**

Experimental studies on the relationship between budget deficit and economic growth also give many heterogeneous results. According to Al-Khedair (1997), interest rate increases in the short run due to budget deficit, but in the long run that impact has not been

explored. Al-Khedair used the VAR model by selecting a data of G-7 countries for the period 1964-1993 to observe the relationship between budget deficit and economic growth. While he also discovered that the deficit negatively affects the trade balance, it has a positive and significant impact on the economic growth of those countries. World Economic Outlook (IMF, 1996) concluded that during the mid-1980s the group of developing countries had a higher financial imbalance and lower economic growth than countries with low or medium budget deficit. Shojai (1999) argued that the budget deficit financed by the Central Bank could also lead to inefficiencies in the financial market and cause high inflation in developing countries while negatively impacting the nation's real exchange rates and interest rate, thus reducing the nation's competitiveness. In addition, the budget deficit distorts real exchange rates and interest rates, which reduces the international competition of countries. Rao (1953; cited from Fatima et al., 2012) argued that government spending on production development projects in developing countries not only did not cause abuse but also claimed higher output. Eisner and Pieper (1987; cited from Fatima et al., 2012) the positive effects of cyclic budgets and inflation-adjusted budget deficits on economic growth in the United States and OECD.

Some studies have found positive significant relations between budget deficit and growth in both developing and developed countries (IMF 1996), while other studies have found the inverse relationship (Karras, 1994). The study of Nelson and Singh (1994; cited from Fatima et al., 2012) concluded that budget deficits showed no signs of affecting economic growth for the research of 70 developing countries in the period of 1970 - 1979 and 1980 - 1989. Do Ngoc Huynh (2007) conducted a study of developing Asian countries for the period 1990 to 2006 that the lower the budget deficit, the higher the growth rate. Fatima et al. (2012) conducted a study in Pakistan between 1980 and 2009 found that the budget deficit did not affect economic growth, because the budget was used to meet the government spending needs. Al - Khedair (1996) studied the relationship of budget deficit and economic growth in 7 key industrial countries (G7) in the period of 1964 - 1993 found that budget deficit has a positive effect. to economic growth in France, Germany, and Italy.

Empirical results show that the impact of budget deficit on economic growth also depends on many factors in space, time and other macro factors. Therefore, this study aims to find empirical evidence on this impact with such reliable table data estimation methods and macro control variables in Southeast Asian countries.

### **3. Method**

#### ***3.1. Research model***

The objective of this study is to understand the impact of budget deficits on economic growth on Southeast Asia with variables having control on inflation and foreign investment. Based on the research of Humera Nayab (2015) and Dang Van Cuong and Pham Le Truc Quynh (2015), to study the impact of budget deficit on economic growth, the proposed research model is as follows:

**Table 1: Description of variables in the model**

Original variables	Variable name	Explanation	Expectation
<b>Dependent variable</b>			
Economic growth	GDP (%)	Measured by the annual GDP per capital in US dollars and taken from year-end data.	
<b>Independent variables</b>			
Budget deficit	BD (%)	Budget deficit is identified as current expenses exceed the amount of income received through standard operations	-
Inflation	INF (%GDP)	Inflation is a general increase in the prices of goods and services in an economy over some period of time.	-
Foreign Direct Investment	ln(FDI)	Foreign direct investment	+

The model is as follow:

$$GDP_{it} = \alpha_i + \beta_{1i}BD + \beta_{2i}Inf + + \beta_{3i}FDI + \varepsilon_{it}$$

### 3.2. Research data

The study uses panel data in the period from 2009-2019, of some Southeast Asian countries: Brunei, Indonesia, Cambodia, Malaysia, Philippines, Singapore, Thailand, Laos and Vietnam. The figures for GDP, FDI and inflation are taken from World Bank and the BD is taken from <https://countryeconomy.com/>.

### 3.3 Methodology

The study uses the regression of fixed effects model (FEM) and random effects model (REM) to assess the impact of budget deficit on economic growth, then using the F test and Hausman tests to find out which regression method is most suitable for the two methods above. The panel data is for 09 countries and 11 years, so there are 99 observations.

## 4. Results

### 4.1. Description of variables

After processing data using Stata 12.0 software with panel data, the GDP growth rate and budget deficit situation of Southeast Asian countries in 11 years is shown in Table 2.

**Table 2: Descriptive statistics**

Variable	Unit	Mean	Std. Dev.	Min	Max
gdpgrowth	%	5.584	2.290	-1.5	15.2
fdi	Natural logarithm	22.653	1.506	18.557	25.275
deficitgdp	%	-1.579	2.844	-6.02	7.96
inflationrate	%	4.233	4.726	-0.9	26.8

(Source: Authors' calculation)



The GDP variable shows that in the period of 2009-2019, Southeast Asian countries had a relatively good growth rate, the average GDP growth rate was 6.22% (this figure in studies of Dang Van Cuong and Pham Le Truc Quynh (2015) was 5%). However, the gap between countries as well as the survey period is quite large when the GDP growth rate reaches the highest value of 15.2%, while there are still some countries only achieve growth rates of -1.5%.

The budget deficit variable shows that the smallest value is -1.58% GDP, suggesting that expenditure in countries exceed its income. In general, there are few countries has no deficit, the country with the highest deficit is Vietnam (2009). Singapore's income exceeds its expenditure, so there is no budget deficit. The standard deviation of 2.844% GDP also shows that the level of deficit between countries is very large.

#### 4.2 Regression results

Research results of the impact of budget deficits on economic growth are shown in table 3.

**Table 3: Impact of budget deficits on economic growth**

Variable	Model 2 (OLS)	Model 2 (FEM)	Model 3 (REM)
fdi	0.779***	0.170***	0.179***
	(10.20)	(5.87)	(6.03)
deficitgdp	-0.0628	0.0262*	0.0270*
	(-1.54)	(1.88)	(1.89)
inflationrate	-0.0110	-0.0266***	-0.0263***
	(-0.54)	(-5.80)	(-5.58)
_cons	-5.913***	8.116***	7.7875***
	(-3.32)	(12.25)	(10.40)
R <sup>2</sup>	0.5756	0.5409	0.5457
t statistics in parentheses			
* p<0.01			

(Source: Authors' calculation)

To test and select the appropriate model, the study uses Hausman test to select the model that is suitable for studying the effect of budget deficit on economic growth.

Test: H<sub>0</sub>: There is no systematic difference between the coefficients

$$\chi^2(3) = (b-B)'[(V_b - V_B)^{-1}](b-B) = 1.27$$

$$\text{Prob} > \chi^2 = 0.9985$$

The Prob >  $\chi^2 = 0.9985 > 0.05$ , therefore H<sub>0</sub> should be accepted, which means that REM is more appropriate than FEM.

As can be interpreted from the regression results: The variables included in the model explain 54.57% of the fluctuations in economic growth of Southeast Asian countries. The variables included in the model all have a statistically significant influence on the dependent variable.

While budget deficit and FDI positively affects the level of economic growth, the inflation has a negative effect on economic growth. The estimation results by the FEM method also produces similar results.

## **5. Discussion and conclusion**

### **5.1. Discussion**

From the results of running the model to study the impact of factors on the economic growth of Southeast Asian countries, the author has some findings:

Firstly, the budget deficit is positively related to the economic growth rate, which is statistically significant at the 5% significance level. This result is contrary to the results of Fatima et.al (2012), Dang Van Cuong and Pham Le Truc Quynh (2015), and similar to the results of Al - Khedair (1996), Ahmad (2013). This is also reasonable with the situation in Southeast Asian countries, this area is active in economic activity so spending money to implement many projects is necessary. The increase in direct investment to invest in key projects easily leads to budget deficits.

Secondly, inflation is negatively related to economic growth and is statistically significant at 1%. This result is contrary to the research of Ramzan et al. (2013), Dang Van Cuong and Pham Le Truc Quynh (2015). Recent studies suggest that mild inflation will have a positive effect on economic growth (Singh & Kalirajan, 2003; Faria & Carneiro (2001) ...).

Thirdly, foreign direct investment has a positive effect on economic growth. Research by Dao Thi Bich Thuy (2012) shows a positive relationship between FDI and economic growth, especially in developing countries. FDI complements investment capital, provides new technology, creates jobs and develops human resources, translates economic structure and expands export markets.

### **5.2. Conclusion**

This paper explores the impact of budget deficits on economic growth in several Southeast Asian countries during 2009-2019. The study used estimation methods for panel data (FEM, REM). The research results show that the budget deficit has a positive impact on economic growth within the aforementioned study and is statistically significant at the 5%, foreign investment has a positive effect. It is significant to the economic growth within the aforementioned study and is statistically significant at the 1% level. Meanwhile, inflation has the opposite effect to economic growth.

## **6. References**

1. Đặng Văn Cường và Phạm Lê Trúc Quỳnh (2015). Tác động của thâm hụt ngân sách đến tăng trưởng kinh tế: Bằng chứng ở các nước Đông Nam Á. *Tạp chí Phát triển & Hội nhập*, 23(33), 19-23.
2. Huỳnh Thế Nguyễn, Nguyễn Lê Hà Thanh Na, 2015. Mối quan hệ giữa thâm hụt ngân sách và tăng trưởng kinh tế ở Việt Nam. *Tạp chí Phát triển Khoa học và Công nghệ*, 18(2Q), 79-90.

3. Đào Thị Bích Thủy (2012). Tác động của đầu tư trực tiếp nước ngoài đến tăng trưởng kinh tế trong mô hình nền kinh tế đang phát triển. *Tạp chí Khoa học ĐHQGHN, Kinh tế và Kinh doanh* 28 (2012), 193-199.
4. Ahmad, A., Ahmad, N., & Ali, S. (2013). Exchange rate and economic growth in Pakistan (1975-2011). *Journal of Basic and Applied Scientific Research*, 3(8), 740-746.
5. Al-Khedair, S. I. (1997). The impact of the budget deficit on key macroeconomic variables in the major industrial countries. Florida Atlantic University, 777 Glades Road Boca Raton, FL 33431.
6. Eisner, R., & Pieper, P. J. (1990). The world's greatest debtor nation?. *North American Review of Economics and Finance*, 1(1), 9-32.
7. Fatima, G., Ahmed, A., & Rehman, W. (2011). Fiscal deficit and economic growth: An analysis of Pakistan's economy. *International Journal of Trade, Economics and Finance*, 2(6).
8. Karras, G. (1994). Government spending and private consumption: some international evidence. *Journal of Money, credit and Banking*, 26(1), 9-22.
9. Nelson, M. A., & Singh, R. D. (1994). The deficit-growth connection: Some recent evidence from developing countries. *Economic Development and Cultural Change*, 43(1), 167-191.
10. Shojai, S. (Ed.). (1999). *Budget deficits and debt: a global perspective*. Praeger Publishers.

# DEVELOPING NIGHT-TIME ECONOMY IN VIETNAM - THE CASE OF HANOI

*Assoc.Prof. Dr. Nguyen Ngoc Son*

*sonnn@neu.edu.vn*

*Pham Hong Thai*

*thaiph.dynamicneu@gmail.com*

*Doan Thi Ha*

*doanha190799@gmail.com*

*Nguyen Phuong Thao*

*octom15499@gmail.com*

*Bui Ngoc Lan*

*buingoclan0525@gmail.com*

*Le Thi Huyen Trang*

*Tranghuyenle115@gmail.com*

*Faculty of Planning and Development, National Economics University, Vietnam*

## **Abstract**

*The concept of “night-time economy” (NTE) is familiar in many countries. Due to the characteristics, this activity is often associated with cultural events and arts, entertainment services, food, shopping. In many “tourist powers”, the NTE brings great value, promotes socio-economic development, creates jobs, generates surplus value and attracts foreign currencies. In Vietnam, the NTE is only developing in big cities like Hanoi and Ho Chi Minh City. This article analyzes the situation of night-time economic development in Hanoi, thereby proposing some measures to develop the NTE in Hanoi in the coming period.*

**Keywords:** *Night-Time Economy, Hanoi, measures*

## **1. Introduction**

So far, there have not been many research projects on the NTE and night-time economic development in Vietnam. Studies mainly mentioned to the characteristics, expressions of the NTE and didn't have a comprehensive and objective view of the state of the NTE in Vietnam. The products and services that are taking place in Hanoi at night just stop at the angle of food services, entertainment or having a play street like Ta Hien or Luong Ngoc Quyen. Although night services have shown signs of development, entertainment activities and festivals to serve tourists are still quite modest. In addition to the traditional theaters such as the Vietnamese theater, Thang Long puppet theater, etc, other activities are mostly seasonal or on holidays. Analyzing from the perspective of the NTE, the development

has not been rationally planned so it has not been effective. So far, there has not been a large and attractive night-time entertainment complex.

Furthermore, issues relating to policies and factors affecting the NTE have not been concerned such as laws, natural conditions, climate, infrastructure,... or subjective factors of travellers, business owners and business households. One of the most important factors to be mentioned is the increasing participation of the youth and foreign tourists. If we do not have the most objective view of the impact factors, it is difficult to find out the causes and thereby, it is difficult to formulate policies and make unrealistic policies, resulting in unsolvable problems.

Regarding policy- an important factor that cannot be ignored to promote economic development, a number of policies in Vietnam were given out but just at the urgent problem level while the direction of problem solving was not specific and clear. Moreover, the policies were well-researched but were not implemented due to many reasons. That may partly show that the capacity of the management agencies is limited including backward thinking; not willing to create breakthroughs due to the lack of views on NTE, apprehension of regional security and order; strictly imposed and prohibited policies. In addition, there are no long-term policies and measures, such as paying more attention to the benefits of businesses and business households; no supporting or encouraging programs on investing in scale production or services, etc.

Therefore, Vietnam needs to make a more in-depth assessment of the size, magnitude and potential of comprehensive night-time economic development. Based on the current development advantages, in order to provide reasonable vision, views and options, we must identify the night-time economic development model that is suitable to Vietnam's context in general and to each local's context in particular. A comprehensive policy not only attracts and provides services to more tourists but also contributes to reducing the burden that business households and businesses are facing. Thereby, it is shown that developing NTE needs comprehensive policies, meticulous planning, strict observance of the people and the rigor of the "legal guards". Hence, based on the results of the research "Proposal on solutions for developing NTE in Vietnam- the case of Hanoi", the research team proposed a number of suitable orientations and solutions.

## **2. Theoretical and practical basis**

### ***2.1. Theoretical basis***

In this study, the NTE is understood as the economic activities taking place from 6 p.m to 6 a.m the next day, including fields of food, art, music, entertainment, festivals, events, health, education, transport, construction industries, etc.

#### ***The role of the NTE***

*Promoting local growth:* The development of the NTE will attract more investors into entertainment and shopping facilities, leading to the increase in economic resources for the tourism industry and especially for the local economy. At the same time, this is also a market that brings a huge source of foreign currencies to the country.

*Promote economic restructuring:* The development of the NTE models can attract tourism industry, leading to the increase in the proportion of tourism industry in the total GDP and promote economic restructuring.

*Stimulate the development of economic sectors:* agriculture, industry, trade and services

+ *Agriculture and industry:* The NTE also creates a reputation for industrial production as well as local agriculture through satisfying the needs of tourists for food products, tools, handicrafts or souvenirs. Concurrently, it is possible to increase the local production volume to meet new and additional demands from customers.

+ *Trade and services:* Developing the NTE will bring a large number of international tourists. This is as effective as an export sector and international visitors will be responsible for bringing foreign currencies to those countries, thus improving the national trade balance of payments. Simultaneously, it will also attract a part of domestic tourists, which means domestic tourists will travel within the country more instead of traveling abroad.

*Enhance the attractiveness and competitiveness of tourist destinations:* When cities develop the NTE, products and services will be more diversified; facilities, security, environment and social issues will be significantly improved, which will make it more interesting for tourists to visit and explore the city they visit.

*Employment support, especially non-official jobs for workers:* Local people can depend on their qualifications and ability to work in tourist areas such as waiter, receptionist, room service staff, tour guide, car driver, ship driver and a number of other occupations. They can work on a seasonal or daily basis, alternating with their main jobs. So they will be able to do several jobs at the same time and have more income.

*Supporting poverty reduction, social progress; improving infrastructure and environment security for the local:* the NTE is one of the important areas to support the local economy and thereby improve its facilities, technical infrastructure. The NTE helps improve the quality of infrastructure products and services such as transportation systems, roads, electricity, water, restaurants, shops, motels, etc in the region. At the same time, it helps improve the lives and increase income for local people.

*The NTE is also considered as a tool to attract talent, business, tourists and promote the country's culture:* The development of the NTE will create a source of profit for businessmen and simultaneously develop services such as education, health, research and etc, which may attract more investors from outside, more students and researchers to study in the area, helping these locals have more talents in different fields.

## ***2.2. Experience from cities that have developed NTE***

*London (England):* In 2016, the City Mayor appointed the position “Night Czar” to enhance nightlife and services, aiming to make London the world's leading 24 hour city. In order to promote development and limit the weaknesses of the NTE in London, the Government has introduced a number of policies and management to help create a more diverse and comprehensive night culture and economy. The goal is to provide diverse, comprehensive to all communities; create a safe and healthy NTE; create favorable jobs for businesses and developing NTE; create a connected city and at the same time promote

creativity, music and art. A report made by London First showed that London's NTE generates an annual turnover of about £ 40 billion, which could increase by £ 1.6 billion by 2026.

*Beijing (China):* Beijing is not the first city to develop the NTE, but with the recent aggressive policies and measures, the city is showing its determination to accelerate development of this type of economy with a specific route: On July 12th, 2019, Beijing announced 13 measures to develop NTE to promote consumption. Especially, it is noteworthy that for the first time, Beijing has the title of NTE management of three levels: city, district and neighborhood, led by the leaders of all levels of government and business associations, and called "The lighter". The Beijing government has set up 10 streets with night shops, 16 night markets and convenience stores open 24/7, which will be the first places to receive subsidies to promote night business. In addition, Beijing also introduced measures to ensure traffic, landscape infrastructure; some key tourist sites to extend the opening time from one to two hours a day; evening entertainment activities were encouraged to organize in famous parks such as Di Hoa Vien, Thien Dan, etc. Beijing also increased working time for public transportation services.

*New York (USA):* In 2017, the New York market's media and entertainment office launched a toolkit to coordinate existing services and develop new programs to promote a safe and vibrant nightlife across New York City. New York also gave out 3 main strategies for economic management of New York City: (1) Improve and streamline the regulatory environment; (2) Solving problems relating to the quality of nightlife and public safety; (3) Promote economic development and cultural maintenance.

*Sydney (Australia):* This is one of the most famous cities in the world for successfully developing the NTE. Making Sydney a night city as it is now needed a strategic planning process of the city government, businesses and the locals. Specifically: First, Sydney established a NTE committee in Greater Sydney. This committee made 22 recommendations that could boost the NTE, opening up new sources of revenue for the country. At the same time, it expanded a range of night services including arts, culture, retail and entertainment to create the "Sydney cultural network". The Sydney Government has partnered with businesses to construct a project of expanding the existing public transport infrastructure and expanding the Sydney metro system. Also, Sydney has planned and redesigned the city with a plan that plays a key role in creating safe and sustainable night-time economic development. The re-planning also creates an appropriate location for population development, avoiding the negative impacts of the NTE on people.

### ***Lessons for Vietnam in developing the NTE***

Lesson 1: Cities developing the NTE need to develop programs (strategy, plan) and establish a night-time economic management agency.

Lesson 2: Cities developing the NTE need to establish a charter, a general framework for night-time economic activities.

Lesson 3: establishing and planning public areas or spaces, in which focusing on setting up the core, central operating area, and specific strategic areas for developing night-time activities.

Lesson 4: expanding and diversifying night-time activities and extending the opening hours of services.

Lesson 5: facilitating public infrastructure to improve comprehensive and safe access to night-time activities and developing mechanisms to control economic risks at night.

Lesson 6: The locals developing the NTE needs good management and solutions between preserving traditional cultural values but still making the night city attractive; between promoting more lively night activities while ensuring a biological clock; between enhancing night service while ensuring order and tranquillity; between promoting night economic activities but ensuring the health conditions of workers; and to reconcile daytime and nighttime activities.

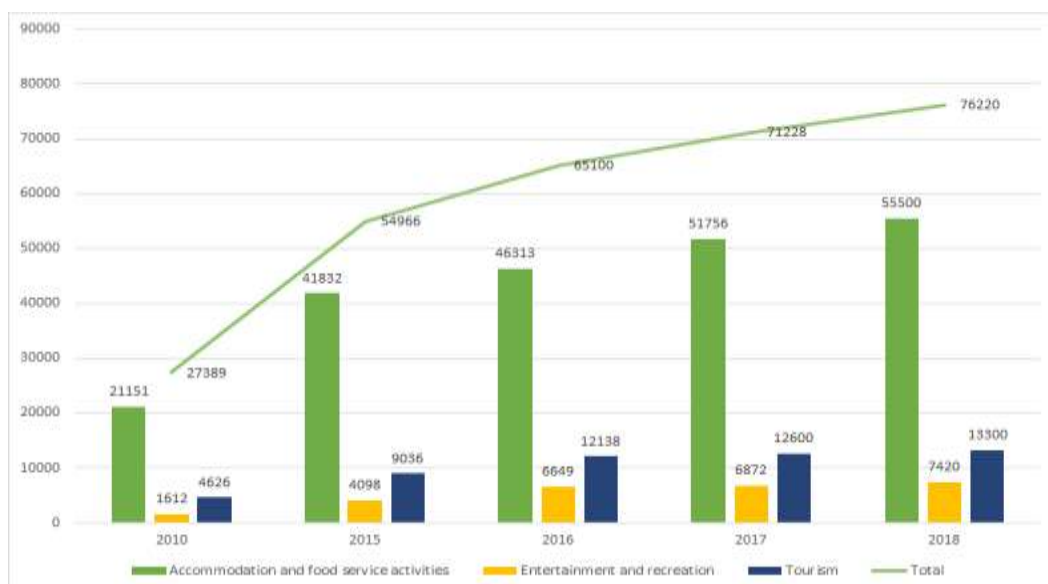
Lesson 7: Cities developing the NTE need to formulate policies that encourage healthy night activities with broad participation of all ages.

### 3. Situation of night economic development in Hanoi

#### 3.1. About night-time economic growth

**Figure 3.1: Revenue of the core night-time economic service sectors through years**

*Unit : Billion VND*



*Source: Statistical Yearbook*

*In terms of revenue:* Revenue of service industries, which are the core economic services in Hanoi, grew rapidly over nine years from 2010 to 2018. Compared to that of 2010, total revenue in 2015 increased more than 2 times (increased by 100.68%) and by 2018, total revenue increased by nearly 3 times (increased by 278.29%). Within 9 years, the turnover of entertainment industry grew more rapidly, even with an increase of 360.29%, followed by the tourism industry with an increase of 187.51% and finally the accommodation and catering industry with an increase of 162.40%. This has shown the true situation of the development of the NTE in Vietnam when these entertainment services have been exploited, creating momentum for rapid development because of its huge potential. Similarly, the travel service also has had a rapid growth rate due to the strong influence of the tourism industry - the industry has been recognized and invested



a lot in Hanoi during the previous time. Accommodation and catering industry has had a slower growth than the other two, but it has still showed a high growth rate and has contributed greatly to the total revenue of the economic services in Hanoi. Despite the general increase, it is undeniable that the contribution of the NTE is very large, especially in the tourism industry when studies of foreign experts say that " revenue from tourism products and services only accounts for 30% during the day, while the remaining 70% belongs to the night-time activities"(according to industry and trade magazine). According to the survey when interviewing businesses and business households, the revenue from the NTE ranges from 40% to 80%, an average of 62.3%, which are the numbers showing great potential if Hanoi can exploit and make more use of them.

**Table 3.2: Number of established businesses of service industries in Hanoi**

Types of services	Enterprise				
	2010	2015	2016	2017	2018
Accommodation and food service activities	1123	2599	2768	3078	3326
Entertainment and recreation	184	345	380	429	461
Tourism	793	1807	1685	1937	2121
<b>Total</b>	<b>2100</b>	<b>4406</b>	<b>4453</b>	<b>5015</b>	<b>5908</b>

*Source: The research team*

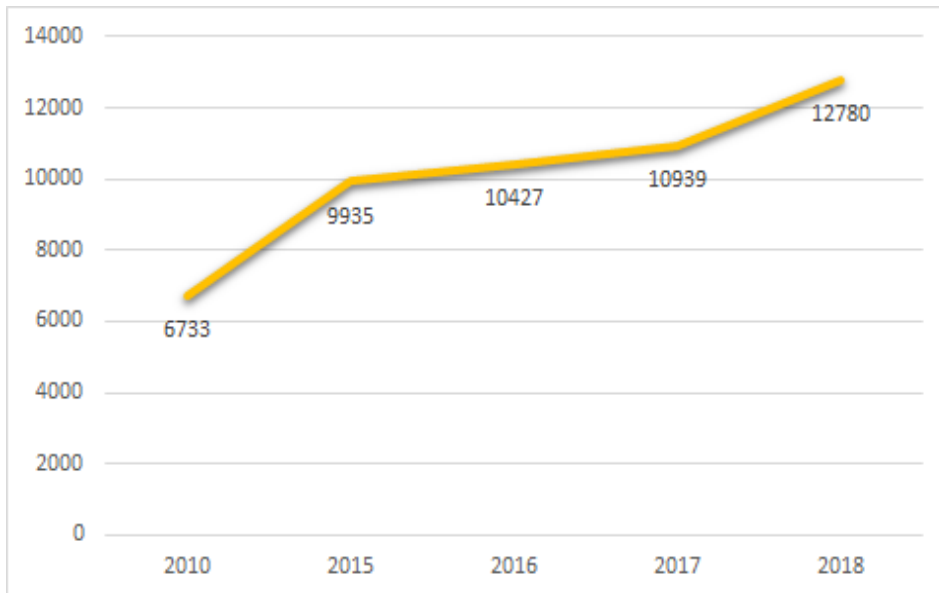
*Regarding the number of businesses established:* Along with the increase in revenue, Hanoi also has an impressive growth in the number of businesses of the core service industry in the period from 2010 to 2018. In general, all three industries had a remarkable growth in terms of the number of businesses, especially the accommodation, catering and tourism, travel industries. The proportion of these two sectors exceeded 160% within 9 years from 2010 to 2018, specifically the accommodation and catering industry increased by 2.96 times and the travel tourism increased by 2.67 times. According to the report of the Metropolis Police, there are currently many business establishments in Hanoi that have safe condition and night-time business facilities regarding the Decree No. 96/2016 / ND-CP of the Government, such as massage business establishments (874 establishments), electronic gaming establishments with prizes for foreigners (11 establishments), karaoke and dance halls (1.087 establishments), business establishments with accommodation (3.757 establishments). This is a fairly large number of business establishments operating NTE in Hanoi, showing great potential in the future.

However, the above figures only show the potential of night-time economic development in Hanoi but do not show clearly the number of enterprises in the core service industries due to the fact that although overall businesses have increased in volume, that is not in the night sector. For instance, there are entertainment services, which are typically the most hectic night activities such as bars, discos, karaoke, but the number of business households registered to open at night is very small. Typically, in 2016, in Hoan Kiem district, Hanoi, the revenue of households open until 2am increased by more than 50%, but

by 2018 only increased by about 30%. In 2016, there were 65 households registering for night businesses, focusing mainly in Ta Hien with fields such as dining, karaoke, and bars, but only 54 business households have been established. The above contradiction points out the negative realities of night-time economic development in Hanoi.

**Figure 3.6: Number of domestic tourists in Hanoi over the years**

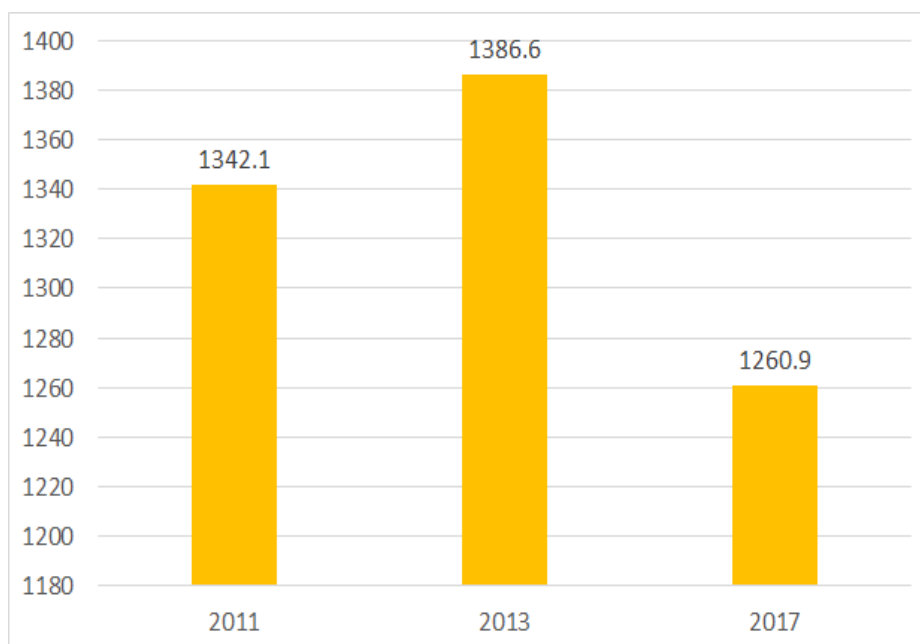
*Unit: Thousand arrival*



*Source: Statistical Yearbook*

**Figure 3.7: Average spending per day of domestic tourists**

*Unit: 1000 VND*



*Source: Statistical Yearbook*

*Regarding the average spending per day of domestic tourists:* When looking at the situation of Hanoi's night-time economic development, especially in the tourism industry - one of the core industries of the NTE, there is a major contrast between the number of domestic tourists and the average daily spending of domestic tourists. Obviously, although the number of tourist increased rapidly in the period of 2010-2018, tourists' spending is complete opposite when in 2017, it decreased by 6.05% compared to that in 2011 and decreased by 9.07% compared to that in 2013. This is completely contrary to the potential of the tourism industry when the income from the middle class in Vietnam continues to increase in the period of 2014-2016 with an average of 1.5 million people joining the middle class each year. If it is assumed that this average growth rate will be maintained, by 2018, the middle class will account for 16.3% of Vietnam's population, with a living standard of 15 USD / day or more. In addition, according to a survey of The Conference Board and Niesel, 43% of idle money of Vietnamese consumers is used for entertainment purposes. In particular, consumption for entertainment comes from the middle-class young people or from middle-class families and above. Hanoi is a big city of Vietnam so the proportion of Hanoi in the above figures is very large. These factors should have had a very positive impacts on the spending of tourists in Hanoi, especially the spending on night-time economic services but the fact is the opposite. In general, the tourism industry in Hanoi in particular and in Vietnam in general has not developed synchronously and strongly. Although Vietnam's tourism competitiveness has improved significantly in recent years (ranked 63/140 economies in 2019), the report on global tourism competitiveness (due to WEF published in 2019) pointed out a number of weaknesses, namely: tourism service infrastructure (106/140); environmental sustainability (121/140); health and sanitation (91/140);... These indicators have a great influence on the development of the NTE in Hanoi. That is the reason why though the tourism and the NTE in Hanoi night increases rapidly in scale, the quality is not much developed.

### 3.2. About night economic structure

**Table 3.3: Revenue structure of core services and employment in Hanoi**

*Unit: %*

	Revenue structure					Employment structure				
	2010	2015	2016	2017	2018	2010	2015	2016	2017	2018
Accommodation and food service activities	2,2	2,4	2,3	2,3	2,3	5,96	6,27	5,98	5,91	5,9
Entertainment and recreation	0,2	0,2	0,3	0,3	0,3	1,27	1,28	1,18	1,34	1,34
Tourism	0,4	0,5	0,5	0,6	0,6	1,33	1,09	0,94	1,19	1,18
<b>Total</b>	<b>2,8</b>	<b>3,1</b>	<b>3,1</b>	<b>3,2</b>	<b>3,2</b>	<b>8,56</b>	<b>8,64</b>	<b>8,1</b>	<b>8,44</b>	<b>8,42</b>

*Source: The research team*

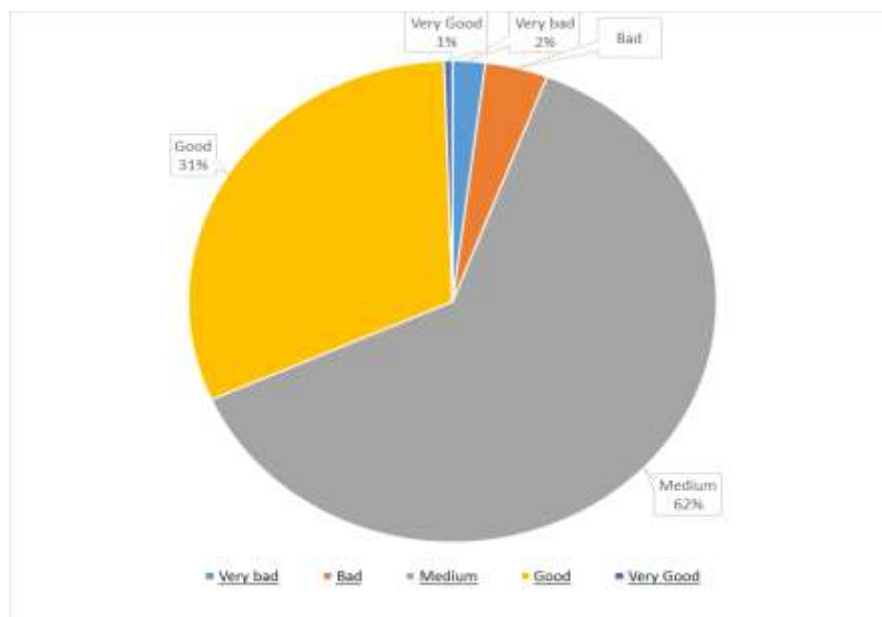
In the analysis of the above table, it is obvious that though the proportion of revenue of the core service of NTE in Hanoi changed in a positive way, the movement was still relatively slow. Among the three core industries, tourism and travel had the most positive changes with steady increase from 0.4% to 0.6% after 8 years since 2010. On the contrary, accommodation and catering services had unstable shift when it increased sharply to 2.4% in 2015 and then decreased and remained stable at 2.3% from 2016. The slow shift of these core services is also considered as the factor that makes Hanoi unable to develop the NTE rapidly. Although the revenue has increased, it has not been able to breakthrough and make differences to the city's economy.

Similar to revenue structure, Hanoi's night-time economic structure does not bring many breakthroughs. Significantly, the share of employment in tourism and travel industry decreased from 1.33% to 1.18% between 2010 and 2018. This clearly shows the investment for tourism in Hanoi is still poor and unable to meet the expected employment needs that this potential service industry can bring about.

### 3.3. The quality of the NTE

**Figure 3.9: Assessing the quality of Hanoi's night-time economic service**

Unit: %

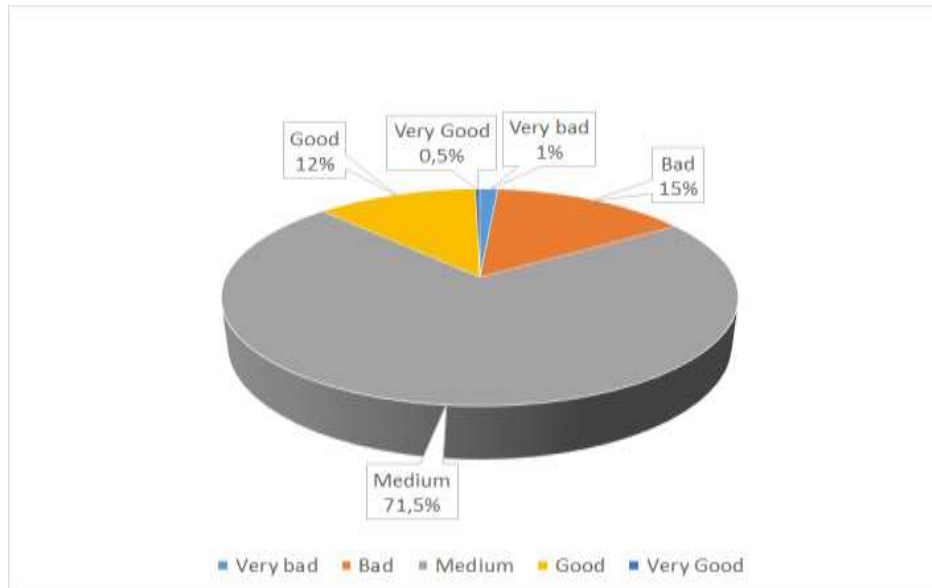


Source: The research team

Regarding the satisfaction level of night economic service quality: through analysis of both growth and change of proportion of Hanoi's NTE, we can give out some comments that: although there has been a rapid growth in the NTE of Hanoi recently, it has only reached a low average in terms of quality. Specifically, according to the survey of the research team on service quality assessment in 3 districts containing Hoan Kiem, Ba Dinh and Tay Ho, there are 62.5% of people rated normal quality, the number of people rating service quality at good level accounted for 31.2% while at very good level only accounted for 0.5%, at poor level accounted for 3.8% and the rest is very poor. More than 5% of the respondents feel the service quality is poor and very poor shows that the service status needs much improvement, not only in terms of structure but also of quality.

**Figure 3.10: Satisfaction level of environmental / ecological quality in Hanoi**

Unit: %

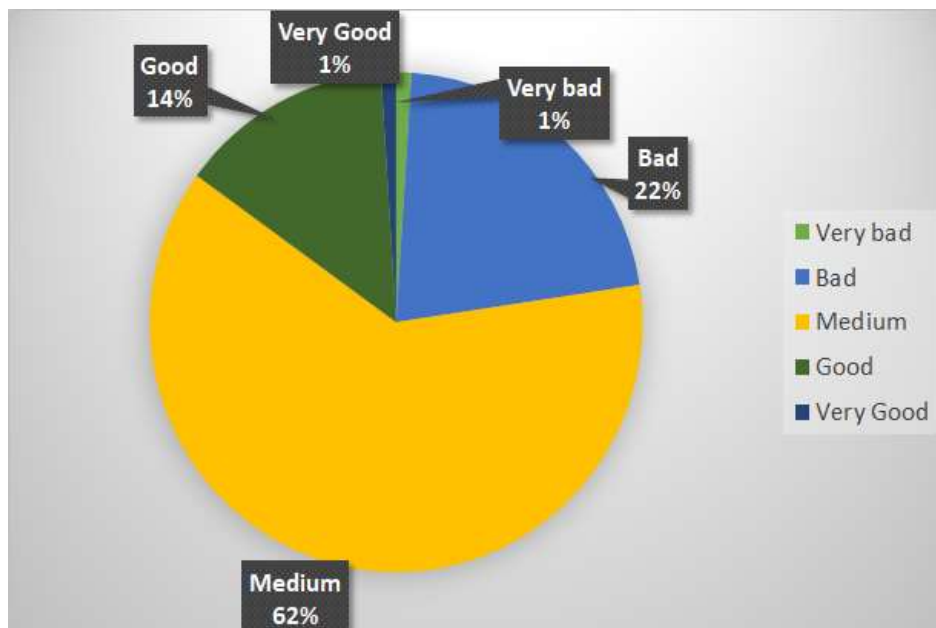


Source: The research team

Regarding the quality of ecological environment: This is a quite important factor affecting the sustainable economic development but has not been considered much. From the survey results, only 12.5% of the respondents said that the quality of the ecological environment of Hanoi's NTE was good or higher, while 71.5% of the respondents thought it was only normal and up to 17% for that the ecological quality here is poor and very poor. This proves that Hanoi is currently developing a NTE that is not accompanied by the awareness of the importance of environmental factors.

**Figure 3.11: Satisfaction level of night-time economic security in Hanoi**

Unit: %



Source: The research team

Regarding safety level: Nearly 23% of survey participants said they felt that the security level at night was below the level, only 14.5% said that the security is good and very good, and the remaining 62% thought the security level is normal. Low security satisfaction rates and high complaints rates reflect the current situation of night-time economic areas in Hanoi when the budget for security is too low and human resources for security are inadequate. There has not much attention of the Government and local in this regard. The security department of the city does not operates continuously after 0 a.m, leading to unexpected situations of theft, robbery, violence,etc.

#### **4. General assessment of night-time economic development in Hanoi**

##### ***4.1. Results***

Together with the rapid development of socio-economy and international integration, the night-time economy in general and Hanoi's NTE in particular are also growing and diversified.

Firstly, Hanoi was initially successful with supporting policies, contributing to the development of the NTE, helping the city's NTE to increase not only in size but also in quality.

Secondly, thanks to the development of the NTE, over the recent time, Vietnam's tourism industry has contributed positively to the GRDP of Hanoi. Specifically, in 2017, the tourism industry contributed 8.07% to the City GRDP, in which the direct contribution reached 3.24%, the indirect contribution was 4.83%; in 2018, it contributed 10.15% to the City GRDP, of which the direct contribution was 4.12% and the indirect contribution was 6.03%.

Thirdly, Hanoi has gradually formed typical destinations of the NTE, such as Ta Hien Street, Old Quarter Night Market,...

Fourthly, the development of NTE in the three districts has attracted many participants: a large number of people flock into this area including both foreign and domestic tourists.

##### ***4.2. Restricts***

In general, Hanoi has changed to exploit the potential of the NTE, however, there are limitations that the city needs to overcome to be able to take advantage and have better promotion in the future. Specifically:

Firstly, the quality of the NTE is still low, which makes it difficult for Hanoi to promote night-time economic development.

Secondly, the night products and services are not diverse: Entertainment and festive activities in Hanoi are also quite modest, seasonal or on holidays.

Third, business activities are also "grabbing". The issue of many tourist destinations in Hanoi, some establishments / individuals doing night businesses, especially providing food and transport services is operating unprofessionally and in many cases is unreasonable cost for tourists.

Fourthly, the scale is still very small, the night-time economic activities are still monotonous with unspecified economic efficiency. There has not quality night entertainment complexes and regional scale.

### **4.3. Causes**

#### *4.3.1. Objective causes*

Firstly, Government's mechanisms and policies are still inadequate

The current policy mechanism reflects the imposition of managers' thinking on economic activities, not taking into consideration the needs of domestic and foreign tourists.

Secondly, awareness and policy thinking are not really compatible with the importance of key economic development. This clearly reflected in the fact that the key economic region has not yet formed an economic sector that has an important contribution to GDP growth; has not had specific reports and statistics on the economic sector's contribution to socio-economic development.

Third, the legal framework and management of night-time economic development is not good at managing service activities, time, area, participants in those fields, etc and have not met the standards of noise, light, distance from residential areas, hospitals, schools... Restrictions on management and security still cause many social evils. Market management against fake goods, counterfeit goods, tax evasion goods as well as ensuring urban security and safety are not strictly controlled.

Fourthly, the policy of space planning is inadequate. In fact, due to the lack of planning, many night-time businesses are too close to residential areas; many restaurants and cafes use high capacity of music, which negatively affects people in the surrounding area.

Fifth, public transport services and transport infrastructure are still weak. This is one of the reasons why Hanoi's NTE has not been able to grow quickly. Up to 49% of tourists find it difficult to access transportation such as taxi, bus, motorbike taxi when participating in night-time economic activities, especially after 0 a.m.

#### *4.3.2. Subjective causes*

The organization and planning of Ministries, Branches of Hanoi and especially of 3 districts: Hoan Kiem , Ba Dinh and Tay Ho have not concretized.

Firstly, Hanoi have not had many policies to promote and create favorable conditions for businesses and business environment in NTE, which does not attract many domestic and foreign investors.

Secondly, public policies are limited. There are quite a few policies that can solve the problems of residents as well as tourists relating to noise, environmental pollution, accessibility of information, neighborhood security and other public services. The streetlight system and security cameras are still unreasonable, especially in the areas of Ba Dinh and Tay Ho districts.

Thirdly, although there are many opportunities from globalization and urbanization, Hanoi has not grasped and fully utilized that opportunity. The number of tourists coming to Hanoi tends to increase but night-time activities and products are not diverse, there are few places for entertainment and experiencing tourism.

Fourthly, the management capacity of the enterprise is not really appropriate. Also, working skills are non-professional.

Fifth, businesses and business households have not built a high reputation and have not made differences to attract domestic and foreign investment.

Sixth, people's sense of self-discipline and civilization is not high, leading to indiscriminate littering and some other unexpected situations. In addition, the limited ability to communicate in foreign languages affects negatively to the attraction of foreign tourists.

## **5. Solutions and policies recommendations to promote the night-time economic development in Hanoi**

### ***5.1. Solutions***

#### **Building socio-economic development plans for Hanoi**

Hanoi needs to include the content of the night-time economic development into the content of overall planning of socio-economic development of the city. In particular, it is necessary to select potential sectors and fields to execute in central areas of Hanoi and not rampantly develop everywhere. In order to have a scientific assessment of the effectiveness of the economic development, (at least in the period of 2020-2025) there should only a pilot number of tourist attractions in the central districts of Hanoi.

#### **Diversify genres of services and products**

Building programs and tours at night for visitors such as strolling cultural spots, historical sites, immersing themselves into indigenous culture, exploring nightlife, watching concerts art to extend tourists' stay in the area. Simultaneously, widely advertising on the mass media and social networks to increase coverage and accessibility of tourism both at home and abroad.

#### **Changing people's perceptions about the importance of NTE**

It is necessary to raise people's awareness of the important role of the NTE, starting with the elimination of prejudices about the negative of the NTE, the prejudice of the activities of discos, restaurants, karaoke, bars as well as entertainment venues at night.

#### **Strengthen the work of ensuring security, environmental sanitation and food hygiene**

Hanoi can set up hotlines for visitors to timely inform security, food hygiene, safety, environment issues.... At the same time, it is necessary to review and adjust the regulations, establish and enforce sanctions that strictly handle individuals and business establishments that violate order, public security and food hygiene to ensure benefits and safety for consumers and visitors. Furthermore, sanctions are also needed to strictly punish individuals



and management units that take advantage of their positions to commit acts that cause difficulties for night-time businesses.

### **Improve the quality of road transport infrastructure**

Road transport infrastructure plays an important role in the region's socio-economic development. Therefore, improving infrastructure and finance will help ensure efficient night-time economic operation.

### **Strengthen the communication on the key policies to develop NTE in Hanoi**

It is necessary to strengthen multimedia communication through newspapers, radio, television, social organizations, grassroots organizations, wards, neighborhoods and associations about benefits, opportunities of developing the NTE. At the same time, it is essential to enhance the propaganda, education and knowledge about ensuring compliance with regulations on environmental sanitation and ensuring security and order for businesses participating in the NTE.

## **5.2. Recommendations**

### **The Government apparatus needs to raise the awareness of the benefits and risks of night-time economic development**

The Government management agencies need to change the mindset, so that the "unmanageable" mindset is not allowed to restrain the development of the NTE. There should be elimination of the thought of being afraid of overcoming negative or fear of unstable security and order to repudiate responsibility, ignoring opportunities to develop the NTE.

### **The Government needs to create a unified legal corridor and associate the content of the night-time economic development with the socio-economic development of Hanoi**

The Government needs to review, complete policies and create a unified legal corridor for the development of the NTE. At the same time, it is necessary to ensure the healthy management of night-time economic activities, control and limit the negative impacts from those activities and ensure the safety of people participating in the those activities. Moreover, there should be supportive policies for encouraging businesses and business households to be more active in participating in night-time economic activities.

### **Diversifying genres of investment**

The Government needs to diversify forms of investment, creating favorable and open mechanisms for infrastructure investment projects and tourist and entertainment resorts; promote and attract foreign direct investment and capital from overseas Vietnamese community.

## **6. Discussion and Conclusion**

Night-time economy is now becoming a growing trend for countries and cities around the world. For Vietnam and especially Hanoi, night-time economic development has been formed for many years, but it has not been strongly developed, and there has no specific

night - time economic development policies for Hanoi. Therefore, the research team has implemented the topic "Proposal on solutions for developing night - time economy in Vietnam - the case of Hanoi" and obtained some results as follows:

Firstly, the research team has clarified the concepts and the content of night-time economic development; pointed out the factors affecting the development of the NTE.

Secondly, the team assessed the important role of NTE in the local economic development process.

Thirdly, the research team has made some assessments on the current situation of development in Hanoi. Hanoi has achieved a lot of positive results in GRDP, tourist arrivals, ... but there are still many restricts coming from objective and subjective causes.

Finally, the team has given out proposals and solutions to promote night-time economic development in Hanoi

## 7. References

1. Hanoi Statistical Yearbook (from 2010 to 2019), *Gross Regional Domestic Product of Hanoi and Vietnam Gross Domestic Product*
2. World Bank, *GDP constant 2010 - Vietnam*, Hà Nội
3. Hanoi Statistical Yearbook (from 2010 to 2018), *Trade and Services*, Hanoi.
4. Matthew M. Chew (2009), "Research on Chinese Nightlife Cultures and Night-time Economies", *Chinese Sociology & Anthropology*; last access on February 21st, 2020.
5. City of Westminster (2018), "Evening And Night Time Economy In Westminster - 6pm-6am - our principles and response to the Night", Night Time Commission Consultation Response; last access on January 31st, 2020
6. Xi Li, Huimin Xu, Xiaoling Chen and Chang Li (2013) "Potential of NPP-VIIRS Nighttime Light Imagery for Modeling the Regional Economy of China". Remote Sensing-MDPI; last access on January 30th, 2020
7. Welsh Government,( 2008), "A Framework for Managing the Night Time Economy in Wales", last access on March 19th ,2020.
8. The Mayor's Office of Media and Entertainment (2019) "NYC's Nightlife Economy Impact, Assets, and Opportunities" NYC Media and Entertainment; last access on March 19th ,2020.
9. Terry Bevan, Alistair Turnham, Andrew License (2011) "Sydney Night Time Economy: Cost Benefit Analysis", last access on March 15th ,2020.

# COMPETITIVE POWER GENERATION MARKET IN VIETNAM ACHIEVEMENTS AND LIMITATIONS

*Nguyen Minh Cuong*

*nmcuong.htd@gmail.com*

*Vu Phuong Lan*

*lan.ktcn@gmail.com*

*Nguyen Thi Dieu Huyen*

*dieuhuyen@tnut.edu.vn*

*Thai Nguyen University of Technology, Thai Nguyen University,  
Thai Nguyen, VietNam*

## **Abstract**

*The competition for electricity generation has been officially operated since 2012, officially called the competitive electricity generation market in Vietnam. The competitive electricity generation market in Vietnam opens the electricity production market to investors outside Vietnam Electricity, diversifying in terms of ownership of electricity generation. Over operating time, this market has shown many advantages but there are still some limitations. This paper summarizes the assessment of the competitive electricity generation market in Vietnam in recent years.*

**Keywords:** *Electricity market (EM), competitive power generation market, electricity trading.*

## **1. Introduction**

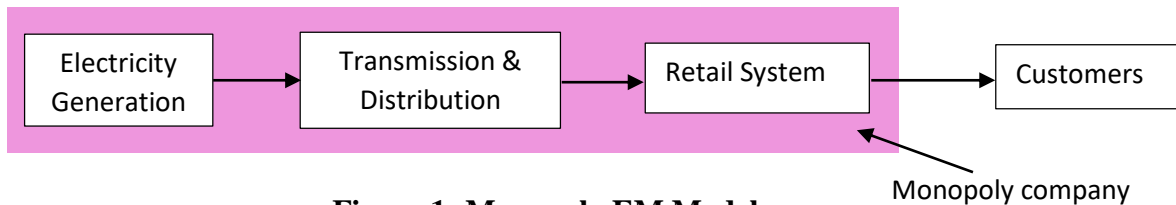
The electricity industry in the world has had a turning point in the last years of the twentieth century which is the transition from monopoly operation based on the vertical integration model to the competitive electricity market (EM). Appearing in 1973 from Chile [3], the competitive EM model has developed very fast and spread to the global scale and Vietnam's electricity industry is not out of the trend.

The competitive EM brings many positive effects such as: building a sustainable energy supply solution, which not only satisfies social needs but also brings economic and environmental benefits. Thanks to improve the efficiency of electricity production and business, and reduce electricity prices for customers to use, the quality of electricity services significantly increases. Besides, the good use of energy sources for power generation in the direction of benefiting customers and the environment. Therefore, the competitive EM brings economic benefits to both investors and power users. The investors will gain higher profits and users will reduce energy costs. Moreover, the competitive EM encourages investors to invest in the electricity industry, thus reducing the pressure on capital investment and energy costs of the government.

## 2. Electricity Market Model

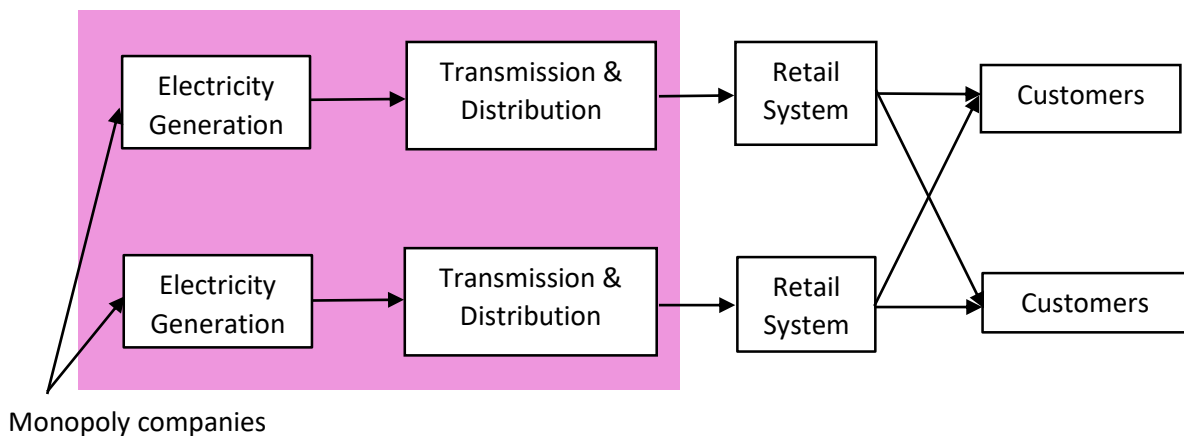
Each country has different socio-economic conditions so the development roadmap as well as the market model are different, but the global market in general is developed through the following models [2]:

+ Exclusive power market model: is the model of only one company holding all stages of the production and business process of electricity from production, transmission to distribution to customers as shown in Figure 1.



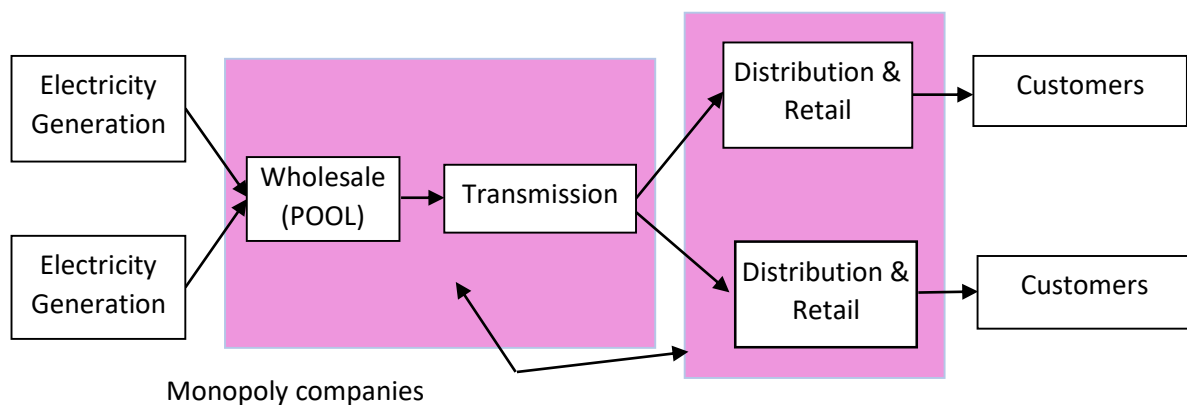
**Figure 1: Monopoly EM Model**

Model of competitive retail EM: A model where electricity customers can choose suppliers but the transmission and transmission stage still belong to monopoly companies as shown in Figure 2.



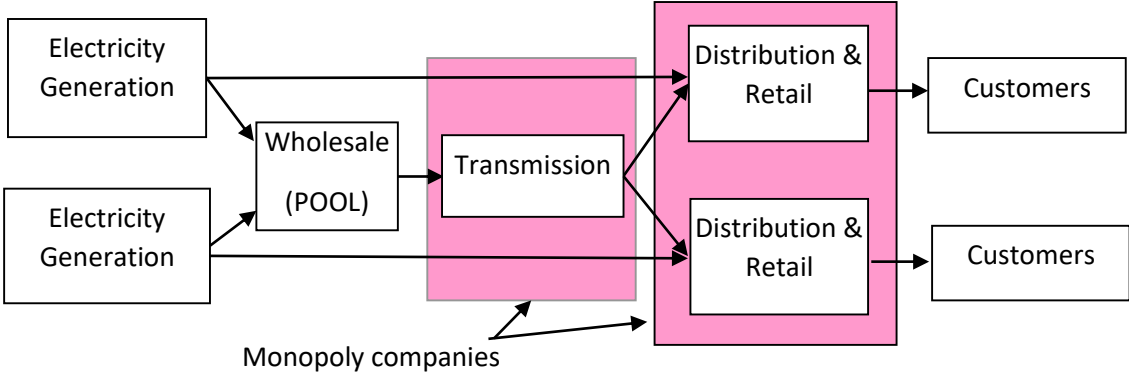
**Figure 2: Retail Competitive EM Model**

Competitive EM model: A model with only one buyer from multiple power plants. All electricity produced must be sold to the wholesaler and this unit performs the exclusive distribution function to the consumers as shown in Figure 3.



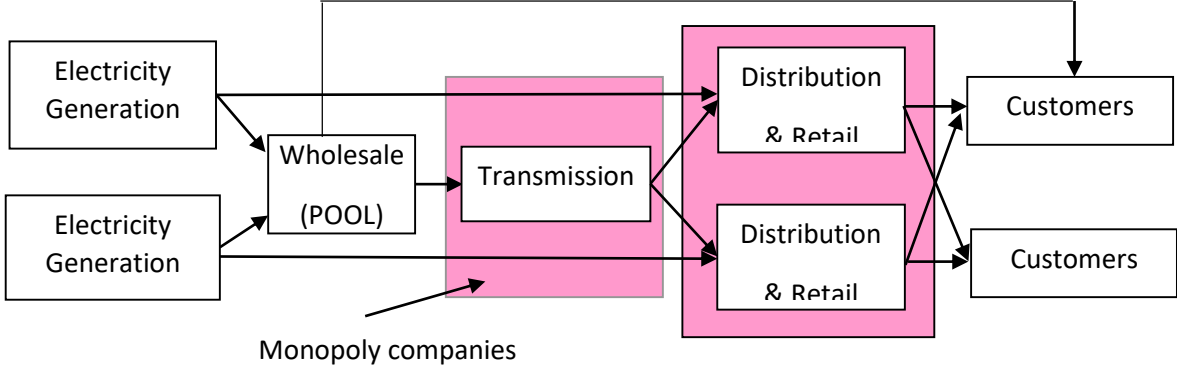
**Figure 3. Model of competitive generation ME**

Competitive EM model in production and wholesale stage: A model where distributors can buy electricity from many different wholesale companies but still monopoly in the distribution stage for electricity customers. as shown in Figure 4.



**Figure 4. Model of competitive ME in production and wholesale stage**

+ Model of competition in production, wholesale and retail (fully competitive): A model in which all customers have the right to choose electricity suppliers, rather than buying through exclusive distributor. The prices here are completely determined based on the power supply-demand relationship as shown in Figure 5.



**Figure 5. Model of competition in production, wholesale and retail**

In the electricity development models, the transmission stage is always under the state-controlled monopoly to ensure energy security and operation of the electricity system, the generation and distribution of electricity depend on the development capacity of each country. Which can be made competing in each stage. However, the competition model is completely the most advantageous model due to the elimination of monopoly in electricity trading, the price of electricity depends entirely on the supply-demand relationship but also poses many challenges such as: measuring system enumeration, control, telecommunications to customers, software for electricity trading, price determination, etc. require synchronization and high reliability.

### **3. Situation of Vietnam electricity industry and restructuring of EM**

The electricity industry of Vietnam has been established and developed since 1954 mainly under the vertical monopoly model, as shown in Figure 1, with many shortcomings such as:

- Public utility activities according to the assigned plan, so the management apparatus is cumbersome, dependent and loose with poor business efficiency;
- The state-funded capital does not mobilize investors and puts pressure on investment capital, so the state does not encourage economic sectors to participate in electricity development;
- The electricity selling price is decided by the Government based on the marginal cost price, so it does not guarantee costs and is cross-subsidizing across economic sectors.

Therefore, there is a need to change business in the electricity industry in which the formation and development of the electricity market is an urgent requirement.

In 1995, Vietnam Electricity Corporation was established as an economic corporation operating throughout the country with the main task of organizing electricity generation, transmission, distribution and investment in developing the electricity industry. political, production, cultural and living tasks for the whole country. In Vietnam, the Electricity Trading Joint Stock Company was established and the Vietnamese electricity industry began operating under a market mechanism with a competitive electricity generation pilot in 34 power plants in the Vietnam Electricity Group (EVN). According to the development schedule of Vietnam's electricity market approved by the Prime Minister, the competitive electricity generation market is formed in the period of 2005 to 2014, the competitive wholesale electricity market is formed in the period of 2015-2022 and the retail market. competitive electricity is formed after 2022.

The competitive electricity generation market of Vietnam applies a fully concentrated electricity market model and offers a price based on cost. However, in reality, Vietnam's competitive electricity generation market applies a combination of variable cost pricing model and free pricing model. All electricity generated from power plants is offered to the unique wholesaling unit (Electricity trading company, under EVN) on the spot market.

### **4. Results**

Firstly, the balance between electricity supply and demand has basically been ensured: The growth of electricity demand in Vietnam from 2005 to 2015 always maintained at a high level despite the growth in the period of 2011-2015. control down. However, in terms of sustainability, the increase in electricity demand in the long term will put pressure on the investment process of power development - a process of capital-intensive investment at large and latent levels. Many impacts on the environment and national energy security, especially considering the context of climate change and the depletion of traditional energy sources on a global scale. Therefore, an appropriate growth of electricity demand to ensure the timely supply of electricity production and infrastructure will contribute to the more sustainable development of electricity market.

Regarding supply growth, the power system has recorded a high level of development to meet the electricity demand for socio-economic development. The electricity industry has maintained an average growth rate of 24.95% / year for the 2005-2015 period, reaching an increase of 3.1 times, from 45.6 billion kWh (2005) to 159.4 billion kWh (2015). To achieve this growth, in the period of 2011-2015, more than 18,500 MW of total installed capacity of power plants was put into operation [1].

Vietnam's electricity imports and export also plays an important role, maintaining a reasonable additional supply to the electricity system and ensuring energy security. Currently, the import of electricity from China has decreased, at 2,025 billion kWh in 2014. Currently, Vietnam is importing from Laos by 220kV voltage from XeKaMan 3 hydroelectric plant - operated in 2013 with the total output is about 450 million kWh. In 2014, electricity sold to Cambodia has a maximum capacity of 220 MW and an average output of 73.75 million kWh / month, total electricity sales for the whole year reached 0.885 billion kWh, down 33.8% compared to 2013 (1.337 billion kWh).

Secondly, basic grid infrastructure ensures the task of power transmission and distribution: Grid infrastructure in recent years has been developed stably to ensure reliability. In the 2011-2015 period, a number of key electricity grid projects supplying electricity to the South were put into operation in order to enhance the transmission capacity, making a significant contribution to ensuring the power supply for the additional charge and the improvement. good quality voltage.

Thirdly, initially developing clean energy sources on a large scale: In the 2010-2015 period, initially, the participation of clean and renewable energy sources (RE) contributed to the electricity production stage. power at industrial scale to connect the national grid. Before 2010 there was only about 400MW of renewable electricity connected to the national grid, by 2015, the total installed capacity from all RE sources reached nearly 1,900MW, accounting for about 5% of the total installed capacity and about 3.4%. Electricity production of the whole system [1].

Fourthly, building infrastructure and platform for electricity market transactions at the competitive level of electricity generation and wholesale competition: The construction of infrastructure and trading platform of electricity market at the market level The competitive electricity generation market has increased transparency and fairness in mobilizing power sources, through the factory's price quotation to set up the mobilization schedule, the plants with low asking prices will be mobilized first and then come. The next plants until the load demand is met. This is considered to contribute to help units better understand the principles of operation and optimization of the whole system.

In the coming time, the electricity industry will pilot the operation of electricity market at the competitive wholesale electricity market level, opening a new trading platform to allow participation in the wholesale and distribution of electricity to units. Another - is the big power corporations, instead of only one unit is wholesale as at present.

Fifthly, a number of mechanisms and policies for developing clean power sources have been developed and issued: Over the past time, Vietnam has made great efforts in developing mechanisms to support the development of clean power sources - the RE project. The Government has issued many policies and mechanisms to support the development of RE. In particular, the two most important decisions that set RE development goals are:

- The Vietnam Energy Development Strategy 2020 (with a vision to 2050) was approved by the Prime Minister in Decision No. 1855 / QD-TTg of December 27, 2007: Accordingly, Vietnam will build a system. Comprehensive and comprehensive energy mix: electricity, oil, coal and new and renewable energy. Development of clean, new and renewable energy will be a priority. The goal is to increase the share of RE to about 3% of total basic commercial consumption by 2010, 5% by 2020 and 11% by 2050. The National Energy Development Strategy also provides a list of the priority for achieving these goals is hydroelectricity, wind power and the use of agricultural by-products and waste.

- The Vietnam Electricity Development Plan 2011-2020 (with a vision to 2030) was approved by the Prime Minister through Decision No. 1208/2011 / QD-TTg of July 21, 2011 (The abbreviated name is Electricity Development Planning 7). This plan targets renewable electricity to account for 4.5% of the total electricity generation of the system by 2020 and 6.0% by 2030. This means that the installed capacity will be 3,192 MW in 2020. and 9,892 MW in 2030, equivalent to 4.1% and 6.9% of the total installed capacity of the system in 2020 and 2030, respectively. In this plan, targets on wind and biomass power clearly defined. Specific targets for wind power are 1,000 MW in 2020 and 6,200 MW in 2030, and biomass power is 500 MW in 2020 and 2,000 MW in 2030.

Along with setting goals, the Government of Vietnam has issued a number of financial policies to encourage investment. Summary of incentive policies for grid-connected RE projects is presented below.

#### **A number of incentive policies for grid-connected RE projects**

Project development phase:

- Import tax: duty-free for goods that will be fixed assets, currently not domestically produced.
- Encouraging investment: clean energy project investors can borrow up to 70% of investment costs from the Vietnam Development Bank (VDB) with interest rates equal to 5-year state bonds plus 1% each year.
- Operation stages:
  - Business tax
  - Tax rate: 10% for 15 years, renewable for up to 30 years.
  - Tax exemption for the first 4 years, and 50% tax reduction for the next 9 years.
  - The depreciation rate increases
  - Electricity purchase price: apply tariff based on avoided cost
  - Land use tax and fee: exempt
  - Environmental protection fee: exempted



## 5. Limitations

Firstly, the growth of electricity demand is not sustainable: Vietnam's electricity consumption has continuously grown at a high level for nearly 20 years. Increasing electricity demand brings many benefits to the economy. First, the growth of electricity demand means bringing opportunities to expand the scale of electricity market, promoting electricity production and supply, creating jobs and adding value to the economy. On the other hand, when demand is met, economic sectors have enough conditions to produce and improve labor productivity, and people have conditions to improve living standards and comfort in daily life.

However, high demand for electricity growth in the long run has certain consequences, most notably the rate of power consumption increased faster than the growth rate of the economy. During the 5-year period from 2011 to 2015, Vietnam's electricity elasticity coefficient was high, averaging at 1.95 (electricity demand growth rate is 1.95 times higher than GDP growth rate) while the average in developed countries are 0.5 - 0.8 and in developing countries have certain similarities with Vietnam is approximately 1.0. This shows that the efficiency of electricity use in the economy is still low, the power consumption of some industries and sectors is high but the value added is low.

Secondly, electricity production and supply are not stable and have reasonable provisions: In some times, the operation of the electricity system and electricity supply still faces many difficulties, especially in the dry season. annually and during the period of stopping gas supply in the Southern region. Besides, the North - South power transmission system is always in a state of high load to supply the South. The electricity system still suffers from a situation of full load of power lines and substations, especially in areas with high load density such as the North and the South. The quality of electricity supply in rural areas, especially in places where electricity has just been received, has not been guaranteed.

In terms of electricity production and supply: power generation sources are increasingly dependent on fossil fuel sources (coal, oil, gas). This is an inevitable result of the increasing demand for electricity, while hydropower potential - which has been dominant in the past - has gradually been fully exploited. The new sources of electricity entering the electricity system and the market in the coming period (2030) will most likely be coal thermal power, which is expected to have many negative impacts on the environment and the energy import-export balance. of the nation. As the structure of electricity generation increases depending on fossil fuel sources and gradually reduces the proportion of hydropower, long-term production costs will tend to increase, which is a potential factor affecting system's resilience in case of fluctuations in fuel supply or price in the international market. Large fluctuations can threaten the security of electricity systems and cause serious consequences for the economy if coping strategies are not well prepared and the development and development of electricity markets fail to meet the targets.

Thirdly, the participation of enterprises in the electricity generation market is limited: Overall, although the electricity generation market has the participation of non-EVN

production units, the current situation and trend in the period In the coming time, EVN will play a key role as the main investor and developer of the power generation sector. EVN and its subsidiaries currently hold 61.2% of the total generation capacity of the system, equivalent to 23,580MW. Meanwhile, other enterprises in the private sector account for only 22.7% of the total capacity (8,753MW), the rest are state-owned enterprises of the Oil and Gas Group (11.5%) and the Coal-Mineral Industry Group Vietnamese products [1]. The power generation sector is characterized by high demand for investment capital, requiring a complex level of management and technology, which is not attractive to investors and attracts necessary capital. to develop.

Fourthly, RE sources have low density and have not developed their potentials: Although there have been some wind power projects have been put into operation such as Bac Lieu wind power, Tuy Phong wind power (Binh Thuan), most Clean electricity sources have not been exploited to their full potential. Over the past years, the contribution to the growth of clean electricity has been mainly due to a strong increase.

## **6. Conclusions**

This paper summarized and evaluated the positive results when operating the competitive electricity market in Vietnam in recent years, and also pointed out the shortcomings that need to be overcome to further improve the efficiency of Vietnam's electricity market.

## **Acknowledgements**

The author would like to thank Thai Nguyen University of Technology for sponsoring this research.

## **Reference**

1. Bộ Công Thương (2017), “*Thống kê năng lượng Việt Nam 2016*”.
2. Đào Thị Minh Hiền (2002), *Nghiên cứu khả năng hình thành và phát triển thị trường điện lực Việt Nam*, Luận văn thạc sỹ kỹ thuật, Hà Nội.
3. Loi Lei Lai (2002), *Power System Restructuring and Deregulation - Trading, Performance and Information Technology*, John Winley & Sons, Inc.

# DISTRIBUTION SYSTEM PLANNING IN COMPETITION POWER MARKET

*Nguyen Minh Cuong*

*nmcuong.htd@gmail.com*

*Nguyen Thi Thanh Thao*

*thao196@tnut.edu.vn*

*Vu Phuong Lan*

*lan.ktcn@gmail.com*

*Thai Nguyen University of Technology, Thai Nguyen University, VietNam*

## **Abstract**

*The economical and reliable aspects of power supply are an indispensable foundation to provide many important services for modern life. Electricity is the main demand for a lot of things such as household consumption, transportation, and business activities. The electricity industry is also a key industry for most economies in the world. One of the important stages in the design and operation of the electricity system is system planning. Along with the restructuring of the electricity industry, the problem posed how to put distributed power sources into electric grid. This paper presents a planning model that takes into account the above mentioned clean power sources.*

**Keywords:** *Electricity system, distributed sources, electricity market, electricity price.*

## **1. Introduction**

Energy demand in particular in recent years is increasing strongly. Traditional energy sources are gradually depleted, environmental pollution due to increasing energy production with the process of Restructuring the electricity market. The competitive trend has created favorable conditions for the development of new and renewable and distributed power sources (Distribution Generation - DG). DG has a small capacity, and it is directly connected in the distribution system to loads. There are some positive impacts such as reduce power loss, support button voltage, improve the reliability of power supply, and reduce investment costs to upgrade supply lines and substations sources. Therefore, the research and application of DG in electricity system planning in general and distribution system in particular needs special attention.

The distributed system (DS) has many models that have been developed and optimized. The model has one goal or multiple goals. The most common model is based on the objective function which has the smallest annual total cost of construction investment, cost of operation and power loss, etc... The cost of operation in each year is derived from [2].

A major change in the current planning of the distribution system is the emergence of a competitive electricity market with new constraints on supply sources, electricity prices. The new plan is to use DG source. Power supply reliability is an important factor to ensure the quality of power delivery of the distribution company to the load. DG participating in the DS will improve the reliability of the power supply. Therefore, the distribution system is considered for a proper option which has the reliability of the electricity supply in the planning problem.

## **2. Literature Review**

Planning problems in general and electrical system planning in particular have been concerned since the 40s of the last century. Through the development process, the planning problem is solved by mathematical methods and non-formal methods (by experience). The mathematical method is highly accurate due to the impact of the determinants and state variables of the system but the number of variables is very large, making it difficult to solve large-scale problems. The informal method uses expert experience and general socio-economic development policies, making the option close to reality feasible but with less accuracy.

Electrical system planning generally includes load forecasting, determining the location, optimal capacity of the power source, transformer stations and wiring diagrams of the system, and the problem of distribution system planning is often not. Source planning should include problems of load forecasting, determining locations, capacity of substations and wiring diagrams.

The existing electricity system mainly supplies electricity from the power plant to the load through the transmission system and distribution system. However, in recent years, due to increasing environmental pollution, countries have had policies to prioritize the development of clean energy sources, leading to the rapid development of distributed sources. Therefore, the distribution system planning has significant changes, with more scattered sources appearing in the planning problem. In addition, in the competitive electricity market, energy prices from different sources have different values, so the planning should consider the impact of energy prices in the system.

In planning, the electrical system in general and the distribution system in particular when under centralized management, the proprietary power system model, the objective function of the problem is usually the smallest annual estimated cost [2]. This objective function takes into account the initial capital costs converted to annual costs over a given year. Converted to the same time considered. The power price of the sources with different technology and location in the system is considered the same, the investment cost is the same at one time. The position of the power supply has little effect on the system which is reflected only in the loss of power throughout the system. Therefore, the model has disadvantages that do not fully reflect the impact of power technology on production costs, the exact time when the elements in the system are upgraded, renovated. The electricity business has changed from the monopoly model to the competitive electricity market and the development of power generation technology which has urged strongly the development of new, small-

capacity, and distributed power sources. The technology and location of different sources have different power prices. The time to invest often changes during the planning period. Therefore, using the objective function with the minimum annual cost does not meet the requirements of new conditions, competitive electricity market, and distributed power sources.

The DS in urban has been built and developed for a long time ago. The DS has provided electricity for most loads. The planning problem often becomes an improvement planning problem for an existing DS to upgrade the lines, transformer, and power supply to meet the requirements of the load during the planning stage with few changes in the structure and diagram of the system.

In competitive electricity market, sources with different technologies are reflected in different electricity prices from each source. The market price of electricity has a very short forecast time, but it can determine the average value in the planning. In particular, the DS has strong participation in distributed power sources. Therefore, it greatly affects the time of upgrading and renovating other elements in the DS such as transformers, lines, etc.

In the regulation of new planning, in competitive electricity market, the objective function proposed in the planning of DS expressions (1) is the minimum total investment cost of upgrading substations, lines, new dispersion sources, etc. The total cost of operating and trading electricity in the entire planning period is converted to the same time with the investment period of the elements that may change during the planning period.

### 3. Results

#### 3.1. Objective function

The objective function J in the DS planning when considering the process of formation and development of the electricity market is the total cost of construction investment, upgrade, renovation, and energy cost of the system during the additional supplement period. The economic factors of the distributed sources include the cost of building and upgrading the line when the load increases at the planning stage, the cost of building and upgrading the primitive transformer station, the cost of exploiting the distributed source with different technologies, operating costs, and fuel from dispersed sources. Moreover, the objective function that allows DG technology selection is reflected. through economic and technical indicators. All expenses in the planning process are calculated at the same time and the beginning of the planning period, through a discount coefficient r. Therefore, the objective function J of the DS planning problem proposed in the new condition is as follows:

$$\begin{aligned}
 J = \sum_t^T \frac{1}{(1+r)^t} & \left( \sum_{i=1}^N \sum_{j=1}^N (CFF + CFC \cdot SF_{i,j,t}) L_{i,j} + \sum_{i=1}^{NS} (CSF + CSC \cdot SS_{i,t}) \right. \\
 & + \sum_{i=1}^{NDGKDG} \sum_{k=1}^{NDGKDG} CDG_{i,k} \cdot SDG_{i,k,t} + T_{max} \left( \sum_{i=1}^{NS} \rho_P^S \cdot P_{i,t}^S + \sum_{i=1}^{NS} \rho_Q^S \cdot Q_{i,t}^S \right) \\
 & \left. + T_{max} \left( \sum_{i=1}^{NDGKDG} \sum_{k=1}^{NDGKDG} \rho_k^{PDG} \cdot P_{i,k,t}^{PDG} + T_{max} \sum_{i=1}^{NDGKDG} \sum_{k=1}^{NDGKDG} \rho_k^{ODG} \cdot Q_{i,k,t}^{ODG} \right) \right) \rightarrow Min
 \end{aligned} \tag{1}$$

Where:

- CFF is a component of fixed investment cost, regardless of the conductor section, when investing in upgrading the line (\$/km)
- CFC is a component of investment cost changes according to the conductor cross-section when upgrading the line (\$/MVA.km)
- $SF_{i,j,t}$  is the upgraded capacity of the line ij in the year t (MVA)
- $L_{i,j}$  is the length of the line ij (km)
- CSF is a fixed investment component, regardless of the capacity of the transformer, when upgrading the transformer at the node (\$/TBA)
- CSC is the component of the investment cost varies depending on the capacity of the transformer, when investing to upgrade the transformer at the node (\$/MVA)
- $SS_{i,t}$  is the upgraded transformer capacity at node i during the year t (MVA)
- $CDG_{i,k}$  is the construction investment of type DG k, at the node i (\$/MVA)
- $SDG_{i,k,t}$  is the capacity of type DG k invested in construction at node i in the year t (MVA)
- $P_{i,t}^S$  và  $Q_{i,t}^S$  is the active and reactive power transmitted through the transformer at node i during the year t (MW, MVAR)
- $P_{i,k,t}^{DG}$  và  $Q_{i,k,t}^{DG}$  is the reactive and reactive power of DG k emitted into DS at node i during the year t (MW, MVAR)
- $\rho_P^S$ ,  $\rho_Q^S$  is the purchasing cost the active and reactive power from the power system (electricity market) through the transformers (\$/MW, \$/MVAR)
- $\rho_k^{PDG}$ ,  $\rho_k^{QDG}$  is the average operating and fuel cost based on the active and reactive power of the type DG k (\$/MW, \$/MVAR)
- T is the number of years in the planning period (years)
- r is the discount factor (%)
- N is the number of nodes in the system
- NS is the number of transformer nodes in the system
- NDG is the number of distributed power nodes in the system
- KDG is the number of DG technologies used in the planning

In the objective function J, with the discount factor r, the component  $\frac{1}{(1+r)^t}$  is the conversion coefficient of year t to the first year of the planning period. Components  $\sum_{i=1}^N \sum_{j=1}^N (CFF + CFC.SF_{i,j,t})L_{i,j}$  is the total investment cost for upgrading the lines in the system

at year t includes fixed expenses, costs depending on the corresponding conductor cross-section and line length;  $\sum_{i=1}^{NS} (CSF + CSC \cdot SS_{i,t})$  is the total investment cost for upgrading the source transformer stations in the system at year t with the fixed cost component and the cost part depending on the capacity of transformer;  $\sum_{i=1}^{NDGKDG} \sum_{k=1}^{NDGKDG} CDG_{i,k} \cdot SDG_{i,k,t}$  is the total cost of new dispersion source construction investment in year t with DG k technologies. Component  $T_{max} \sum_{i=1}^{NS} \rho_P^S \cdot P_{i,t}^S$  is the cost of purchasing energy from the grid in year t;  $T_{max} \sum_{i=1}^{NS} \rho_Q^S \cdot Q_{i,t}^S$  is the cost of purchasing reactive energy from the grid in year t;  $T_{max} \sum_{i=1}^{NDGKDG} \sum_{k=1}^{NDGKDG} \rho_k^{PDG} \cdot P_{i,k,t}^{DG}$  is a component of operating costs depending on the effective capacity of DG, averaged by generation capacity, in year t;  $T_{max} \sum_{i=1}^{NDGKDG} \sum_{k=1}^{NDGKDG} \rho_k^{QDG} \cdot Q_{i,k,t}^{DG}$  is a component of operating costs depending on the reactive power of DG, averaged by generation, in year t.

### 3.2. Constraints

The optimal planning of DS with the objective function J will satisfy the requirements of economic factors. The technical requirements will ensure when satisfying the constraints on node power balance, voltage deviations at the nodes. within the permitted limits, the largest capacity of DG and the limited capacity of the substation associated with the power system.

#### a) Power button balance

In the calculation of the distribution grid, to ensure the balance of the whole system capacity. The capacity at each node must be balanced. The binding of node capacity balances in the grid for load nodes [1] is as follows:

$$\begin{aligned} PD_i + \sum_{j=1}^N |Y_{ij}| |U_i| |U_j| \cdot \cos(\theta_{ij} - \delta_j - \delta_i) &= 0 \\ QD_i - \sum_{j=1}^N |Y_{ij}| |U_i| |U_j| \cdot \sin(\theta_{ij} - \delta_j - \delta_i) &= 0 \end{aligned} \quad (2)$$

In Equation (2),  $PD_i$  is the active power of the load at node i,  $QD_i$  is the reactive power of the load at the node i,  $Y_{ij}$  is the module of total conductivity between node i and node j,  $U_i$  là module voltage at node i,  $\theta_{ij}$  is the phase angle of the total conductive component  $y_{ij}$ ,  $\delta_i$  is the phase angle of voltage  $u_i$  at node i, N is the number of nodes in the system.

The constraint of the balance of internal node capacity (2) is only used for load nodes, planning of distribution network when considering the participation plan of distributed sources, and transformer station nodes connected to the power system. The power components of the power button, substation button, and DG power button must be changed. The node power constraint according to the expression (2) is adjusted to supplement the participation of

the source node [1], the node power constraint after adjustment as expression (3):

$$\begin{aligned} P_i^{DG} + P_i^S - PD_i &= \sum_{j=1}^N |Y_{ij}| |U_i| |U_j| \cdot \cos(\theta_{ij} - \delta_j - \delta_i) \\ Q_i^{DG} + Q_i^S - QD_i &= -\sum_{j=1}^N |Y_{ij}| |U_i| |U_j| \cdot \sin(\theta_{ij} - \delta_j - \delta_i) \end{aligned} \quad (3)$$

In equation (3),  $P_i^{DG}$  is the active power of the source dispersed at the node i,  $Q_i^{DG}$  similar is reactive power,  $P_i^S$  is the active power of node i, which is the substation node,  $Q_i^S$  similar is the reactive power of the substation at node i.

DS planning is to determine the development roadmap of the system in the future in order to meet the requirements of the load. For the distribution network normally considers the planning period is (5-7) years. Therefore, the node power balance constraint (3) needs to be adjusted to ensure the node power balance in each planning year with the participation of the variable t in the constraint function as expression (4):

$$\begin{aligned} P_{i,t}^{DG} + P_{i,t}^S - PD_{i,t} &= \sum_{j=1}^N |Y_{ij}| |U_{i,t}| |U_{j,t}| \cdot \cos(\theta_{ij} - \delta_{j,t} - \delta_{i,t}) \\ Q_{i,t}^{DG} + Q_{i,t}^S - QD_{i,t} &= -\sum_{j=1}^N |Y_{ij}| |U_{i,t}| |U_{j,t}| \cdot \sin(\theta_{ij} - \delta_{j,t} - \delta_{i,t}) \end{aligned} \quad (4)$$

Where:

- $P_{i,t}^{DG}$ ,  $Q_{i,t}^{DG}$  is the active and reactive power of the distributed source located at node i year t (MW, MVAR)
- $P_{i,t}^S$ ,  $Q_{i,t}^S$  is the active and reactive power of the substations node i year t (MW, MVAR)
- $PD_{i,t}$ ,  $QD_{i,t}$  is the active and reactive power of the node load i year t (MW, MVAR)
- $Y_{ij}$ ,  $\theta_{ij}$  is the modulus and phase angle of the  $y_{ij}$  inductor between node i and j
- $U_{i,t}$ ,  $\delta_{j,t}$  is the module and phase angle of node i voltage in planning year t

Science and technology are increasingly developing. DG manufacturing technology is also gradually upgraded with a variety of source technologies and economic and technical indicators. Therefore, in order to achieve high efficiency in DS planning, it is necessary to select a suitable DG technology type for technical indicators and good economic indicators. Equation (4) considers the node power balance when choosing only one type of DG technology, when there are many DG technologies in the DS optimization planning problem, variable k is the technology of DG included in the binding function as expression (5):

$$\begin{aligned} \sum_{k=1}^{KNG} P_{i,k,t}^{DG} + P_{i,t}^S - PD_{i,t} &= \sum_{j=1}^N |Y_{ij}| |U_{i,t}| |U_{j,t}| \cdot \cos(\theta_{ij} - \delta_{j,t} - \delta_{i,t}) \\ \sum_{k=1}^{KNG} Q_{i,k,t}^{DG} + Q_{i,t}^S - QD_{i,t} &= -\sum_{j=1}^N |Y_{ij}| |U_{i,t}| |U_{j,t}| \cdot \sin(\theta_{ij} - \delta_{j,t} - \delta_{i,t}) \end{aligned} \quad (5)$$

Where:  $P_{i,k,t}^{DG}$ ,  $Q_{i,k,t}^{DG}$  is the active and reactive power of the distributed source with



technology  $k$  at node  $i$  in the planning year  $t$ .

b) Constraints on node voltages

The quality of the voltage in the DS is of great interest because the DS is mainly provided directly to electric equipment, rarely uses voltage regulators. The voltage loss is often large, so the voltage quality can be guaranteed. Therefore, to ensure the specification, the permissible voltage deviation at all nodes must be within the allowable limits when the maximum load is reached.

The voltage at transformer nodes is always constant with the assumption that the source has a very large capacity, binding on node voltage deviation as the following expression (6):

$$\begin{aligned} U_{min} \leq |U_{i,t}| \leq U_{max} & \quad i \in NL \\ |U_{i,t}| = constan & \quad i \in NS \end{aligned} \quad (6)$$

where:  $U_{min}$ ,  $U_{max}$  is the minimum and maximum voltage limit allowed at load nodes; NL is the number of download nodes; NS is the number of transformer buttons.

c) Constraints on distributed power capacity and upgrade capacity

Constraints allow the selected distributed power capacity at the nodes to ensure the allowable limits according to the power technology, while ensuring the upgraded capacity in each year in accordance with equipment specifications (7, 8).

$$\begin{aligned} P_{i,k,t}^{DG} \leq P_{max}^{DG} \\ Q_{i,k,t}^{DG} \leq Q_{max}^{DG} \end{aligned} \quad \left| \quad i \in NDG, k \in KDG \right. \quad (7)$$

$$\begin{aligned} P_{i,k,t}^{DG} = P_{i,k,t-1}^{DG} + \Delta P \\ Q_{i,k,t}^{DG} = Q_{i,k,t-1}^{DG} + \Delta Q \end{aligned} \quad \left| \quad t \geq 1, i \in NDG, k \in KDG \right. \quad (8)$$

where:  $\Delta P$ ,  $\Delta Q$  is the adjusted active and reactive power in the planning year;  $P_{max}^{DG}$  and  $Q_{max}^{DG}$  The minimum and maximum allowable power of the distributed source.

d) Limited transformer power and upgrade power

The current transformer is assumed to ensure the power supply for the current DS load, the first year of the planning period, so the DS capacity is implemented so as to make the most of the existing transformers. Satisfying the upgraded capacity in each year in accordance with the equipment specifications, shown in Equation (9, 10).

$$S_{i,t}^S \geq k_{pt} \cdot S_{i,1}^S \quad t \geq 1, i \in NS \quad (9)$$

$$S_{i,t}^S \geq S_{i,t-1}^S + \Delta S \quad t \geq 1, i \in NS \quad (10)$$

where:  $\Delta S$  is the transformer power part adjusted in each planning year;  $k_{pt}$  is the load factor of the transformer in the first year of the planning period.

**4. Discussion and Conclusion**

Power system planning in general and distribution network planning in particular are affected and governed by socio-economic development policies as well as the planning of many other economic sectors. The planning methods used and developed recently include mathematical planning methods and empirical planning methods.

The empirical planning method is based on the experience of experts and the general socio-economic development orientation, proposing a number of plans for expansion of the current electricity system and comparing the selection of the optimal plan. Therefore, the calculation volume and feasible plan are reduced, but due to the impact of the determinants and status variables, the selected option does not guarantee the accuracy. The mathematical planning method models the actual problem by mathematical models, considering the relationship and the impact of the decisive variables as well as the variables of the problem, should give the optimal solution for the results. exactly. The number of variables is often very large, especially large-scale problems, which makes it difficult to calculate. However, the increasing computer's computing speed has gradually overcome the disadvantages of the mathematical planning method, so in recent years the mathematical planning method has been increasingly researched and applied strongly.

Planning the distribution system, especially the urban distribution system, has specific characteristics. The distribution system usually supplies electricity to a small area, has been built and provided to most of the loads, so the problem of planning the distribution system is often the problem of upgrading and expanding lines and Existing transformer stations are under construction and few are newly built. In addition, consideration should be given to the planning of small local power sources connected to the distribution system to take advantage of new and renewable energy sources while reducing the pressure on the transmission system. Therefore, to ensure accuracy, the economic and technical indicators of the planning plan propose the use of mathematical planning methods in planning the distribution system.

A major change in the current distribution system planning is the emergence of a competitive electricity market with new constraints on supply, electricity prices ... and a new planning option is to use distributed sources. The uncertainty of the electricity market and the high demand for reliability of power supply to ensure safe operation of the electricity system need to be considered. The distribution network planning model aims at the total cost of investment and operation of the dispersed source, the cost of power loss, the cost of purchasing energy from the market and the minimum cost of disconnection, the constraints. Power transmission limits on transmission lines and substations have also been set. Environmental pollution has been a global concern in recent years, traditional energy sources have a very large level of emissions pollution, in contrast to distributed sources using high technology and energy sources. clean and renewable amount resulting in less environmental pollution. Therefore, when planning the distribution system, it is possible to take into account the emission factors of environmental pollution, this problem can be done by the two-stage planning model, the objective function is to minimize the total investment costs. construction and upgrading of lines, transformer stations and dispersed sources, the cost of

operating the dispersed sources, the cost of purchasing energy from the market and the cost of environmental pollution. The above problems are mainly programmed and calculated in the environment of GAMS, LINGO is the calculation software for planning the distribution system with the objective function of total expenditure for building and operating lines, transformer stations and distribution sources. Power supply reliability is an important indicator to ensure the quality of power delivery of the distribution company to the load, the distributed sources participating in the distribution system will improve the reliability of the supply electricity.

In the above models, the applicability of decentralized sources in distribution system planning should be considered, so it should be applied research in Vietnam.

The paper presents a method of planning power distribution systems in the competitive electricity market that can be applied to the systems with distributed sources participating in order to achieve a minimum of the total investment cost for upgrading substations, voltage, power lines, new construction of distributed sources, etc. The total cost of operating and trading electricity in the entire planning period is converted to the same time with the investment time and change during the planning period.

**Acknowledgements:** The author would like to thank **Thai Nguyen University of Technology** for sponsoring this research.

#### **References**

1. Algarni, A.A.S.; Bhattacharya, K. (2009), *A Novel Approach to Disco Planning in Electricity Markets: Mathematical Model*, Power Systems Conference and Exposition, 2009. PSCE '09. IEEE/PES.
2. Nguyễn Lâm Tráng (2005), *Quy hoạch phát triển hệ thống điện*, NXB Khoa học và kỹ thuật, Hà Nội.

# CURRENT SITUATION OF ELECTRICITY MARKET IN VIETNAM IN THE PERIOD OF 2005 - 2017 AND SOME EFFICIENCY IMPROVING SOLUTIONS

*Nguyen Thi Dieu Huyen*

*dieuhuyen@tnut.edu.vn*

*Nguyen Thi Tuyet Minh*

*nguyenminh@tnut.edu.vn*

*Nguyen Minh Cuong*

*nmcuong.htd@gmail.com*

*Thai Nguyen University of Technology, Thai Nguyen University, VietNam*

## **Abstract**

*The overall development of the electricity market has achieved positive results such as the operating capacity improvement, the reliability of the system, and enough electricity for economic development. In addition, the operation of the competitive electricity generation market has increased transparency and fairness in mobilizing power sources. Power plants participating in the market also initially improved production and business efficiency. However, there is still a need to find solutions to improve the efficiency of the electricity market. This article addresses that issue.*

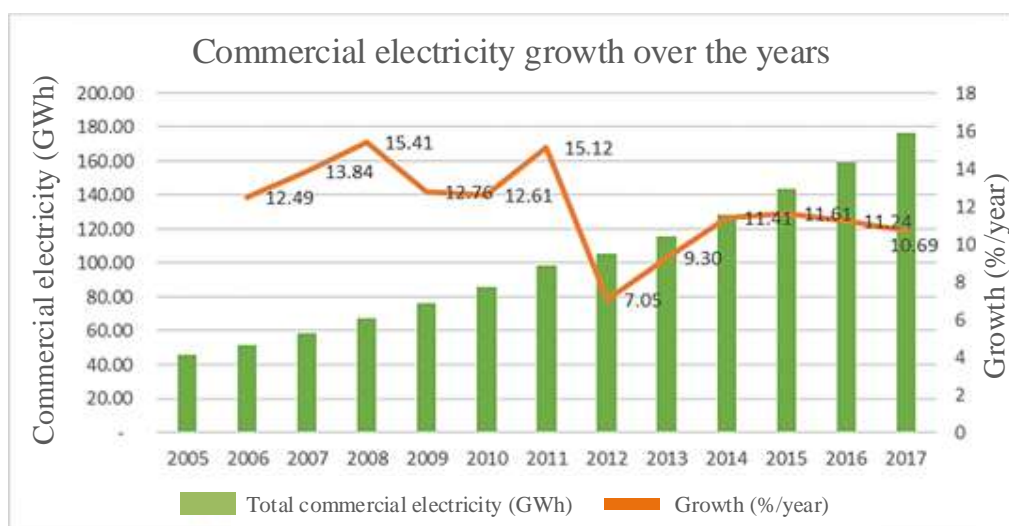
**Keywords:** *Electricity market, electricity demand, electricity production.*

## **1. Introduction**

Vietnam is one of the countries with the highest growth rate of energy production and consumption in general and particularly electricity in Southeast Asia. This growth has been associated with the country's economic growth in the past two decades. Basically, we still maintain the energy supply-demand balance and energy security with positive energy resources and reserves, including fossil energy, hydropower, and renewable energy (RE).

## **2. Electricity demand**

The total electricity consumption of Vietnam in 2017 was increasing to 176.49 billion kWh, compared with 98.53 billion kWh in 2011. The average growth rate of commercial electricity in the period of 2011 - 2017 is 11.96% / year, 1.97 times higher than the GDP growth. The increase in electricity consumption is strongly correlated with the GDP growth rate in the same period.



**Figure 1. Growth of commercial electricity in the period 2005-2017 [1, 3]**

### 2.1. The main customer groups

The electricity industry is currently meeting the electricity demand for five main groups of customers: industrial - construction consumer, agricultural consumer, commercial - service consumer, and management and residential consumer. The rest are other activities.

Among the customer groups, the industry - construction and Management & residential Consumption accounted for 53.5% and 34.4% of the national electricity consumption, respectively (2016). There are regions that contribute significantly to Vietnam's electricity demand growth. In the 2006-2010 period, the structure of electricity consumption tends to gradually reduce the proportion of electricity used for management and residential consumption. However, during the period 2010-2016, the proportion of electricity used for industry and construction almost unchanged at 53%, while the proportion of electricity is consumed for civil use decreased from 37.6% in 2010 to 34.4% in 2015.

**Table 1. Structure of electricity consumption demand by industry or fields [4, 7]**

STT	Category	2010	2011	2012	2013	2014	2015	2016
	Total commercial electricity (GWh)	85,586	94,658	105,474	115,283	128,435	143,34	159,45
Structure of electricity consumption (%)								
1	Agriculture	1.1	1.1	1.2	1.3	1.5	1.7	2.3
2	Construction - Industry	51.9	52.9	52.4	52.7	53.9	53.4	53.5
3	Commercial & Hotel, Restaurant	4.5	4.6	4.7	4.7	4.8	5.2	5.5
4	Management & Residential Consumption	37.6	36.4	36.7	36.4	35.5	35.4	34.4
5	Other activities	4.9	5.0	5.0	4.9	4.3	4.3	4.3

*In industry - construction:* The average growth rate of electricity consumption for industry and construction in the 2006-2010 period was 15.8% / year, but in the period of 2011-2016, the average growth rate has decreased sharply to only about 11.5% / year [ 9].

This group of customers mainly includes loads of industrial parks, export processing zones, large factories. In construction activities, the consumption scale and the long run tend to grow higher than the other activities.

*In civil area:* In the 2006-2010 period, the demand for electricity for civil use grew at an average rate of 10.1% / year. In the period of 2011-2016, the growth rate of electricity for civilians decreased compared to the previous period, 9.6% / year. This consumer also has a large proportion of the electricity consumption structure of the electricity system in Vietnam, mainly providing for household electricity consumers, administrative agencies, management ... [3]. Electricity usage in civil consumption households tends to increase due to enhancing income and living standards of households.

*In agriculture field:* Electricity for agriculture is a small proportion of the electricity consumption structure, mainly supplied to electric pumping stations for irrigation, drainage, agricultural and forestry production, small rural production... The electricity consumption in this industry ranges from 1.1-1.7%. In general, electricity consumption for agriculture is closely related to weather and crop conditions in the agriculture and forestry sectors.

*In management & residential consumption and other activities:* This is a large proportion component in the electricity consumption structure, this density ranges from 8-10%. This group of customers has a high average growth rate in the period of 2006-2010 at about 12.5% / year. However, during the period of 2011 - 2016, it is decreased to 11% / year.

## ***2.2 Structure of electricity consumption by geographic region***

The statistics mentioned in [3] show that the South and the North are currently the key electricity consuming areas (accounting for 91.07% of total demand). Among provinces and central cities, Hanoi and Ho Chi Minh City are the largest electricity consumers of the power sector. Electricity consumption in Hanoi and Ho Chi Minh City was even higher than that of the entire central region in 2016.

## ***2.3 Electricity consumption over time cycles***

In fact, the storage of electricity of the entire power system is almost impossible, the power plants are designed to meet the demand for variable power consumption over time. For electricity products, it is important to know the laws of electricity consumption and the use of customers on time cycles. The cycles usually considered are days, weeks, months, seasons, and years. In Vietnam, the demand for electricity over time often has some characteristics as follows:

*Annual cycles:* The beginning of the year until June is the peak season for electricity consumption because most of the production and business activities have been put into stable operation. This is the dry time, hot season in the South that makes electricity consumption in residential areas soar. On the other hand, due to the dry season, the production capacity of the hydroelectric system is limited, putting great pressure on the national electricity supply. The demand for electricity will gradually decrease until the end of the year due to the start of the rainy season which has cooler weather, the southern hydroelectric lakes start

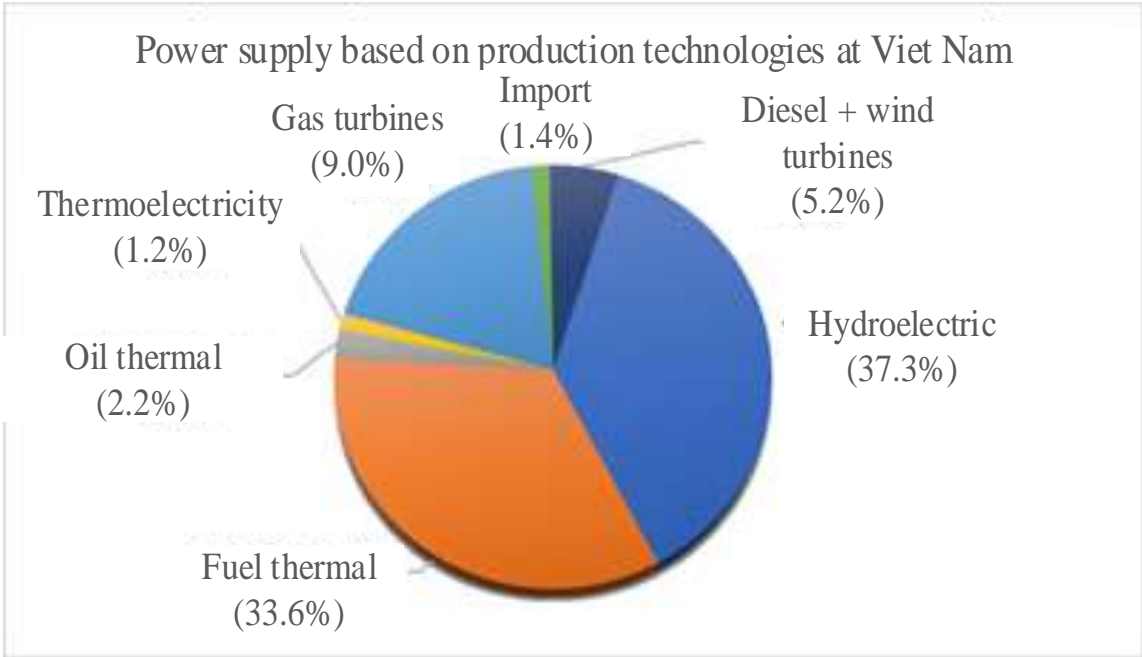
to have water to help reduce the load for the entire system.

*Weekly cycle:* The electricity demand during the working days of the week will be higher than the holidays due to the electricity demand for manufacturing industries and offices.

*Day cycle:* During the day, electricity demand fluctuates greatly between hours, there is a relatively big difference between peak hours (early morning hours of 8 am-11 pm and evening at 18-20 pm) and low hours, between day and night. The average electricity consumption at night is only 52 - 65% of the daytime power consumption [6]. The change in demand during the day is very fast and can make it difficult for dispatching to mobilize sufficient resources to meet the load.

### 3. Power supply

Vietnam's power supply from 2005 onwards has maintained a high growth rate. In 2016, the maximum capacity was 31,731 MW; electricity production increased by 3.8 times compared to 2005 and doubled compared to 2010, reaching 176.99 billion kWh (2016). The total installed capacity of electricity sources in 2016 reached 41,424 MW (an increase of 1.8 times compared to 2011), ranking 2nd among ASEAN countries (after Indonesia). In terms of 3 regions: The central region has the highest average capacity growth rate of 11.8% / year, North and South of 11.2% and 9.8% / year.



**Figure 2. Power source capacity structure in Vietnam in 2016 [4]**

The structure of the power source also has significant changes. The proportion of hydropower sources tends to decrease, while the sources of coal, gas thermal power increase and initially have the participation of renewable energy sources. In the period of 2011-2016, the total installed capacity of the national power source increased by 12.8% / year on average, higher than the maximum load growth of the same period (9.6% / year) [4]. In the same period, electricity production increased by an average of 9.8% / year, lower than the

growth of commercial electricity (10.6% / year). In general, Vietnam's power system operates safely and reliably, ensuring electricity supply for the electricity market. Most of the power plants have good equipment condition and stable work.

### **3.1. Characteristics of traditional power generation sources in Vietnam** [1]

*Hydroelectric source:* Hydroelectricity is one of the traditional electricity sources and plays a key role in Vietnam's power supply system. In the coming years, due to the fact that the reserves of hydroelectric resources have been almost fully exploited, together with the development of coal and gas thermal power plants. The proportion of hydropower will gradually decrease in the total electricity production structure. Hydroelectric plants have uneven levels of automation, equipment, and technology. There is a highly automated factory as Vinh Son (equipment of Cogelec, French). There is also a factory using the world's most advanced excitation system like in Hoa Binh, but there are also factories with the equipment during the 1960s. The degree of automation in the factories is not high, the staffing of the workers is quite large; on average 0.66 people / MW while the index in developed countries is 0.1 [8].

*Coal thermal power source:* Coal thermoelectricity is a traditional power source. The advantages of this resource have a very flexible capacity from as little as 5 MW to about 1,500 MW currently and are able to convert to oil or gas-fired thermal power or combined cycle. Vietnam currently has 22 coal-fired power plants with a total installed capacity of 9,000 MW, the total annual electricity production is 37 million kWh. Some factories have been built for a long time such as Uong Bi (1963), Ninh Binh (1974), Pha Lai 1 (1980) ... mainly condensed thermal power plants that use a natural circulation boiler, low capacity. Currently, these plants have been installed new technologies to treat exhaust fumes and meet the requirements of ensuring power supply. Many new coal-fired power plants have been put into operation, namely Nghi Son 1 (Thanh Hoa) with an installed capacity of 600 MW, Vung Ang (600 MW), Hai Phong 2, Mong Duong 2 (600MW), Vinh Tan 2 (1,200MW) and An Khanh 1 (115MW) provide additional generation capacity to the system.

*Thermal power source:* Gas-fired thermal power plants have some advantages which are fast construction time and son on. Operational complexity and environmental pollution are lower than coal-fired thermal power plants. Power plants operate as single and combined cycle gas turbines. Most factories have advanced technology equipment, quite high performance. Factories all use modern control systems for the main equipment systems. The Vietnam Gas Company (PVGC), a member of the Vietnam Oil and Gas Group, is responsible for regulating natural gas and developing the gas transportation system. In some cooperation with industrial foreign companies on exploration and gas exploitation, the company cooperates with a number of foreign investors to build gas power plants.

*Thermal oil source:* FO-fired thermal power plants managed by Vietnam Electricity (EVN) include three oil-fired thermal power plants, namely Thu Duc Thermal Power Plant, Can Tho Thermal Power Company, and O Mon Thermal Power Plant. Oil-fired thermal power plants with fuel cost components account for a large proportion from 80% to over



90% in the cost structure. Therefore, this thermal power source is limited in capacity to reduce electricity production costs and reduce EVN’s purchasing costs. These plants account for a small proportion of the power generation structure of Vietnam Electricity.

**3.2. Companies in electricity production**

Nowadays, the field of electricity production in Vietnam is gradually taking the participation of businesses from many different sectors. Electricity production has a market share of EVN and its subsidiaries or affiliates; units of corporations, state corporations, private companies, and foreign investors. The market share of electricity production is shown in Figure 3.

The largest proportion is the group of companies belonging to EVN or ownership related to EVN, power generation companies of Vietnam Electricity (EVNGENCO) are established from the restructuring of EVN’s attached power plants. Three EVNGENCO are assigned to take charge of managing power plants and EVN’s capital in power generation companies. After the establishment of EVNGENCO, EVN only managed directly multi-objective strategic hydropower plants (big hydroelectric plants, which are particularly important in terms of socio-economic, security, and defense purposes) such as Hoa Binh, Son La, Laly, Tri An and Tuyen Quang.

Group of independent power plants, Petro Vietnam Power Corporation (PV Power) and Vietnam Coal - Mineral Power Corporation (Vinacomin Power Holding Corporation) are the two largest independent electricity investors in Vietnam. PV Power currently manages a portfolio of 9 power plants in operation with a total capacity of 4,214.2 MW, accounting for 13-15% of the total national electricity output annually. Vinacomin Power is the third power supplier after EVN and PV Power, managing and operating 5 coal-fired power plants with a total capacity of 1,545 MW.

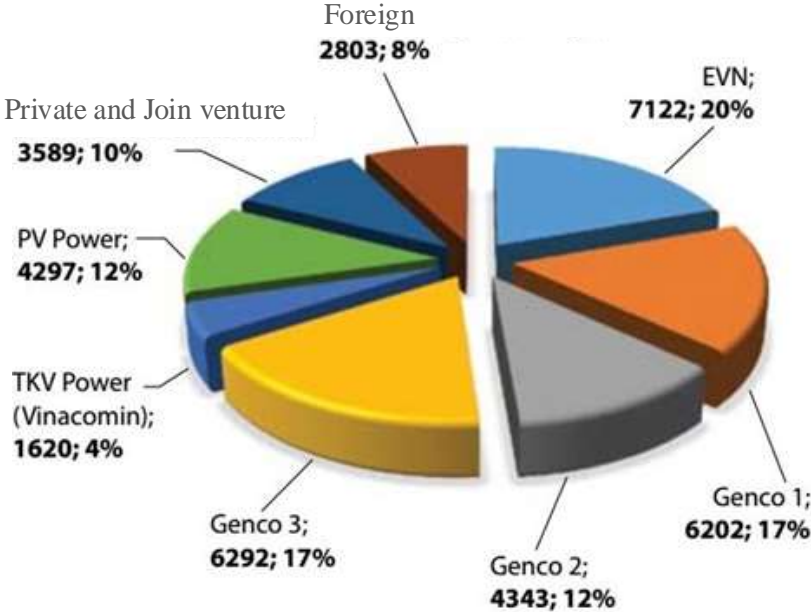


Figure 3. Market share of enterprises involved in electricity generation in Vietnam [4]

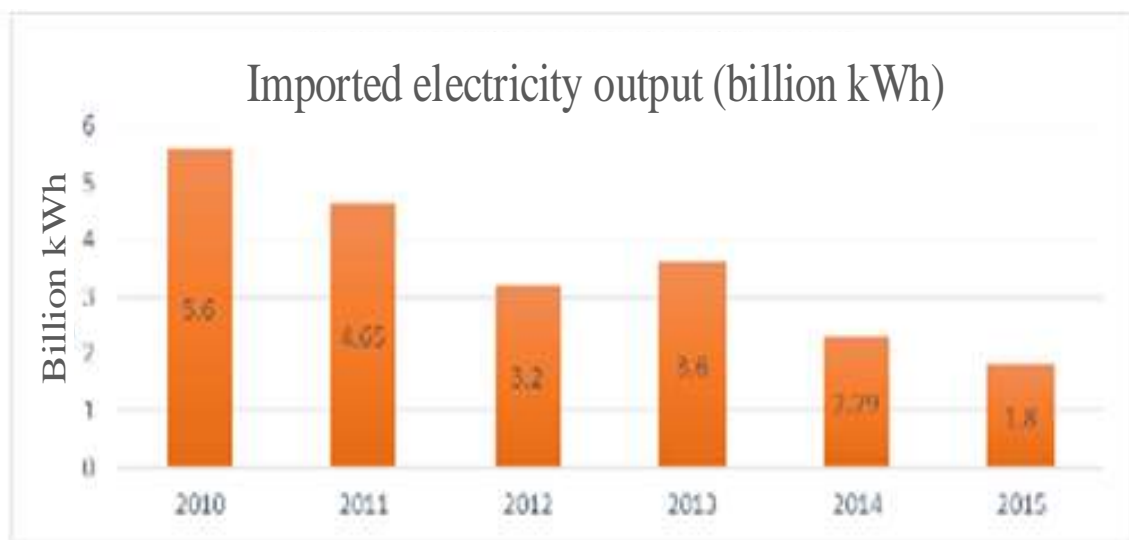
Except for the above group businesses, the market has the participation of domestic and foreign investors. This is the group with the highest growth rate and the strongest change in the power structure in recent years. In 2011, the market share of these enterprises was only 6.8% but by 2015, it increased to about 18% of the system capacity. Some typical foreign investors in Vietnam are AES Corporation (USA), Posco Energy (Korea), China Investment Corporation (China), Tata Power (India) ...

### 3.3. Import and export of electricity

Vietnam is now connecting to the electricity grid and carries out electricity trading with China, Laos, and Cambodia. Currently, Vietnam has to import 3.1% of electricity demand from China and Laos and will continue to import more than 2% of electricity demand from these countries in the coming years.

Nowadays, the purchase of electricity from China is done through two 220kV voltage levels in the direction of Lao Cai and Ha Giang and through the voltage of 110 kV in three directions of Lao Cai, Ha Giang, and Mong Cai. The regions that buy Chinese electricity operate independently from each other and independently of Vietnam's electricity network. Lao does not have a plan to develop a national transmission grid, so imports will mainly be through separate hydro projects. The situation of Vietnam's electricity imports from 2010 to 2015 is shown in Figure 4.

In recent years, Vietnam power system has more new power sources in the north area. Vietnam's power system can meet domestic electricity consumption demand. Expected the future, the amount of electricity imported from China will continue to decrease.



**Figure 4. Vietnam's imported electricity output [9]**

Regarding electricity export, to 2015, Central Power Corporation (EVNCPC) has sold electricity through 06 border gates to Laos and Cambodia, including Lao Bao and La Lay border gates (Quang Tri), Dak Oc (Quang Nam), Bo Y (Kon Tum), Le Thanh (Gia Lai) and BuPrang border gate (Dak Nong). In 2015, electricity output exported to Laos and Cambodia reached 805 million kWh.

### ***3.4. Clean energy source, renewable energy***

Vietnam has a huge potential for renewable energy. The main sources of renewable energy are able to efficiently exploit the sun, wind, and biomass. The central coastal region and southern provinces are identified as having higher potential with advantages in climatic conditions and socio-economic development characteristics.

*Solar energy:* In Vietnam, the average solar radiation of 150 kcal / m<sup>2</sup> accounts for 2,000 - 5,000 hours per year, with a theoretical potential estimate of approximately 43.9 billion TOE [2; 7]. The average number of sunny days in the central and southern provinces is about 300 days/year. Most of the solar power is exploited on a small scale, installed in remote areas, and islands. Recently, the promulgation of the fixed electricity purchase price is 9.35 Uscent / kWh of the Government, Therefore, solar power is forecasted to have very high growth in the coming years and may reach over 10% capacity of the whole system by 2030.

*Wind energy:* Vietnam has been identified as the country with the largest wind potential compared to regional neighbors such as Laos, Cambodia, and Thailand [9]. The most promising areas for wind power development are mainly in the coastal and central highlands of south-central and southern Vietnam. According to WB research, Vietnam estimated that about 8.6% of the total area has wind potential with the range from "high" to "very high", suitable for the deployment of large wind turbines [9]. Vietnam has issued a fixed price policy for buying wind power at 7.5 Uscent / kWh. So far, the total installed capacity of grid-connected large scale wind farms has reached over 100 MW, concentrated in the southern coastal provinces such as Bac Lieu, Ca Mau, and Binh Thuan. In the coming period, forecasting wind potential in Vietnam will continue to be exploited and has a very high growth rate.

*Biomass energy:* As an agricultural country, Vietnam has a huge potential for biomass energy resources. The main types of biomass are timber, waste from crops, animal wastes, municipal waste, and other organic wastes. The ability to sustainably exploit biomass for energy production in Vietnam is about 100-150 million tons per year. Some types of biomass can be exploited technically for electricity production or applied co-generation energy technology (producing both electricity and heat) such as rice husks in the Mekong Delta, bagasse in sugar mills, domestic waste in large cities, livestock waste from cattle farms, households and other organic waste from seafood processing [7]. According to statistics, there are currently about 40 cogeneration plants with a total capacity of 150MW in Vietnam.

### **4. Several solutions to develop the electricity market**

To improve the efficiency of the electricity market, the authors stated two solutions as follows:

***Firstly, it is necessary to gradually reduce the regulation of the government and liberalize the electricity industry.***

The experience of developing the electricity market in the world shows that it is necessary to orient and propose a roadmap to reduce government intervention in the market and gradually liberalize in some stages such as electricity production or retail. This process is closely linked to improving competition. The lower the competitiveness in the market, the

less the role of the "invisible hand" decreases. At that time, it is necessary to strengthen the role of "tangible hand" or the state's intervention in the market. Conversely, the more competition in the market, the role of the "invisible hand" takes effect, the need for restricting government intervention in the market. Therefore, the process of building a competitive electricity market in many countries is considered as the process of deregulation of the electricity industry.

***Second, the building orientation of the electricity market in Vietnam operates more efficiently in many aspects:***

*Firstly, an effective pricing mechanism:* helps achieve the goal of minimizing the electricity cost in the market, while giving the right price for buying electricity at any location and in the transaction cycle. Market pricing mechanism should encourage power generation companies to give an effective price signal to customers participating in the market, and urge power generation companies to operate in the direction of optimal cost.

*Secondly, encourage effective investment:* One of the important goals of Vietnam Electricity Market is to attract investment in developing new power sources. In order to achieve this goal, the competitive market needs to: i) Provide good price, reflect the system needs of investors; ii) Ensure transparency in operation of IWPs - Power Markets; iii) Encourage improving operational efficiency to make the best use of existing power sources.

*Third, efficient and transparent operations for the power system and power market:* An important aspect of all power markets is operational efficiency as well as transparency in the operation of the power market and power plants. A market may be well designed, but it may not work as effectively as expected if it does not guarantee effective and transparent market operation. To ensure the above principle, Vietnam electricity market must meet the following requirements:

- There are mechanisms and tools for market pricing and regulation, efficient operation of power systems as well as market power;
- Exploit and use existing power sources efficiently;<sup>[11]</sup><sub>[SEP]</sub>
- Operate efficient power transmission and distribution systems;<sup>[11]</sup><sub>[SEP]</sub>
- There are regulations on ensuring transparency to create confidence for investors: fully disclosing information, ensuring the independence of the unit operating the power system and the market; independent audit of calculation tools; market surveillance mechanism ...;
- Ensuring consistency and non-overlap between market operation regulations and other relevant regulations.<sup>[11]</sup><sub>[SEP]</sub>

*Fourth, improve competitiveness in the electricity industry:* In order to ensure competitiveness in the electricity industry, firstly, it is necessary to guarantee the appropriate structure of the electricity industry. Accordingly, it is necessary to form many electricity-buying units, many electricity-selling units, and service-providing units. operator of power system, power market, power transmission unit, and power distribution unit ....) should be independent of the buyer and seller.

## 5. Conclusion

The article analyzes and synthesizes Vietnam's electricity market in the period of 2005-2017 from generation to customer groups. At the same time, it also offers solutions to improve the efficiency of the electricity market.

## Acknowledgements

The author would like to thank Thai Nguyen University of Technology for sponsoring this research.

## References

1. Bộ Công Thương (2017), “*Thống kê năng lượng Việt Nam 2016*”.
2. Bùi Huy Phùng (2016), “*Năng lượng bền vững ở Việt Nam: Thách thức và kiến nghị phát triển*”, Tạp chí Năng lượng Việt Nam.
3. Cục Điều tiết điện lực (2017), *Tổng kết vận hành Thị trường phát điện cạnh tranh và Thị trường bán buôn điện cạnh tranh thí điểm giai đoạn 2016 - 2017*.
4. Trung Tâm Thông tin Điện lực (2018), *Kết quả sản xuất - kinh doanh 2017*.
5. Tập đoàn điện lực Việt Nam Trung tâm Điều độ hệ thống điện quốc gia (2015), *Báo cáo vận hành hệ thống điện và thị trường điện Việt Nam 2015*, Hà Nội.
6. Viện Năng lượng (2016), *Điều chỉnh Quy hoạch phát triển điện lực quốc gia giai đoạn 2011 - 2020, có xét đến 2030*.
7. Viện Năng lượng (2017), *Báo cáo viễn cảnh năng lượng Việt Nam 2017*, Bộ Công Thương - Đại sứ quán Đan Mạch.
8. Terna (2014), *General Data*.
9. Nguyen Anh Tuan (2017), *National assessment of development potential of grid-connected solar photovoltaic projects in Vietnam until 2020 with a vision to 2030*, Gesellschaft für Internationale Zusammenarbeit (GIZ) - Ministry of Industry and Trade.

# SUB-NATIONAL GOVERNANCE QUALITY AND ECONOMIC GROWTH IN VIETNAM

*PhD Candidate Do Tuyet Nhung*

*nhungdt@neu.edu.vn*

*Graduate School, National Economics University, Hanoi, Vietnam*

*Assoc. Prof. Dr. Le Quang Canh*

*canh@neu.edu.vn*

*Institute for Sustainable Development,*

*National Economics University, Hanoi, Vietnam*

## **Abstract**

*Empirical studies around the world have yielded various conclusions about the relationship between sub-national governance and economic growth, which can be caused by different measures of governance quality or testing methods. This paper uses provincial governance indicators built from the two datasets of PAPI and PCI to explore the relationship between governance and economic growth, and then to estimate the impacts of governance on provincial economic growth in Vietnam. The research results show that once the endogeneity is controlled, the governance quality has positive effects on long-term economic growth, which supports policy recommendations to improve sub-national governance quality to promote economic growth in Vietnam.*

**Keywords:** *Economic growth, Governance, Sub-national, Vietnam*

## **1. Introduction**

The role of institutions in economic growth has received much attention from the researchers and policy-makers in the last two more decades. The literature reveals that neoclassical and endogenous growth models are thought to fail to explain the differences in economic growth between countries based on capital accumulation or technological innovation (Asghar, Qureshi, & Nadeem, 2015). Therefore, when institutional economics emerges as part of the continued search for sources of economic growth, researchers around the world try to expand neoclassical or endogenous growth models by including institutional factors in determining economic growth in the long run (Acemoglu, Johnson, & Robinson, 2001; Rodrik, Subramanian, & Trebbi, 2004). Sihag (2007) notes that a blending of insights from studies on institutions and governance with those from neoclassical and endogenous growth theories may offer a more realistic approach to understanding the process of economic growth.

Governance, a hierarchy of institutions according to Williamson (1998), seems to be of greater interest to researchers due to the high policy implications that research results can bring to countries and international organizations (Kaufmann & Kraay, 2003; Kurtz &

Schrank, 2007; Wilson, 2016). Measures of governance have been strongly developed at both the national and subnational levels. Some authors have pointed out the empirical advantages of using subnational data, i.e. the sources of institutional variations can be more easily identified and compared in relation to cross-country analysis (Nakabashi, Gonçalves Pereira, & Sachside, 2013). The emergence of local governance indices such as PCI, PAPI, PAR index, JUPI, ICT index, SIPAS, PACA... in Vietnam has followed this trend. However, none of these indices have been able to fully represent the various local governance dimensions in Vietnam.

In parallel with the strong development of governance measures, the direction of causality between governance quality and economic growth has been the subject of debate among researchers in recent years. On the other hand, good quality institutions, through reducing uncertainty and promoting efficiency, may promote incentive structure that leads to higher economic growth (North, 1990). According to Kaufmann (2005), a considerable number of empirical studies conclude that governance is the cause rather than the result of economic growth. On the other hand, institutional theory also argues that economic development may enhance the relative efficiency of formal governance mechanisms (Dixit, 2003). Results from a number of historical case studies suggest that the quality of governance was not required to support economic growth in the early stages of development; improvements in governance may, instead, have been a consequence of economic growth (Wilson, 2016).

Such different causal directions also occur at subnational studies, which supposedly have more advantages in measuring the governance effect on economic growth more accurately compared to that at the national level. A number of studies support the governance effect on growth (Hall & Sobel, 2008; Hasan, Wachtel, & Zhou, 2009) whereas some suggest the opposite direction (Wilson, 2016), and others prove the endogeneity of governance in relation to economic growth (Nakabashi et al., 2013).

Some studies on institutions and governance in recent years often confirm that weak governance is a hindrance to economic growth or sources of growth in Vietnam. According to Lê Quang Cảnh and Đỗ Tuyết Nhung (2018), most of these studies, however, are either qualitatively advisory and have not been empirically tested in the Vietnamese context, simply reviewing institutional issues from a single perspective, or just investigating some certain channels (i.e. labor productivity and productive efficiency) through which governance may contribute to economic growth. The research by Lê Quang Cảnh and Đỗ Tuyết Nhung (2018) could be considered the first study on the direct effect of governance on Vietnam's economic growth. Nevertheless, this work still has some limitations, i.e. no measure of governance quality has been developed, or the overall impact of governance has not been fully analyzed. Moreover, the method used in this study was not able to really control the endogenous issues of institutional factors.

As mentioned in Nakabashi et al. (2013), the research concerning the relationship between governance and economic growth employing intra-country databases is on the onset. A further study on this topic, using new measures and methods, may provide more

empirical evidence on the relationship between governance and local economic growth in a developing country during the transition period, as well as some policy implications related to institutions and economic growth in Vietnam.

The objective of this paper is to propose another measure of provincial governance quality, which is not only consistent with the available data but also able to cover all dimensions of governance, thus can be used to investigate the impacts of governance on local economic growth in Vietnam.

## 2. Method

### 2.1. Developing a governance measure for Vietnam's provinces

Based on the definitions and different measures of subnational governance in the world and in Vietnam, specific dimensions of local governance in Vietnam will be proposed. Then the composition of Vietnam's current provincial governance indices will be analyzed in order to select reliable indicators to create a diverse dataset of variables related to governance quality from different data sources. By taking Givens (2010) approach, the next step of the study is to estimate a factor model to extract some key and independent factors from a set of variables, labeling and weighting each factor before turning them into a unified index to measure the quality of provincial governance in Vietnam. This approach is selected due to the fact that relying on a single, catch-all measure of governance quality makes it impossible to estimate the marginal economic contributions of different categories of governance, and may obscure underlying strengths and weaknesses of a province or city (will be referred to as province hereafter). The solution is to replace the catch-all measure with a vector of measures that each captures a different dimension of governance. Furthermore, governance measures created by the factor analysis are orthogonal; therefore, they can be used jointly as regressors without the problem of multicollinearity. Orthogonality also makes the measures conceptually distinct from one another, helping to better accentuate the strengths and weaknesses of a province than a set of correlated measures can.

In line with the expectation of using the indicators of Vietnam's current provincial perspective measures of governance quality, namely that of PCI and PAPI, we can develop a provincial governance index (PGI) for 63 provinces of Vietnam during the 2011-2018 period.

### 2.2. Regression model

Derived from the model by Nakabashi et al. (2013), adding control variables including some structural parameters of the transitional economy and the government expenditure, we have an augmented Cobb-Douglas production function in the logarithm form, as followed:

$$\ln YL_{it} = \alpha_i + \beta_K \ln KL_{it} + \beta_G \ln GL_{it} + \delta \ln P_{it} + \gamma Z_{it} + u_{it}$$

where  $i$  indexes the province and  $t$  indexes the time

$YL$  is the output level per effective labor, calculated by  $Y/HL$

$KL$  is the physical capital stock per effective labor, calculated by  $K/HL$

$GL$  is the government expenditure per effective labor, calculated by  $G/HL$

$P$  is a set of provincial governance indices



$Z$  is a set of variables that contribute to the output and is relevant to the case of transitional economies. They include the degree of openness of the domestic economy ( $FDI$ ), the importance of agricultural production in the economy ( $AGR$ ), and governmental influence in the economy ( $GOV$ ).

In this model, due to the limitations of the human capital data for Vietnam's provinces during the 2011-2018 period, effective labor variables are used to replace both the labor force and the human capital stock in the model by Nakabashi et al. (2013). The structural parameters of the transitional economy are quite important for short-term growth (Trần Thọ Đạt & Đỗ Tuyết Nhung, 2008). In addition, the variable of government expenditure is included to better control the growth effects in the short term, especially in the small-scale economies which are largely dependent on the public sector like Vietnam (Lê Quang Cảnh & Đỗ Tuyết Nhung, 2018).

Depending on the relationship between governance quality and economic growth, we will use suitable estimation methods to match the panel data of 63 Vietnamese provinces over the span of 2011-2018 to find the coefficient  $\delta$  corresponding to each governance indicator.

### 2.3. Variables and data sources

Variable  $Y$  is the real GRDP (gross regional domestic product) of the province, used as the dependent variable in the model. It is reported in VND at 2010 constant prices in Statistical Yearbooks of 63 Vietnamese provinces.

Variable  $P$  is a set of provincial governance indices, built from the approach in section 2.1 based on the PAPI and PCI indicators of 63 Vietnamese provinces.

Variable  $K$  is the real physical capital stock built by the method proposed by Trần Thọ Đạt and Đỗ Tuyết Nhung (2008), using the GRDP in 1995 as the initial  $K$  and real investment data in the 1996-2018 period, published by 63 Statistical Offices of Vietnamese provinces.

Variable  $HL$  is the number of effective labors. Due to the limitations of the provincial data during the 2011-2018 period, this study uses the proportion of trained labor to represent human capital. By applying the idea of measuring human capital based on income by Trần Thọ Đạt and Đỗ Tuyết Nhung (2008), the total number of effective labors in each province is calculated using the following formula:

$$HL_{it} = L_{it}(1 - H_{it}) + \frac{W_{trained}}{W_{untrained}}L_{it}H_{it}$$

where  $H$  is the proportion of trained persons in the labor force,  $L$  is the total number of the economically active population irrespective of employment status (also referred to as the labor force),  $W_{trained}$  is the average income of a trained person in the labor force and  $W_{untrained}$  is the average income of an untrained person in the labor force. While  $L$  and  $H$  are collected directly from the Statistical Yearbooks of Vietnam's provinces,  $W$  is calculated based on the household income using VHLSS.

Other macroeconomic variables are taken from the Statistical Yearbooks of 63 provinces, including  $G$  which is the yearly government expenditure,  $FDI$  measured by the share of foreign investment sector in GRDP,  $GOV$  measured by the ratio of government

expenditure to GRDP in the province, and *ARG* measured by the share of agriculture, forestry and fishing in the province's GRDP.

### 3. Results

#### 3.1. Provincial governance indices

Based on the definitions of governance provided by World Bank, ADB and UNDP (ADB, 2013; Kaufmann, Kraay, & Mastruzzi, 2003; UNDP, 1997), as well as the components of widely used governance indices, especially the Worldwide Governance Indicators (WGI) (Kaufmann, Kraay, & Mastruzzi, 2010) and the Institutional Quality Index (IQI) (Nifo & Vecchione, 2014), the various dimensions used in measuring provincial governance quality in Vietnam can be summarized as followed:

**Table 1. Six dimensions of provincial governance in Vietnam**

Dimensions	Measured by
Citizen's participation	The awareness of citizens of their right to political participation, the extent to which citizens participate in elections and local decision-making, as well as how local governments facilitate the exercising of citizens' rights to participate
Accountability	The frequency and effectiveness of citizen interactions with local authorities, how local governments respond to citizen proposals, denunciations, complaints, and/or petitions
Transparency	The extent to which local governments facilitate access to government information and respond to civic rights in order to better understand how public policies impact citizens' lives and livelihoods
Corruption control	The performance of public institutions and local governments in controlling corruption in the public sector
Policy quality	The ability of the local government to provide and implement sound policies and regulations that enable and promote private sector development
Government effectiveness	The quality of public services and the capacity of the civil services in areas important to citizens such as public administrative procedures and provision of health services, education, vocational training, courts, infrastructure, security and so on

*Source: Authors' proposal based on WGI and IQI<sup>7</sup>*

Upon considering the published time series and the measure reliability, certain PAPI and PCI indicators in the 2011-2018 period could be employed in constructing a provincial

<sup>7</sup> It must be noted that Table 1 excludes the dimension of Political Stability (available in WGI) and Rule of Law (available in both WGI and IQI) due to the lack of data. Political stability is frequently absent from the subnational governance measures, while the "Law and Order" indicator in PCI is not sufficient to represent the validity of the legal system as a whole.

governance index for Vietnam. In reference to Table 1, the component indicators of PAPI and PCI are categorized into various dimensions, as could be seen in Table 2.

**Table 2. Categorizations of PAPI and PCI indicators by 6 dimensions**

<b>Dimension</b>	<b>PAPI and PCI indicators</b>
Citizen’s participation	PAPI11: Civic Knowledge; PAPI12: Opportunities for Participation; PAPI13: Quality of Elections; PAPI14: Voluntary Contributions
Accountability	PAPI31: Interactions with Local Authorities; PAPI32: Local Government’s Response to Citizens’ Appeals; PAPI33: The effectiveness of the People’s Inspection Boards; PAPI3: calculated from PAPI31, PAPI32, PAPI33
Transparency	PAPI21: Publicized Poverty Lists; PAPI22: Publicized Communal Budget and Expenditure; PAPI23: Publicized Land-Use Plans/Price Frames
Corruption control	PAPI41: Limits on Public Sector Corruption; PAPI42: Limits on Corruption in Service Delivery; PAPI43: Equity in Employment; PAPI44: Willingness to Fight Corruption
Policy quality	PCI2: Access to Land; PCI4: Time costs; PCI5: Informal Charges; PCI7: Proactivity
Government effectiveness	<i>In public administrative procedures, including</i> PCI1: Entry costs; PAPI51: Certification Procedures; PAPI52: Construction Permits; PAPI53: Land-Use Rights Procedures; PAPI54: Personal Procedures  <i>In other public services, including</i> PCI3: Transparency (services providing information for businesses); PCI8: Business Support Services; PCI9: Labor Policy; PCI10: Law and Order; PAPI61: Public Health; PAPI62: Public Primary Education; PAPI63: Basic Infrastructure; PAPI64: Law and Order

Note: PAPI31, PAPI32 and PAPI33 indicators are removed due to the lack of data. As a substitution, PAPI3 will be used to represent the accountability dimension.

*Source: Authors’ proposal based on PAPI and PCI indicators*

Supported by results of the reliability tests (Cronbach’s alpha) and tests of conditions for factor analysis (KMO and Bartlett’s test), first we choose 8 PCI indicators and 20 PAPI indicators to add into the factor model. After some experiments, the indicator group containing PAPI61-64 is removed to lessen the dispersion, along with the removal of PC11 and PAPI44 to reduce noise in calculation. The final result is the following table of Rotated Component Matrix.

**Table 3. Rotated Component Matrix**

	Component				
	1	2	3	4	5
PCI2				.783	
PCI3			.622		
PCI4				.584	
PCI5				.833	
PCI7				.680	
PCI8			.693		
PCI9			.748		
PCI10			.561		
PAPI11	.788				
PAPI12	.649				
PAPI13	.546				
PAPI14					
PAPI21	.744				
PAPI22	.790				
PAPI23					
PAPI3	.607				
PAPI41		.878			
PAPI42		.864			
PAPI43		.843			
PAPI51					.578
PAPI52					.742
PAPI53					.566
PAPI54					.593

*Source: Results from factor analysis using SPSS*

These five factors are described in detail in Table 4 as followed.

**Table 4. Factors and Indices**

Indicators categorized into factors	Identification
PAPI11, PAPI12, PAPI13 PAPI21, PAPI22, PAPI3	<b>Democracy (DEM):</b> including dimensions of Citizen’s participation; Accountability and Transparency
PAPI41, PAPI42, PAPI43	<b>Corruption (COR):</b> equivalent to the dimension of Corruption control
PCI3, PCI8, PCI9, PCI10	<b>Service (SER):</b> Government effectiveness in providing public services
PCI2, PCI4, PCI5, PCI7	<b>Policy (POL):</b> equivalent to the dimension of Policy quality
PAPI51, PAPI52, PAPI53, PAPI54	<b>Public (PUB):</b> Government effectiveness in handling public administrative procedures

*Source: Authors’ proposal based on factor analysis results*

These five factors are calculated, standardized and converted into a 10-point scale using the method suggested by VCCI and USAID (2018) as followed:

$$P_{it} = 9 \times \frac{(F_{it} - MinF_{it})}{MaxF_{it} - MinF_{it}} + 1$$

where  $P$  is the standardized value of the provincial governance indices;  $F$  is the factor score calculated by the factor analysis method,  $MinF$  is the lowest factor score and  $MaxF$  is the highest factor score in the data series.

Givens (2010) argues that variables found to be more highly correlated with a governance category should be assigned greater weight in its prediction. Therefore, the cumulative rotation sums of squared loadings can be used to calculate the aggregate provincial governance index:

$$PGI = 0.255 \times DEM + 0.208 \times COR + 0.192 \times SER + 0.190 \times POL + 0.155 \times PUB$$

In term of meaning, lower index value signifies weaker governance quality, and vice versa. In addition, due to the use of factor analysis, the correlations among the PGI indicators are close to 0, which is verified via the Pearson, Kendall and Spearman correlation tests.

PGI has an advantage over PAPI and PCI in term of how comprehensive it can reflect on different dimensions of governance quality in Vietnam. Moreover, the correlations among the indicators are close to 0 thanks to the factor analysis method, which neither PCI nor PAPI has yet to achieve. Thus, it is possible to include all 5 component indicators of PGI in a regression model to fully investigate the impact of governance on economic growth without the risk of multi-collinearity.

### 3.2. Data description and endogeneity test

Pooling the data on 63 provinces during the period between 2011 and 2018, we have 504 data observations.

**Table 5. Data description**

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>YL</i>	567	53999	59403	13330	581523
<i>KL</i>	504	149863	97873	38451	642695
<i>GL</i>	504	19149	8100	5491	55382
<i>FDI</i>	504	0,101	0,148	0,000	0,683
<i>GOV</i>	504	0,374	0,230	0,035	1,376
<i>AGR</i>	504	0,234	0,124	0,006	0,583
<i>DEM</i>	500	5,063	1,715	1,000	10,000
<i>COR</i>	500	5,765	1,630	1,000	10,000
<i>SER</i>	500	6,663	1,289	1,000	10,000
<i>POL</i>	500	4,553	1,461	1,000	10,000
<i>PUB</i>	500	6,576	1,447	1,000	10,000
<i>PGI</i>	500	5,654	0,703	3,094	7,681

Note: Since the lags of *YL* are used in the regression model based on the method proposed by Arellano and Bond (1991), the dataset of *YL* covers the period 2010-2018 with the total observations of 567. However, the lack of PAPI data in some provinces in 2014 and 2018 results in only 500 observations for governance indicators.

The Durbin-Wu-Hausman test in accordance with the procedure proposed by Davidson and MacKinnon (1993) reveals the endogeneity of the governance variables in the regression model. In other words, between governance and economic growth exists a causal relationship.

**Table 6. Result of endogeneity tests**

	F-test	Conclusions
DEM	1338.2420***	Endogenous
COR	788.1000***	Endogenous
SER	1432.6140***	Endogenous
POL	1607.3500***	Endogenous
PUB	2568.7850***	Endogenous
PGI	2104.5700***	Endogenous

Note: \* p-value < 0.10, \*\* p-value < 0.05, \*\*\* p-value < 0.01.

Source: Authors' calculation.

### 3.3. Regression results

In order to better control the endogeneity of governance variables, instead of relying on the method used by Lê Quang Cảnh and Đỗ Tuyết Nhung (2018), i.e. the two-step GMM regression for dynamic panel data, with instrumental variables including lags of the dependent variable and differences of independent variables, this article applies the GMM regression with endogenous variables proposed by Arellano and Bond (1991). In this case, instrumental variables include lags of the dependent variable and governance variables, and differences of other independent variables. This estimation method is also suitable for dataset in which the number of time units is much smaller than the number of cross-sectional units.

Table 7 shows that the GMM regression with endogenous variables is appropriate, all macroeconomic variables are statistically significant and the coefficient signs are in line with the growth theories. Regarding the governance variables, however, according to the original model (model 1), the coefficient of public service indicator is negative whereas the coefficients of democracy and public administrative procedure are not statistically significant.

**Table 7. Regression results**

	<b>Model (1)</b>	<b>Model (2)</b>	<b>Model (3)</b>
Lag of LnYL	0.1810***	0.1420***	0.0711**
lnKL	0.4240***	0.3910***	0.5220***
lnGL	0.2520***	0.3000***	0.2080***
GOV	- 0.4830***	- 0.6880***	- 0.4090***
AGR	- 0.3220**		
FDI	0.3800***	0.3890***	0.5480***
lnDEM	- 0.0038	- 0.0500*	
lnDEM squared		0.0168*	
lnCOR	0.0171*	0.0207*	
lnSER	- 0.0406**	- 0.4120***	
lnSER squared		0.1170***	
lnPOL	0.0345***	0.0260***	
lnPUB	- 0.0200		
lnPGI			0.0609***
Constants	1.6190***	2.2470***	1.7970***
Number of observations	435	435	435

Note: \* p-value<0.10, \*\* p-value <0.05, \*\*\* p-value <0.01

*Source: Authors' calculation.*

According to Table 2, both variables of public administration procedures and public services represent the governance dimension of local government effectiveness, allowing the removal of *PUB* from the regression model without compromising the dimensions of governance. On the other hand, the negative coefficients of *DEM* and *SER* in model (1) suggest a nonlinear relationship between these governance variables and economic growth. Finally, considering the very low democracy indexes in the Mekong Delta region, where the agricultural share is the highest in all Vietnam, we withdraw *AGR* from the model to reduce the correlation between the governance variables and the economic structural ones.

Results of model (2) indicate that, all coefficients are statistically significant at 1% with the exception of *DEM* and *COR* which are statistically significant at 10%. Another test is conducted to ensure the reliability of model (2). The Pearson correlation coefficient matrix and the variance inflation factors (VIF) show that there is no multicollinearity among independent variables in the estimation model.

Finally, four component indicators are replaced with *PGI* in model (3). The results prove that *PGI* has a positive and statistically significant effect on provincial economic growth in spite of different impacts of different governance dimensions.

#### **4. Discussion and Conclusion**

##### ***4.1. Discussion of regression results***

Model (3) verifies that the impact of governance on economic growth is consistent with the theories and many empirical results. If other things equal, better governance quality lead to an increase in the economic growth. The extent of governance influence on economic growth is clearly not as large as that of macroeconomic variables, but the impact should still be acknowledged, particularly in provinces with low governance indexes. The average governance index of most provinces in Vietnam ranges from 5-6 points, hence for every 1-point increase in the PGI, it can be predicted that the local income also increases 1-1.2%.

Similarly, model (2) shows that both corruption control and policy quality have positive impacts on economic growth. Improving corruption control and policy quality will help boost local economy's growth, *ceteris paribus*. The coefficients obtained from Table 7 imply that a 10% increase either in the corruption control or policy quality indicator will result in a 0.21%-0.26% increase in a province's GRDP per effective labor.

Democracy and public services are two noteworthy variables due to their non-linear relationship with the income per effective labor. In model (2), the coefficients of *DEM* and *SER* are negative whereas those of squared *DEM* and squared *SER* are positive, which means the impact of democracy and public services on provincial economic growth has a U-shape. In an early stage, low-level democracy (i.e. authoritarian local government with little transparency and accountability) and poor public services (i.e. services related to business support, information provision and judicial system are barely available) could contribute to economic growth. However, upon reaching a certain level, economic growth becomes partially dependent on the improvement of democracy and public services. This implies that



“good governance” is eventually necessary in sustaining economic growth in the long run. It must be noted that after reaching the bottom of the U-shape, the higher the index is, the greater impact the local governance has on the provincial income.

More intuitively speaking, if other things equal, the bottom of the U-shape can be estimated at the democracy and public services indicators of 4.4 and 5.8 points, respectively. During the 2011-2018 period, the calculated average provincial democracy indicator is approximately 5.1 (only 18 provinces have the democracy indicator lower than 4.4). Simultaneously, the public service indicator is 6.7 on average (only 5 provinces have the public service indicator lower than 5.8). These estimations of the U-shape bottoms allow a conclusion to be drawn on the positive impact of governance on the provincial economic growth in Vietnam at the present.

In most provinces in Vietnam, the democracy indicator is somewhere between 3.2 and 6.3 points and the public service indicator varies between 5.9 and 7.5 points. Then a 10% boost in the democracy indicator can change the provincial GRDP per effective labor from a 0.09% decrease to an increase of 0.13%, *ceteris paribus*. With a 10% boost in the public service indicator on the other hand, the provincial income can increase 0.14% up to 0.68%.

#### ***4.2. Conclusions and Recommendations***

Several conclusions can be drawn from the estimated results:

*Firstly*, by applying GMM regression for dynamic panel data provided by Arellano and Bond (1991), this research can attest to the positive impact of governance on economic growth in the long run.

*Secondly*, the governance impact on the provincial income per effective labor varies depending on specific dimension, that is, corruption control and policy quality are linearly and positively associated with income level; whereas the relationship between democracy-public services and income level is represented by a U-shape, with the bottom of the U-shape noticeably lower than the average provincial indicators. The only dimension of governance that has seen no impact on economic growth is the government effectiveness in handling public administration procedures.

Based on the above conclusions, several policy implications can be made.

*Firstly, improving the governance on all dimensions can serve as means of pushing Vietnam's economic growth in the long run.* The discussed results have pointed out the role of governance in provincial economic growth in Vietnam. Moreover, the causal relation between the two variables allows us an expectation of a mutual and positive interaction between governance and economic growth.

*Secondly, the provinces can focus on the economic dimensions of the governance, but should also pay attention to the societal dimensions to ensure an all-round development.* Due to the complex (linear or non-linear) relations between governance dimensions and economic growth, it is currently insufficient to determine which dimension in particular is most crucial to economic growth in a specific province. However, for the sake of

generalizing, it can be said that public services have the most noticeable impact on economic growth, followed by policy quality, corruption control and democracy. Therefore, in order to push economic growth, the local government is recommended to prioritize those dimensions that are directly tied to economy, such as public services, policy quality and corruption control, before distributing the resources to promoting citizen's participation, accountability and transparency. Nevertheless, when constructing the provincial index set, we have neglected the political stability dimension of governance while in fact, democracy can be a sensitive issue with certain influences on political stability and thus, capable of being detrimental to economic growth. In other words, this research might have downplayed the impact of democracy on provincial economic growth in Vietnam.

## 5. References

1. Acemoglu, D., Johnson, S., & Robinson, J. A. (2001). The Colonial Origins of Comparative Development: An Empirical Investigation. *The American Economic Review*, 91(5), 1369-1401.
2. ADB. (2013). *Supporting Good Governance: A Thematic Evaluation Study of ADB*. Retrieved from <https://www.adb.org/sites/default/files/evaluation-document/36108/files/eap-tes-governance.pdf>
3. Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The review of economic studies*, 58(2), 277-297.
4. Asghar, N., Qureshi, S., & Nadeem, M. (2015). Institutional Quality and Economic Growth: Panel ARDL Analysis for Selected Developing Economies of Asia. *Journal of South Asian Studies*, 30(2), 381-404.
5. Davidson, R., & MacKinnon, J. G. (1993). *Estimation and inference in econometrics*: OUP Catalogue, Oxford University Press.
6. Dixit, A. K. (2003). Trade expansion and contract enforcement. *Journal of Political Economy*, 111, 1293-1317.
7. Givens, D. M. (2010). *Four essays in the measurement of governance institutions*. College Park: PhD Dissertation, University of Maryland.
8. Hall, J. C., & Sobel, R. S. (2008). Institutions, Entrepreneurship, and Regional Differences in Economic Growth. *Southern Journal of Entrepreneurship*, 1(1), 69-96.
9. Hasan, I., Wachtel, P., & Zhou, M. (2009). Institutional development, financial deepening and economic growth: Evidence from China. *Journal of Banking and Finance*, 33(1), 157-170.
10. Kaufmann, D. (2005). 10 Myths about Governance and Corruption. *Finance and Development*, 42(3), 41-43.

11. Kaufmann, D., & Kraay, A. (2003). *Growth without governance*. Washington, DC: World Bank.
12. Kaufmann, D., Kraay, A., & Mastruzzi, M. (2003). Governance Matters III: Governance Indicators for 1996-2002. *Policy Research Working Paper No. 3106*.
13. Kaufmann, D., Kraay, A., & Mastruzzi, M. (2010). The Worldwide Governance Indicators: Methodology and Analytical Issues. *Policy Research Working Paper Series Number 5430*.
14. Kurtz, M. J., & Schrank, A. (2007). Growth and governance: Models, measures, and mechanisms. *Journal of Politics*, 69, 538-554.
15. Lê Quang Cảnh, & Đỗ Tuyết Nhung. (2018). Ảnh hưởng của thể chế quản trị địa phương tới tăng trưởng kinh tế cấp tỉnh ở Việt Nam. In *Tạp chí Nghiên cứu Kinh tế và Kinh doanh Châu Á* (Vol. 29, pp. 05-18).
16. Nakabashi, L., Gonçalves Pereira, A. E., & Sachida, A. (2013). Institutions and growth: a developing country case study. *Journal of Economic Studies*, 40(5), 614-634.
17. Nifo, A., & Vecchione, G. (2014). Do Institutions Play a Role in Skilled Migration? The Case of Italy. *Regional Studies*, 48(10), 1628-1649.
18. North, D. (1990). *Institutions, Institutional Change, and Economic Performance*. Cambridge: Cambridge University Press.
19. Rodrik, D., Subramanian, A., & Trebbi, F. (2004). Institutions rule: the primacy of institutions over geography and integration in economic development. *Journal of Economic Growth*, 9(2), 131-165.
20. Sihag, B. S. (2007). Empirical studies on institutions, governance and economic growth: A review. *Humanomics*, 23(4), 204-220.
21. Trần Thọ Đạt, & Đỗ Tuyết Nhung. (2008). *Vai trò của vốn con người đối với tăng trưởng các tỉnh, thành phố Việt Nam giai đoạn 2000-2004*. Hà Nội: Nxb. Kinh tế Quốc dân.
22. UNDP. (1997). *Governance for sustainable human development: A UNDP Policy Document - Executive Summary*. Retrieved from [www.pogar.org/publications/other/undp/governance/undppolicydoc97-e.pdf](http://www.pogar.org/publications/other/undp/governance/undppolicydoc97-e.pdf)
23. (2018). [Television series episode]. In VCCI, & USAID (Executive producer), *Sổ tay hướng dẫn sử dụng kết quả điều tra Chỉ số năng lực cạnh tranh cấp tỉnh (PCI)*.
24. Williamson, O. E. (1998). Transaction Cost Economics: How It Works; Where It Is Headed. *De Economist*, 146(1), 23-58.
25. Wilson, R. (2016). Does Governance Cause Growth? Evidence from China. *World Development*, 79, 138-151.

# COMPARISON OF PERFORMANCE OF FOREIGN DIRECT INVESTED ENTITIES IN THE INDUSTRIAL SECTOR AND VIETNAMESE COUNTERPARTS - EVIDENCE FROM UNIDO SURVEY

*Assoc. Prof. Dr Nguyen Thi Phuong Hoa*

*hoanp@neu.edu.vn*

*Dr To Van Nhat*

*tonhat@europipevietnam.com.vn*

*School of Accounting and Auditing,*

*National Economics University, Hanoi, Vietnam*

## **Abstract**

*Foreign direct investment (FDI) has been argued to contribute significantly to the Vietnamese economy since the late 1980s. The expected contributions are capital formation, technology transfer, job creation, export earnings, competition and building linkages with domestic companies. To follow this trend of thinking, the paper used primary data from UNIDO survey in 2010-2011 to calculate, analyse and then compare the performance of FDI enterprises in the industry sector of Vietnam and Vietnamese counterparts.*

**Keywords:** *Foreign direct investment, domestic investment, industry sector, performance*

## **1. Introduction**

Foreign direct investment (FDI) has been argued to contribute significantly to the Vietnamese economy since the late 1980s when Vietnam opened the economy for foreign investors. The expected contributions are capital formation, technology transfer, job creation, export earnings, competition and building linkages with domestic companies.

To follow this trend of thinking, the paper used primary data from UNIDO survey in 2010-2011 to calculate, analyse and then compare the performance of FDI enterprises in the industry sector of Vietnam and Vietnamese counterparts.

## **2. Method**

The paper uses both qualitative and quantitative methods. Quantitative methods are descriptive statistics to quantify performance indicators of FDI companies (FDI) and Vietnamese counterparts (DIs) in the industry sector from UNIDO survey 2010-2011.

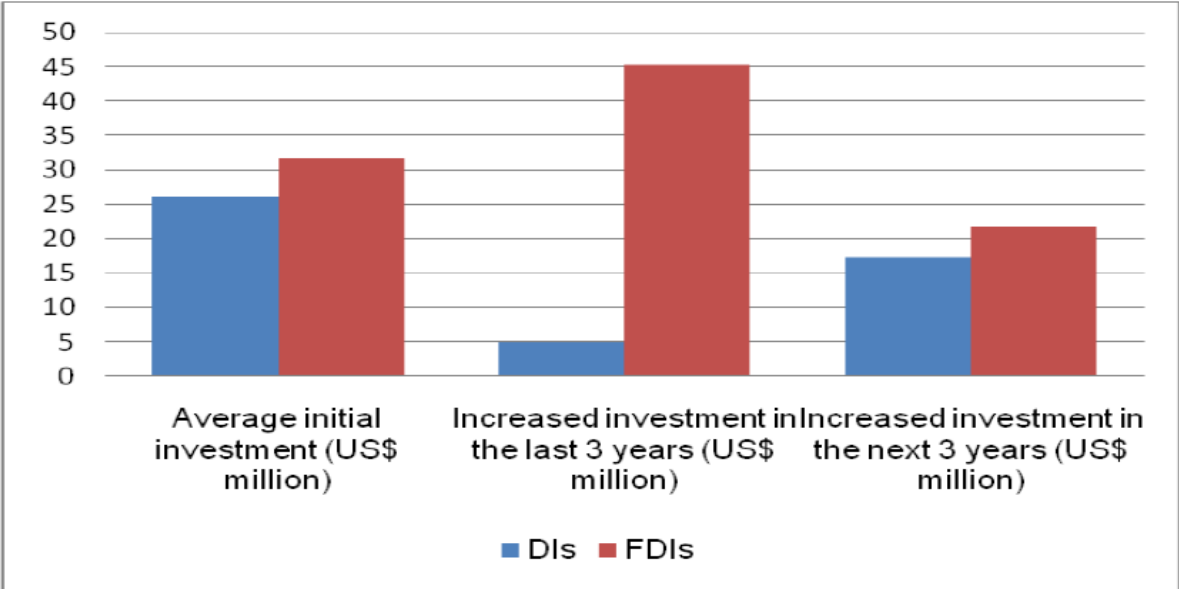
## **3. Results**

Growth impact. FDI has long been argued to have significant capital formation impact in Vietnam. This argument is proved based on many empirical studies also. The capital formation is also held with the result of the survey. In terms of investment value, FDI

contributes significantly to total investment of the industry sector of Vietnam. However, in terms of efficiency, FDIs in the industry reveal a very moderate performance. Results of calculations also point out signals of transfer pricing by FDIs, especially by TNCs subsidiaries. This is because increased investment and training are reported at the very high level as compared with DIs, and made mostly by FDIs that have low performing levels. If this transfer pricing holds true, the real capital formation impact of FDI in the Vietnamese industry will decline much as high investment increase is just due to manipulation, not real investment.

Based on data in the survey, the average value of original investment is USD 26 million for DIs and USD 31 million for FDIs. Thus foreign investors tend to invest more capital than Vietnamese counterparts. Though the difference in the level of initial investment of FDIs and DIs is not so much, the difference in increased investment of these two groups is really great (Figure 1). The investment increase of FDIs in the last three years is even greater than their initial investment. FDIs also project to increase investment in the future more than DIs counterpart. At a first glance, this trend may imply a precautionous attitude of foreign investors as they tend to invest at a moderate level as the domestic counterpart at the beginning, after getting understanding about the environment, foreign direct investors tend to invest much of their capital and stay for long time. If this is the case, capital formation impact of FDI is quite well, as many studies about FDI in Vietnam have argued. However, the significant increase in investment can be a result of transfer pricing, as investment increase is not subject to investment appraisal as new investment and will be analysed below. Then the real capital formation impact of FDI is much less positive.

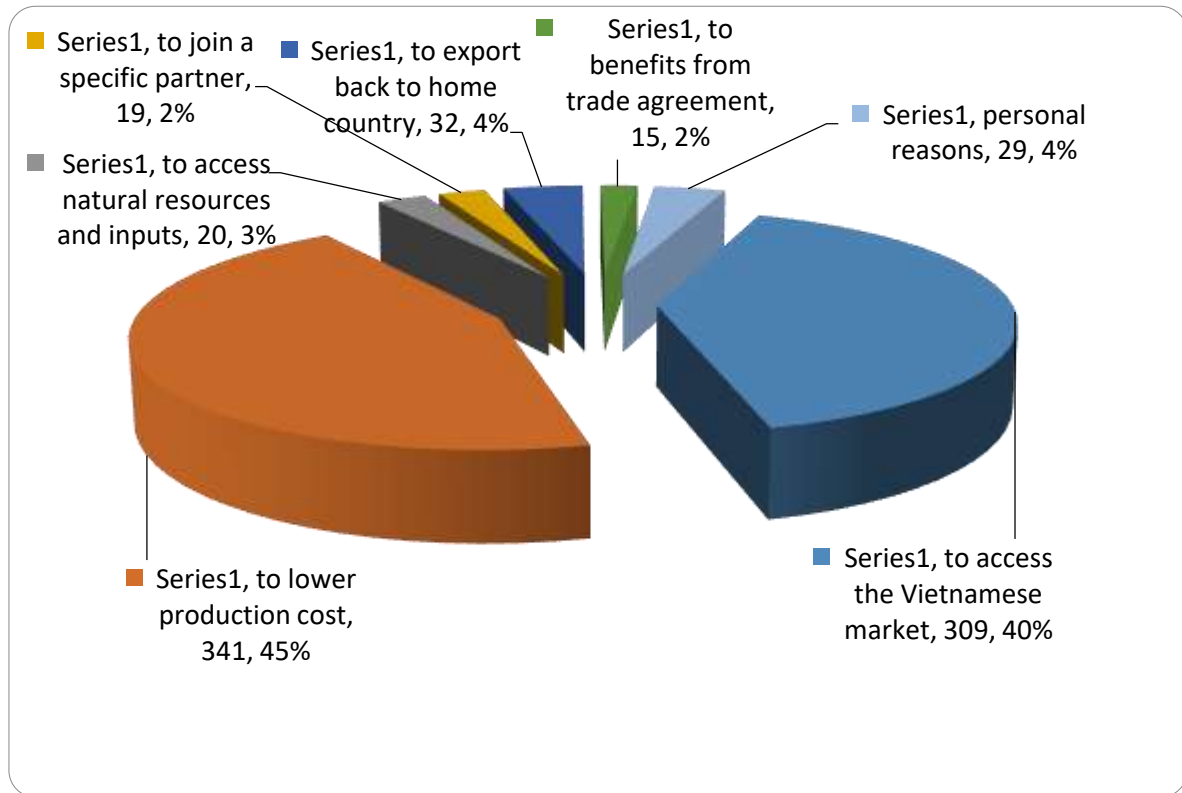
**Figure 1: Investment by DIs and FDIs**



About the motives of FDI in the Vietnamese industry sector, 45% of FDIs report lowering of production cost is the most important reason for their investment, 40% report to access the Vietnamese market, 4% report to export back to the home country, only 3% to access natural resources and inputs, and 2% to join a specific partner (Figure 2). Therefore,

developing domestic upstream industries with low cost of products seems relevant to attract FDI in the future, when the Vietnamese market has been opened and accessing the Vietnamese market is no longer restricted to foreign commodities. Low price is also the most frequently selected by foreign direct investors for decision to purchase locally.

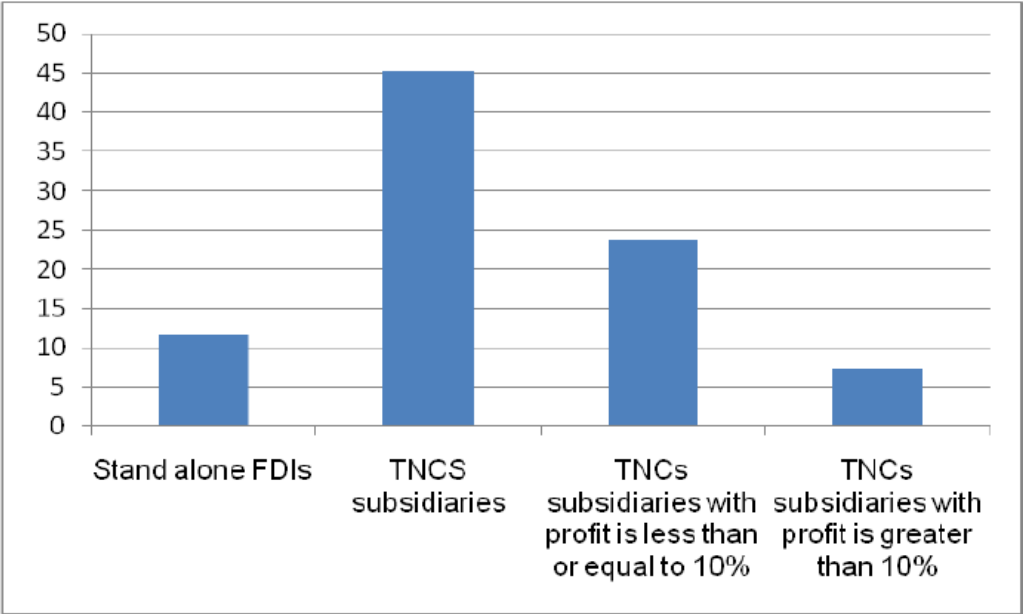
**Figure 2: Motives for FDI in the Vietnamese industry sector**



Regarding increase in investment, in the last three financial years, 56% of DIs and 45% of FDI responded to make major investment. However, the amounts of investment are quite different between these two groups. DIs have the mean of investment increase of about USD 4.9 million but FDI have the mean of investment increase amounted to USD 45.3 million, which is almost ten times the investment increase of Vietnamese counterpart. Increase in investment of DIs is made mainly by subsidiaries of trans-national corporations (TNCs). These subsidiaries accounted for 91.8% of total increase in investment of FDI, while stand alone FDI account for less than 10%. Average investment increase of TNCs subsidiaries is USD 60.4 million while of stand alone FDI is just USD 11.58 million. The huge investment increase of TNCs subsidiaries as compared with stand alone FDI is rather astonishing as TNCs' subsidiaries show a less efficient performance as compared to stand alone FDI (details below). Looking into TNCs subsidiaries, the fact is even more strange as low performing subsidiaries reinvest much more than high performing ones. Specifically, there are 165 TNCs subsidiaries that have the profit rate less than or equal to 10%, and the total investment increase of these 165 companies are USD 3,922 million, the average investment increase is thus USD 23.77 million. There are only 37 TNCs subsidiaries that have the profit rate higher than 10% and the total amount of their investment increase is just

USD 268.79 million, their average investment increase is just USD 7.6 million (Figure 3).<sup>8</sup> The very fact of increase investment and widening operation of low performing TNCs subsidiaries shows a signal of transfer pricing. Transfer pricing may occur in increased investment because increased investment is not subject to appraisal as new investment when foreign investors register. Hence, foreign investors can increase the value of equipment, machinery and intangible fixed assets of their investment increase easily when they decide and report about their investment increase. According to the Vietnamese regulations, financial statements of FDIs should be audited annually. However, auditors have just conducted verification of document, not inspecting the practice yet. Transfer pricing may occur in TNCs subsidiaries because associates of a group can agree easily with each other about the transfer price level which serves the group best. More stringent policies regulating investment increase in particular and FDIs' performance in general is thus needed.

**Figure 3: Reinvestment in the last three years of FDIs**

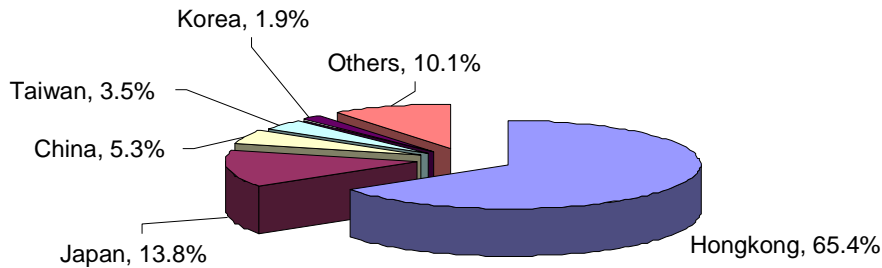


The average payback period of this investment increase is 10 years, which is rather long and implies long-term engagement of foreign direct investors to the Vietnamese manufacturing sector.

Break down by investors, most of the investment increase is made by Asian investors (Figure 4). Hongkong and Korea have corporate income tax rates of 16.5% and 22%, respectively, which are lower than Vietnam's corporate income tax rate of 25%. Hence, transfer pricing may help reduce total tax liabilities of the whole TNCs. The fact that increased investment is mainly made by investors from Hongkong, China, Korea, and Japan implies that to deal with transfer pricing, Vietnamese tax authorities have to give priority in co-operating with Chinese, Japanese and Korean counterparts in order to exchange information on transaction, and agree about pricing methods of cross borders transactions, etc.

<sup>8</sup>There are TNCs subsidiaries not report the rate of profit, possibly due to the loss

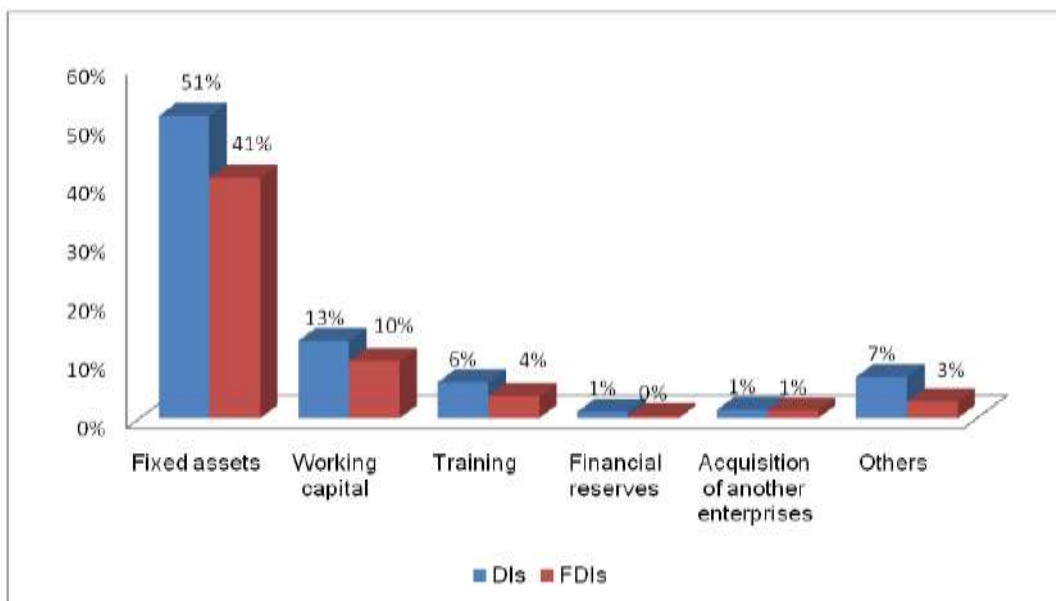
**Figure 4: Increased investment by investors**



(Source: UNIDO survey)

The pattern of increased investment is similar for DI and FDIs. Companies are concerned mostly with investment in fixed assets, and then working capital, and training (Figure 5). The very similar patterns of increased investment imply that there may have demonstration effect from FDIs to DIs. 41% of FDIs and 51% of DIs invest in fixed assets, confirming their long-term perspective in manufacturing of Vietnam. In case there is transfer pricing in increased investment, transfer pricing may appear in investment in fixed assets, working capital and training. Hence, transfer pricing regulations may focus on fixed assets, working capital and training.

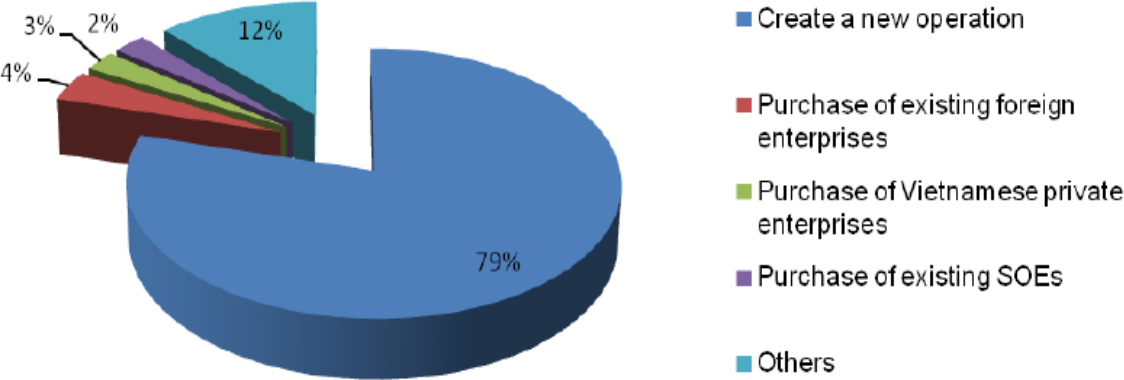
**Figure 5: Types of investment in the last three years**





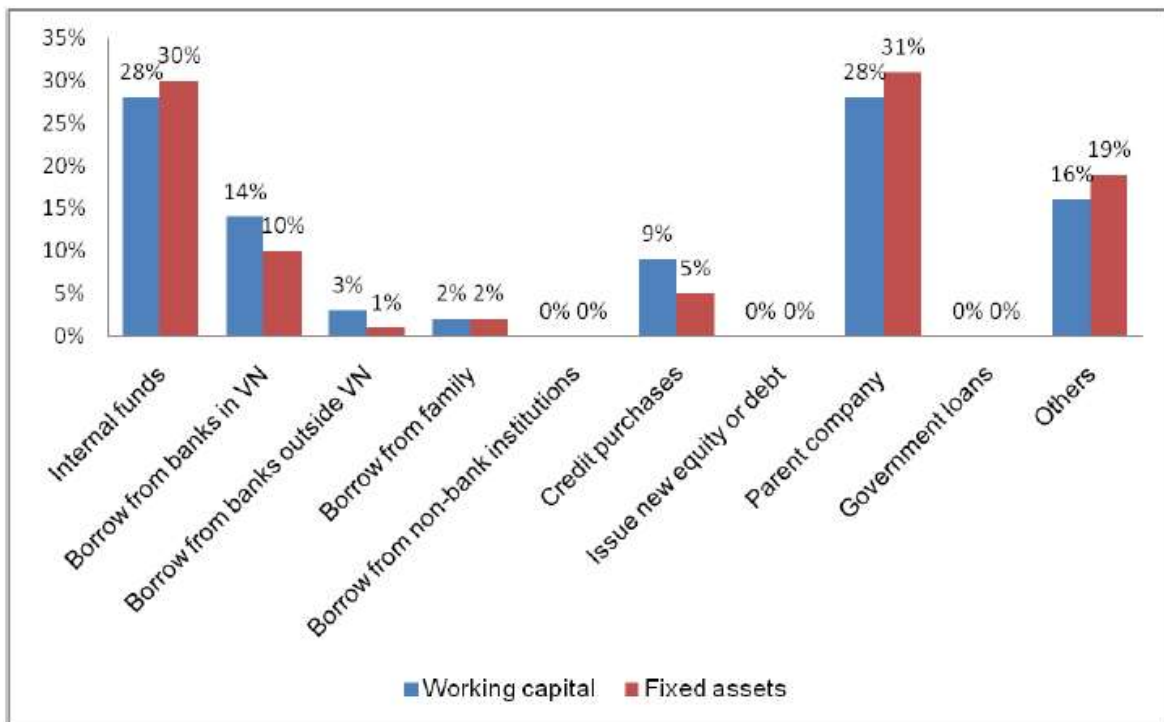
Beside initial and increased investment, the capital impact of FDI should be evaluated by looking at crowding impact. Crowd out impact is reported but at the lower level than the backward crowd in effect. Regarding reactions of DIs to the presence of foreign investors, only 14 among 77 DIs responded report that their production of different products is conducted to avoid direct competition with FDIs. In the aspect of main competition sources, only 15% of DIs responded mention foreign-owned manufactures based in Vietnam are main competition source while 68% DIs indicate domestic owned manufacturers are main competition source. Regarding FDIs, 25% of FDIs indicate domestic owned manufacturers and 60% indicate foreign owned manufacturers based in Vietnam as a main source of competition. Hence, the trend is that Vietnamese manufacturers compete with each other, and FDIs compete with each other. The insignificant crowd out impact can be assessed by looking at the mode of entry of foreign direct investment (Figure 6). 79% of foreign direct investors when they made their initial investment in the Vietnamese industry is in the mode of green-field investment, 12% is in the mode of joint venture with the Vietnamese partner, and only 9% is in the mode of merge and acquisition. The small share of merge and acquisition is because Vietnam has just recently allowed FDI in the mode of merge and acquisition. Because a major share of FDI is in the mode of green-field investment, crowd out impact seems very limited.

**Figure 6: Mode of entry of foreign direct investment**



The crowd out can be evaluated in the financial aspect also (Figure 7). FDIs report that they finance their working capital and fixed assets mostly by using internal funds (about 30% of FDIs responded), borrowing from their parent companies (about 30%), others (16-19%, which is frequently explained in the note as internal sources). Borrowing from banks in Vietnam of FDIs accounts for a small portion (10-14%) and largely from foreign banks in Vietnam. Hence, FDIs do not seem to compete and crowd out DIs in the financial aspect.

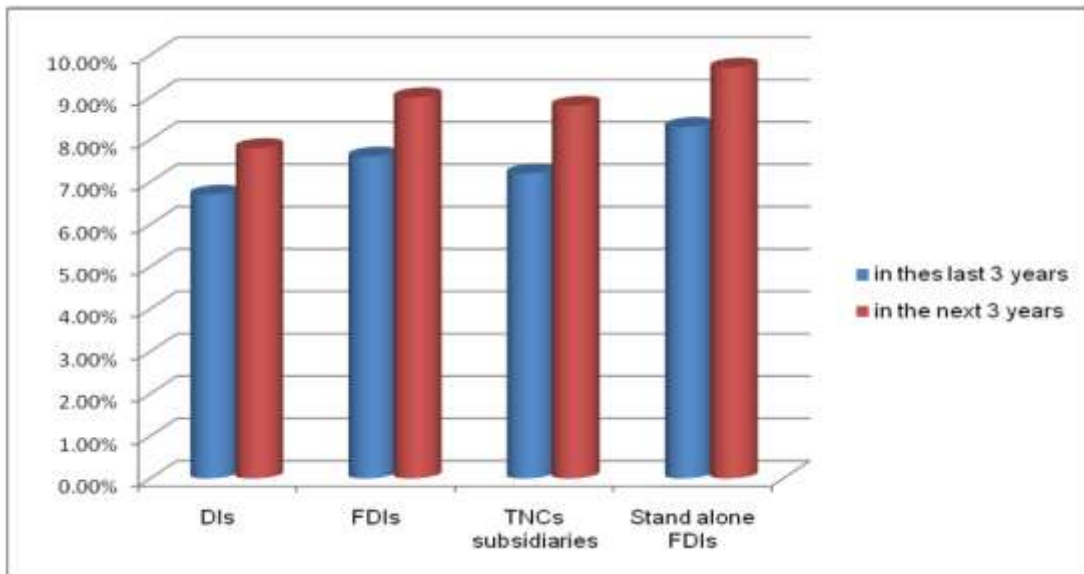
**Figure 7: Sources of working capital and fixed assets of FDI**



Looking at different aspects, the crowd out impact of FDI on domestic counterparts seems thus very weak.

Differ from capital accumulation impact, efficiency impact of FDI on the Vietnamese industry seems very small in magnitude. On efficiency of investment, the annual rate of profit before tax over the last three financial years of FDI was 7.6%, which is slightly higher than 6.7% of DI. Breaking down by source of investment, TNCs subsidiaries have the profit rate of 7.2%, while stand alone FDI experienced the rate of 8.3% (Figure 8). A seemingly astonishing result is the lower profit of TNCs subsidiaries as compared with stand alone FDI, given many strengths of TNCs. Practically, the lower rate of profit of TNCs subsidiaries in Vietnam may not represent the weak performance but may be due to transfer pricing made by such entities (Bui Khanh Toan, 2011, Nguyen Thi Phuong Hoa, forthcoming). For the future, TNCs subsidiaries report their projected profit rate in the next 3 year of 7.8% which is also lower than --% of stand alone FDI. Hence, policies to deal with transfer pricing may be adopted to cease this transfer problem and enhance contribution of FDI to the Vietnamese manufacturing sector.

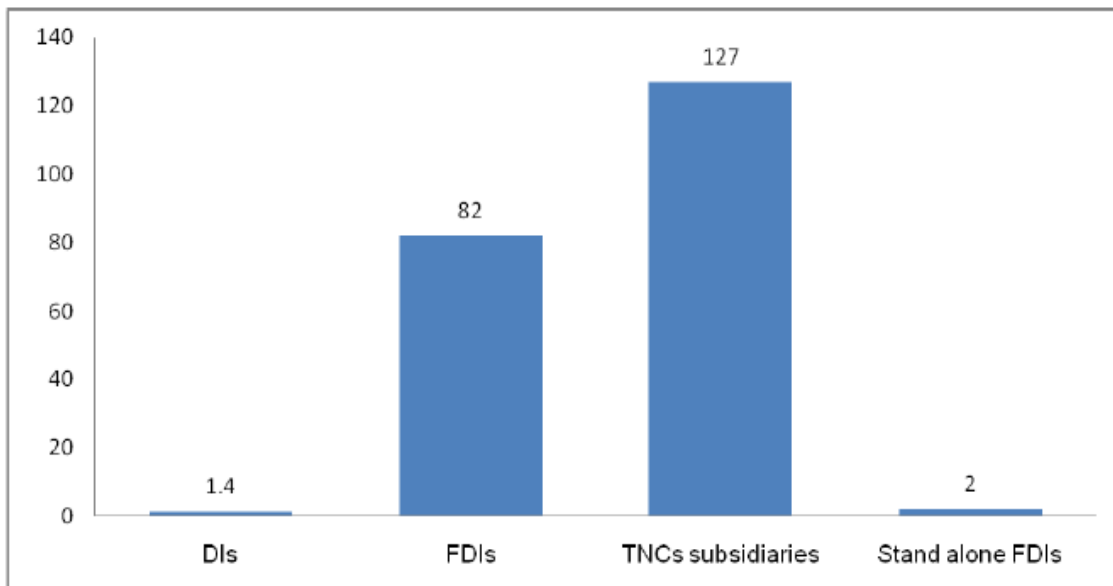
**Figure 8: Annual rate of profit before tax**



Beside the capital formation impact, TNCs subsidiaries also contribute significantly to the Vietnamese state budget. In 2009, FDIs contributed tax much more than DIs did to the Vietnamese state budget. Looking into FDIs, TNCs subsidiaries paid much more tax than stand alone FDIs did (Figure 9). Given the less efficient performance of TNCs subsidiaries, their higher tax payment can be due to their longer history in Vietnam, and because of their location and invested sectors. Newly established FDIs, FDIs in export and processing zones and in remote areas are usually subject to tax reduction. Stand alone FDI tend to fall in these groups.

**Figure 9: Tax payment in 2009**

(US\$ million per each company)

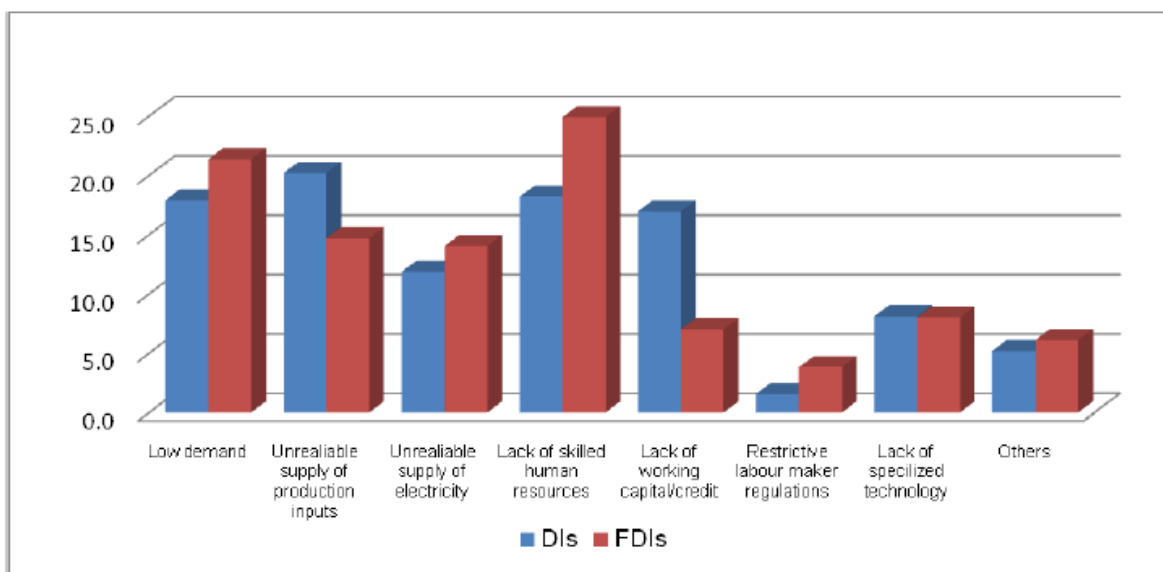


Similar to the efficiency aspect, capital utilisation also implies a relatively weak performance of FDIs as compared with local counterparts. Specifically, 54% of DIs performs above their plan while 49% of FDIs are above their plan and 24% perform below their plan.

Capacity utilisation is about the same for DIs and FDIs as their rates are 84% and 86% respectively for DIs and FDIs. The average rate of current performance compared to plan of three years ago for DIs lies between In line with plan and Above plan while the result of FDIs is In line with plan. The average age of capital equipment used in production is 10 years for both DIs and FDIs.

Reasons for under utilisation of DIs and FDIs are similar. Lack of skilled human resources, unreliable supply of production inputs and low demand are three most often quoted factors (Figure 10). However, FDIs and DIs are different in terms of the most important reason. While FDIs point out the lack of skilled human resources is the most important, DIs indicates unreliable supply of production inputs.

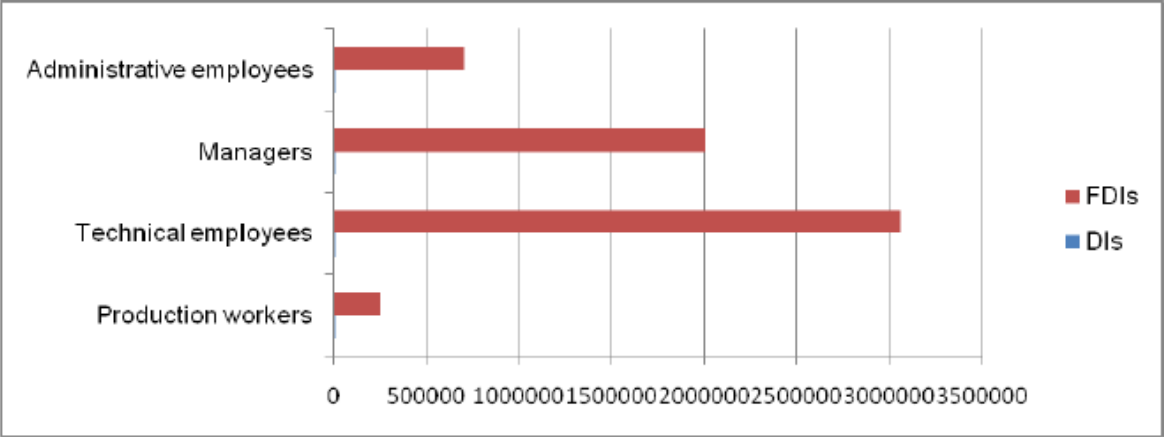
**Figure 10: Reasons for under utilisation of enterprises**



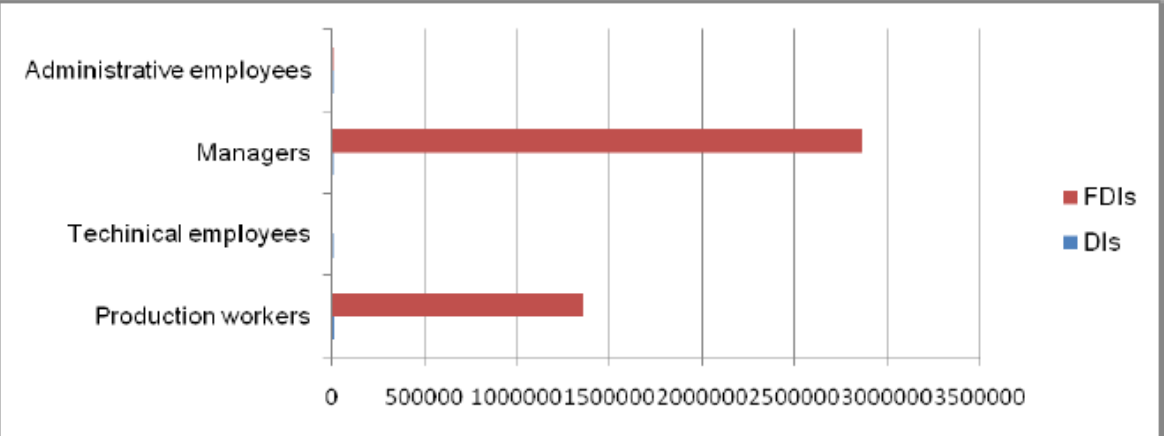
Growth impact of FDI may exist also via training. In the survey, FDIs spend much more than DIs counterparts in both internal and external trainings (Figures 11, 12). Specifically, spending on external training of FDIs is hundred times of DIs, while spending on internal training of FDI approximate hundred times of DIs. The tiny expenditures on training of DIs may imply that DIs' performance in the long run is not guaranteed as human capital of DIs is not enhanced adequately. Training of FDIs is conducted both internally and externally and provided to different employees of FDIs from managers to workers. External training focuses on technical employees and managers, least on production workers, while internal training focuses on managers and production workers, least on technical employees. Putting aside the possible impact of transfer pricing by increasing the training and experts expenses, the much spendings on training for production workers, technical/supervisory employees and managers of FDIs can enhance competence of human capital and contribute positively to growth. However, the much spending on training may be a reason that causes FDIs' profit results at a low level as compared with DIs. The question also remains with the necessity of training expenditures, whether the technology of FDIs is so high and modern that need to have much training for workers for make use of equipment and machinery. As

technology in FDI is not so modern, huge expenditures on training of FDI in general and TNC subsidiaries in specific, seem unreasonable. As expenditure on advertisement has been regulated since 1998, TNCs may turn to training. According to Circular 99/1998/TT-BTC dated July 14<sup>th</sup>, 1998 of the Ministry of Finance, annual advertising expense of companies should not be higher than 7% of their annual total expense in the first two years of their operation and 5% in the later years. Then the maximum level for advertisement expense was increased. In Circular 130/2008/TT-BTC issued on December 26<sup>th</sup>, 2008 of the Ministry of Finance, the maximum value of advertisement spending that can be counted into expense and deducted from revenue is 10% of total expenses of enterprises, for new established enterprises, the maximum expense for advertisement can be 15% of total expenses for the first three years.

**Figure 11: External training**  
(US\$ per person)



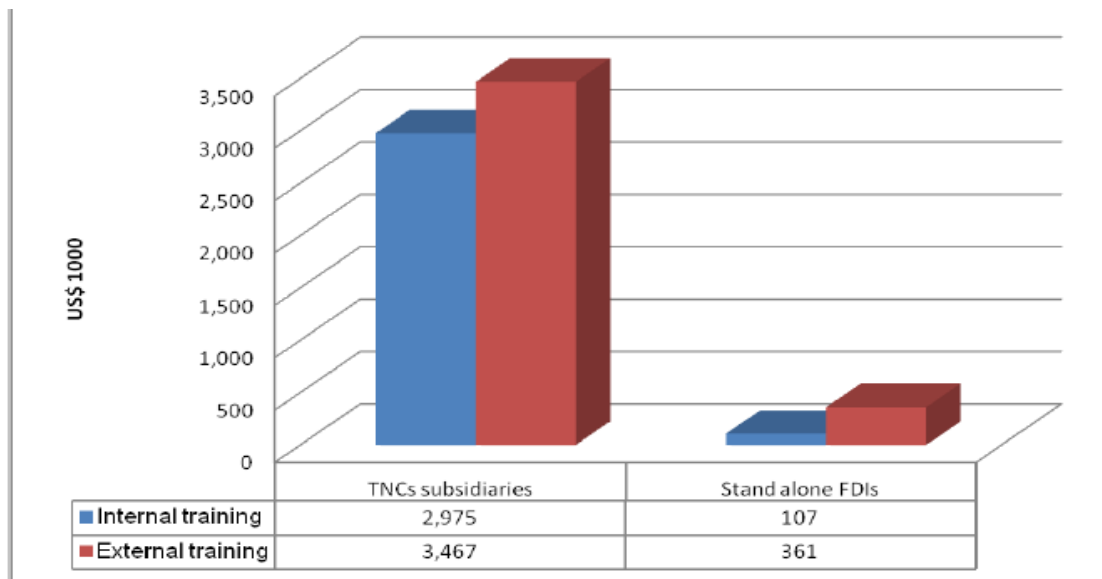
**Figure 12: Internal training**  
(US\$ per person)



Training of FDI is conducted mostly by TNC subsidiaries, with both external training and internal training (Figure 13). Average expenditures on training of each TNC subsidiaries is about fourteen times of average expenditures on training of each stand alone FDI. Given the capital potential and the high standard performing level of TNCs, the much spending on training of TNC subsidiaries is not an astonishing outcome. TNCs has long

been argued to be concerned more with upgrading human capital than stand alone FDIs. However, the much expenditures on training of TNCs subsidiaries can be a signal of transfer pricing also. Several studies have pointed out transfer pricing via much spending for experts and training of FDIs in Vietnam. Even compared with a small amount of training expenditures of stand alone FDIs, training expenditures of DIIs still account for less than 10%, implying that DIIs have not been concerned adequately with training and upgrading human capital for the long term growth.

**Figure 13: Expenditures on training of one foreign invested enterprise**



#### 4. Conclusion

The survey shows that FDI in the industry sector of Vietnam contributed significantly to the Vietnamese economy in the sense of capital formation, training, and competition. There is, however, remains problems to be solved. This calls for selective promotion and attraction of FDI in Vietnam in the future.

#### 5. References

1. Anthony et al. (2003) *Management Control Systems*, Harvard University Publisher
2. Belkaoui, A. (1986) *Handbook of Management Control*, Westport, USA
3. Caves, R. (2007) *Multinational Enterprise and Economic Analysis*, Cambridge University Press, USA
4. Hongren, Charles T. and Srikant M. Datar and George Foster (2015) *Cost Accounting: A Management Emphasis*, 15<sup>th</sup> edition, Prentice Hall, New Jersey.
5. Internal Revenue Service (2008) *Tax Director's Guide to International Transfer Pricing*, USA
6. UNIDO (2012) *Vietnam Industrial Investment Report 2011*, Unido, Vienna

# THE ANTI-CORRUPTION POLICY AND ITS CORRELATION WITH THE FOREIGN CAPITAL FLOW IN VIETNAM

*Nguyen Thi Nhu Quynh (LLM)*

*quynhntn@neu.edu.vn*

*Ngô Thuy Hang*

*ngothuyhang98@gmail.com*

*Nguyen Hien Mai*

*thaodaonguyen99@gmail.com*

*Nguyen Dao Thao*

*nghmai2410@gmail.com*

*Faculty of Law, National Economics University, Hanoi, Vietnam*

## **Abstract**

*Three decades after its doi moi (renovation) and getting the economy open to the world, Vietnam's development has struck with enormous external capital flows, mainly in the form of Official Development Assistance (ODA) and Foreign Direct Investment (FDI). The country has turned up to be a leading destination country for foreign capital, becoming the second largest ODA recipient while maintaining a strong and stable FDI inflow throughout that time. However, its high level of corruption has remained an obstacle for socio and economic development in the country. Even though the country has improved its Corruption Perception Index for the past few years, Vietnam has still kept its position relatively low for the last decade (since 2012), scored 37/100, ranking 96/180, in the Transparency International annual ranking in 2019 for 180 countries and territories based on level of public sector corruption. This poor ranking proves that Vietnam has not yet found a thorough and effective way to deal with endemic corruption in the country. Questions have been raised on the relationship of capital flows with corruption in general and whether or not the external capital flows have an influence on the corruption level and the anti-corruption policies of Vietnam. This paper sets out to seek appropriate answers and in so doing, suggests for a more effective anti-corruption strategy.*

**Keywords:** *anti-corruption policies, foreign capital flows, bribery, ODA, FDI*

## **1. Introduction**

The Chief of the Vietnam Government Inspectorate, at the end of 2014, attempted to comment on Vietnam's poor ranking in an international standard on corruption index, he quoted "Corruption in Vietnam has reached a level of stability". The concept of 'stable corruption' in his saying has gone viral and become a sarcastic parody in a country having about 30 million Facebook users equipped with a sharp sense of humour. Even though the country has improved its Corruption Perception Index for the past few years, Vietnam has

still kept its position relatively low for the last decade (since 2012), scored 37/100, ranking 96/180, in the Transparency International annual ranking in 2019 for 180 countries and territories based on level of public sector corruption (Dien Luong, 2016). This poor ranking proves that Vietnam has not yet found a thorough and effective way to deal with endemic corruption in the country.

At the same time, the country's development has struck with enormous external capital flows, mainly in the form of ODA and FDI. Three decades after its renovation and opening the economy to the world, Vietnam has turned up to be a leading destination country for foreign capital, becoming the second largest ODA recipient while maintaining a strong and stable FDI inflow throughout that time. Questions have been raised on whether or not these external capital flows have an influence on the corruption level and the anti-corruption policies of Vietnam. This paper sets out to seek an appropriate answer and in so doing, suggests for a more effective anti-corruption strategy.

This study has three main parts. The first part outlines a picture on the development of anti-corruption policies in Vietnam. The second one discusses the relationship of capital flows with corruption in general, by analysing previous studies on ODA and FDI's effects on the quality of institutions and governance in destination countries. This is closed by discussion on some suggestions for better and more effective anti-corruption policies in a new context with the modern form of free trade agreements Vietnam has recently entered into.

## **2. Method**

This paper uses the qualitative research method to study phenomena associated with corruption situation in Vietnam, in the context of the country receiving foreign capital flows under different forms. It analyses different Vietnamese legislations in order to examine the country's developing its anti-corruption legal framework. It also compares and contrasts previous studies on the correlation of corruption with capital flows in countries generally, and in Vietnam particularly. Finally, the paper researches on strategies for developing effective anti-corruption policies in Vietnam.

## **3. Results**

Firstly, this study found out that the anti-corruption legislation system in Vietnam has been improved over the last three decades. These improvements express the willingness of Vietnamese political leaders to prepare for the country to get access to international organisations and enter into various international and regional free trade agreements.

Secondly, it came to conclude that foreign capital flows, including ODA and FDI, have little obvious correlation with the situation of corruption in the country. However, there are clearly positive aspect of these flows on the governance and institution of Vietnam.

Finally, in order to effectively combat corruption, it is essential for Vietnam to improve the quality of its institution and civil servants. In so doing, the country needs the facilitation from foreign donors and investors, and a spill-over effect from countries that are 'cleaner' and have stronger governance.



#### 4. Discussion and Conclusion

##### **The development of anti-corruption legislation system in Vietnam since renovation (*doi moi*)**

The establishment and development of anti-corruption policies in Vietnam have three main pillars (i) transparency and democracy, (ii) administrative reforms and criminalisation of corrupt behaviours, gradually extending to the private sector, and (iii) international cooperation in building policies that fight against future corruption in the country.

In June 1997, the third plenum of the Party Central Committee, 8th tenure, adopted a resolution to bring into play the people's right to mastery. Eventually, after a few Directives and Decrees, eventually, the first official ordinance on anti-corruption measures was promulgated in 1998: Ordinance No. 03/1998/PL-UBTVQH10 (revised 2000). This Ordinance marked an important milestone establishing the first legal framework for the prevention and fight against corruption in Vietnam.

Based on the Ordinance on Anti-Corruption 1998, a number of significant laws and related legal documents have also been promulgated since 1998, including a new Law on Complaints and Denunciations 1998 (revised 2004), Ordinance on Public Employees 1998 (revised 2003), Ordinance on Practicing Thrift and Fighting Waste 1998 and especially the Criminal Code 1999 (Søren Davidsen 2008). One year later, The Criminal Code 1999 assesses main and additional penalties for each offense, with definite punishment for each type of offense.

However, through the implementation process, the provisions of these policies revealed many shortcomings and were unable to meet the requirements of the struggle against corruption. Since the Ordinance on Anti-corruption 1998 defines "corruption offense" as "the behaviors of people having positions and powers in performing their official duties", corruption in the private sector and corruption acts of others to influence the performance of official duties are not considered an offense of corruption under the Criminal Law (*Ttbd.gov.vn*, 2016). As a result, there are no provisions related to corruption in the private sector in Criminal Code 1999. Not until 2015 did Vietnam criminalize bribery involving foreign government officials, public international organizations and private-sector bribery as guided in the United Nations Convention Against Corruption (UNCAC).

At the international level, Vietnam signed the United Nations Convention Against Corruption (UNCAC) on 10 December 2003 and deposited Decision No. 950/2009/QĐ-CTN of ratification from the President on 19 August 2009. This is regarded as 'an important legal-political event that represents the determination and commitment of Vietnam before the international community in the fight against corruption' (*Unodc.org*, 2020). In June 2004, Vietnam joined the anti-corruption agreement developed by the Asian Development Bank (ADB) and the Organization for Economic Cooperation and Development (OECD). Therefore, the Anti-Corruption Law 2005 was passed in order to replace the Ordinance on anti-corruption 1998 and to comply with the UN Convention and the ADB/OECD.

Over three decades, many corruption cases have been detected. One of the most notorious cases was related to Saigon East-West Highway Construction Project, a Japanese ODA loan project. In 2008, the first meeting of the Vietnam-Japan joint-committee on preventing corruption in ODA transport projects focused on the investigation and handling violators taking part in the bribery case of Pacific Consultants International (PCI). The second meeting discussed solutions to strengthen the prevention of corruption in the implementation of ODA projects. Japan requested Vietnam to implement documents provided by Japan's Ministry of Foreign Affairs, such as 'JICA Anti-Corruption Guidance'.

In order to regain Japan's trust, Vietnam decided to take measures to provide more transparent and stricter procurement procedures for Japanese ODA loans, to deal with individual ODA-related corruption and to strengthen the system or organization to crack down on corruption. Firstly, adoption of the Decree on November 14, 2008, established a "Public Procurement Agency" under the Ministry of Planning and Investment (MPI) to manage the national bidding network (*Mofa.go.jp*, 2009). Secondly, Vietnam also promised to issue a separate law to protect witnesses including nationals and foreigners, however, failed to keep its word. Finally, Vietnam issued Decree No. 34/2016/NĐ-CP on detailing a number of articles of the law on promulgation of legal documents 2015, which supplemented participation of the general public, social organizations, and socio-professional associations in law-making (*Mofa.go.jp*, 2009).

Overall, it can be seen that the majority of anti-corruption policies in Vietnam have been originated from an attempt to get access to international organisations, or to gain some financial support from foreign countries. Hence, there are questions on the correlation between international capital flows and the effectiveness of the anti-corruption policies reflecting in the corruption situation in the country.

### **The correlation between corruption and foreign capital flows**

This part has analyzed the impacts of foreign capital flows, including the Official Development Assistance (ODA) and Foreign Direct Investment (FDI), on the corruption and bribery level in general, and compared to the reality in Vietnam.

#### ***ODA and corruption***

There are various perspectives on the relationship between foreign ODA and corruption in recipient countries. Some researchers have argued that there is a positive impact of ODA on governance, which indeed contributes to reducing bribery (Goldsmith 2001; José Tavares. 2003; Thad Dunning 2004; Ear 2007). The increases in ODA can compensate for the shortages of resources in some countries. For example, ODA might help nations have the capacity to implement institutional reforms and raising the salaries of bureaucrats to provide less of an incentive for civil servants to carry out "petty corruption" (Menard and Weill 2016). In addition, through ODA agreements, donor countries may bring to developing states the new expertise that could provide the essential "know-how" for significant reforms in improving governance. Better governance together with more

accountable civil servants would become prominent in the view of international partners as a more efficient and less corrupt government (Charron 2011).

On the contrary, there are many opinions that the impacts of ODA on bribery are negative. According to them, ODA could potentially aggravate corruption and damage recipient governance. Concretely, when aid continues to increase unconditionally, recipient countries would be less responsible for their own behavior because of the worries about costs disappearing. As a result, domestic corruption will be increased by rising conflict over aid funds and that aid will compensate for poor economic policies and weak government institutions by giving “a crutch” (Knack 2001, 2004). Besides, due to increasing public resources that may make groups vie for some ownership, ODA seemed to worsen governance and rise bribery in recipient countries (Svensson 2000).

Meanwhile, there are some scholars who claim that there is no significant relationship between ODA inflows and bribery. Weill and Menard (2016) conducted a study and then concluded that there is no causation between ODA and corruption. The correlation might have existed but became less considerable in the current years with the evolution of the motivations to allocate aid on the donors' side. This point of view is supported when we compare the real figure of corruption percentage index (CPI) and ODA inflows in Vietnam. In 2016, while Vietnam's CPI score rose to 33/100 in comparison with 31/100 in 2015, the amount of ODA inflows dropped by nearly 300 million dollars. Back to the period from 2008 to 2010, the amount of ODA inflows experienced a fluctuation while the CPI score stayed the same at 27/100 in all three years. Between 2008 and 2009 (the time that corruption scandal between PCI and Vietnamese bureaucrat occurred), ODA inflows grew significantly from around 2.55 to nearly 3.74 billion dollars. This fact stated that, except Japan, other governments did not hesitate when they decided to raise their ODA inflows to Vietnam after knowing about the corruption situation in here.

### ***FDI and corruption***

The level of corruption is one of the factors that affects on the FDI investors' decision (Mauro 1995; Wei 2000). FDI is particularly vulnerable to corruption activities for some reasons.

Corruption has seemed like an additional cost of investment or a tax on profit. Countries with high corruption levels do not seem attractive to foreign investors because corruption creates a high degree of uncertainty, negatively affecting the return on investment and reducing FDI inflows (Wei 1997). As a result, developing countries must improve their institutions' quality in order to increase FDI inflows. Alemu (2012) found out that if the level of corruption declined 1%, FDI inflows in these countries would increase by 9.1%. In other words, FDI inflows can lead to governance improvements in the recipient countries. Gueorguiev and Malesky (2012) claimed that the most important motivation for Vietnam government to add anti-corruption provisions appears to be the wave of legislation that went along with the country's bilateral trade agreement with the United States (US-BTA).

On the contrary, other scholars believe that FDI inflows could bring negative impacts on bribery in recipient states. Firstly, an increase in FDI means that a larger amount of foreign money flowing into the country that leads to an expansion of opportunities for corruption (Smarzynska and Wei 2000). In addition, FDI enterprises themselves may participate in corruption and thereby increase the bribery level. In some environments, an inducement can seem to be a tool to help foreign investment enterprises get easier in dealing with civil servants and reaching their aims as well as reducing disadvantages in competition with domestic enterprises (Quazi et al. 2014; Brada et al. 2012).

However, there are some claimed that there is no relationship between corruption and FDI. According to Akçay (2001), compared to market size, corporate tax rate, labor cost, and openness, the effects of corruption level on FDI inflows are insignificant. Jadlav (2012) concluded that corruption, which defined as an institutional factor, could not be considered an important determinant of the amount of FDI inflows in comparison with economic and political elements. The unclear linkage between corruption percentage index (CPI) and total FDI inflows into Vietnam each year reaffirms this point of view. In 2018, while CPI dropped to 33/100 and ranked at 117 out of 183 countries (compared to 35/100 score and 107/183 rank in 2017), the FDI inflows still increased by nearly 1.5 billion dollars. During the period between 2012 and 2015, although CPI scores remained at 31/100, the amount of FDI inflows into Vietnam rose gradually from just under 8.4 to approximately 9.2 billion dollars.

To sum up, in theory, there is no concrete evidence to show a considerable linkage between corruption and foreign investment capital inflows into a country. The observation of changes in capital inflows in comparison to the alterations of the corruption index in Vietnam also reaffirms this perspective.

### **Conclusion: What makes an effective anti-corruption strategy**

Even though there have been no concrete evidence to show the correlation between the amount of foreign capital flows and the corruption situation in Vietnam, one can see that obviously there are positive influences of the new trend in foreign capital flows coming into the country. Vietnamese law and decision makers should be placed in question regarding the strategy of utilising this positive effect to make the country less vulnerable to corruption.

Under the new trend of development finance, there are some old features remaining to be key factors for effective anti-corruption strategy in Vietnam. They include: encouraging the participation of other actors and civil society, better focusing on corruption in private sectors, and combining anti-corruption activities with other public administrative reforms (Chene, 2008). Besides that, the new circumstances may require a bottom up approach which encourages active participation of non-state actors at all steps of the corruption fighting process, and more attention to be paid to the development of local ownership to guarantee the success, efficacy and credibility of the policies' implementation.

All external conditions in the current context appear to be ideal for Vietnam to eliminate corruption. However the key factor which determines an effective anti-corruption strategy is the political will and credible leadership in the country (Transparency

International, 2011). A strong and decisive commitment from central-level leaders will lead to a successful implementation of laws and policies in this regard. During the past few years, Vietnam has been more determined in dealing with corruption cases, evidenced by a number of high-ranking public officials being prosecuted for involving in corruption activities. This expresses a stronger willpower from the government to fight against corruption and that the party and government have placed the matter on its political agenda. Even though critics has viewed this as an attempt by the political centre to reassert control and discipline over lower levels of the party (Business Anti-Corruption Portal), these actions can be wholly considered as a sign of political will from Vietnamese political leaders, and that determination and reforms have had real opportunities to be materialised in the country.

Additionally, political willingness in fighting against corruption could be developed by good influences from 'cleaner' countries. The success stories of Denmark, Finland and Sweden in fighting against corruption are inspirational, so as the attempt of some neighbouring countries such as Singapore or Indonesia. These well performing countries have held a tradition of strong transparency within the government and a reliable mechanism in allowing citizens to participate in all national decisions or plans (blog.transparency.org, 2011).

Vietnam has been a partner in development with Denmark, Finland and Sweden for a long time. Sweden was the first donor being able to open up an anti-corruption related dialogue in Vietnam. In 2004, it took the leading donor role in negotiating with the Vietnamese communist party and the government on the problem of corruption. Later on, Denmark had Danida (Danish International Development Agency) cooperated with Sida (Swedish International Development Cooperation) in supporting legal sector institutions in Vietnam. This project was related to the Legal Sector Development Strategy led by the UNDP (Danida, 2003-09). The project was relevant to anti-corruption in that it helped strengthen the rule of law through publication of court decisions. From 2009 to 2013, Finland and Sweden in collaboration with DFID UK and Ireland supported the programme of Transparency International Vietnam in strengthening anti-corruption demand. The purpose of this project is to contribute to equitable sustainability and economic prosperity in Vietnam by progressively establishing a Transparency International presence in the country (ITAD, 2011).

The willingness in fighting against corruption has been built up and enhanced thanks to those programmes organised by the well-developed donors. It takes a long period of time to turn a small sign of willpower into a decisive campaign against corruption in a transitioning economy like Vietnam. However, one can believe that the rapid development of technology and social media nowadays is able to accelerate the process. Besides, the Vietnamese communist party and its government have no choice but to make the fight against corruption solemn and efficient, in order to maintain social stability. Political reforms in Vietnam may not be expected to occur in the near future, however reforms in governance and institutional system in all sectors of society have been anticipated.

Overall, Vietnam has seen a new trend in development finance coming its way to the country. There will no longer be the availability of foreign development aid like in the past three decades, but instead an opportunity of a huge flow of external private capital being

expected to come. These changes in the model of finance for development are seen to be positive for the quality of institutions and governance in Vietnam. The country is going to see good chances to take action to improve its own system. The willingness in doing so from the Vietnamese political leaders therefore is a vital conditionality for all changes to be materialised. During the past ten years, the Vietnamese party and government has had good efforts in attempting to contain corruption by opening the economy to the world, and cooperating with international donors in building a strong anti-corruption legal framework. Even though enforcement of the law is still far from ideal, this expresses the willingness of Vietnamese leaders in making the country ‘cleaner’.

## 5. References

1. Dien Luong, T. (2016). *Vietnam’s Corruption Problem*. [online] The Diplomat. Available at: <http://thediplomat.com/2016/02/vietnams-corruption-problem/> [Accessed 6 Aug. 2016].
2. Pamela D McElwee and Hoa Ly Ha (2006), *Deepening Democracy And Increasing Popular Participation In Viet Nam*, United Nations Development Programme
3. 'Trung Tam Boi Duong Dai Bieu Dan Cu' (*Ttbd.gov.vn*, 2016). Available at: [http://www.ttbd.gov.vn/Home/Default.aspx?portalid=52&tabid=108&catid=567&dis\\_tid=4138](http://www.ttbd.gov.vn/Home/Default.aspx?portalid=52&tabid=108&catid=567&dis_tid=4138) [Accessed 2 June. 2020]
4. *Unodc.org* (2020), Country Review Report Of The Socialist Republic Of Vietnam. Available at: [https://www.unodc.org/documents/treaties/UNCAC/CountryVisitFinalReports/2014\\_11\\_24\\_Vietnam\\_Final\\_Country\\_Report.pdf](https://www.unodc.org/documents/treaties/UNCAC/CountryVisitFinalReports/2014_11_24_Vietnam_Final_Country_Report.pdf) [Accessed 12 June 2020].
5. *Vietnamnews.vn* (2013), Public Officials Disclose Assets. Available at: <https://vietnamnews.vn/opinion/242697/public-officials-disclose-assets.html#rWMWueh5pVK0CGzT.97>. [Accessed 12 June 2020]
6. *Vietnamnews.vn* (2018), Extending Anti-Corruption Fight To Private Sector Enables Fair Business Environment. Available at: <https://vietnamnews.vn/politics-laws/481583/extending-anti-corruption-fight-to-private-sector-enables-fair-business-environment.html#2xiAK2jRCd67TUZD.97> [Accessed 15 June 2020]
7. *Towardstransparency.vn* (2016), Corruption Whistleblowers Protection Mechanism Under Current Laws – Transparency International. Available at: <https://towardstransparency.vn/en/corruption-whistleblower-protection> [Accessed 15 June 2020]
8. *Mofa.go.jp* (2009), Japan-Vietnam Joint Committee For Preventing Japanese Odarelated Corruption (Anti-ODA-Related Corruption Measures). Available at: <https://www.mofa.go.jp/region/asia-paci/vietnam/oda-related0902.pdf> [Accessed 15 June 2020]

9. Department for International Development (DFID) (2013), *Decision DFID's Anti-Corruption Strategy For Vietnam*. Available at: <https://www.gov.uk/government/publications/dfids-anti-corruption-strategy-for-vietnam> [Accessed 21 May 2020]
10. Bertot J, P JaegerJ Grimes (2010), *Using Icts To Create A Culture Of Transparency: E-Government And Social Media As Openness And Anti-Corruption Tools For Societies*, *Government Information Quarterly*
11. De Haan J, V LeE Dietzenbacher (2013), *Higher Government Wages May Reduce Corruption* | VOX, CEPR Policy Portal, Voxeu.org. Available at: <https://voxeu.org/article/higher-government-wages-may-reduce-corruption> [Accessed 21 June 2019]
12. Esposito L (2012), *Cutting Corruption By Raising Government Salaries?*, *Blogal Prosperity by the Center for Global Prosperity*. Available at: <https://globalprosperity.wordpress.com/2012/01/23/cutting-corruption-by-raising-government-salaries/> [Accessed 21 June 2019]
13. Fukiyama, F. (2001). *Social capital, civil society, and development*. *Third World Quarterly*, 22(1), 7-20.
14. Johson, M. (1998). *Fighting systematic corruption: Social foundations of institutional reform*. *European journal of Development Research*, 10(1), 85-104.
15. Parashar, C. (2018). *How did Singapore become a country almost without corruption?*. [online] Available at: <https://www.quora.com/How-did-Singapore-become-a-country-almost-without-corruption> [Accessed 21 Jun. 2019].
16. Quah, JST. (2011), *Curbing Corruption in Asian Countries: An Impossible Dream?*, Emerald Group Publishing, Bingley.
17. Quah, J. (2015). *Evaluating the effectiveness of anti-corruption agencies in five Asian countries*. *Asian Education and Development Studies*, 4(1), pp.143-159.
18. Schütte S, 'AGAINST THE ODDS: ANTI-CORRUPTION REFORM IN INDONESIA' (2012) 32 *Public Administration and Development*
19. Chene, M. (2008). *Drafting a national anti-corruption strategy for Vietnam*. Transparency International.
20. Transparency International. (2010). *Global Corruption Barometer*. [online] Available at: [http://www.transparency.org/policy\\_research/surveys\\_indices](http://www.transparency.org/policy_research/surveys_indices) [Accessed 12 Aug. 2016].
21. ITAD, (2011). *Joint Evaluation of Support to Anti-Corruption Efforts*. Vietnam Country Report. [online] Available at: <https://www.oecd.org/countries/tanzania/48912883.pdf> [Accessed 2 June. 2020].



**PART 2:  
BUSINESS ADMINISTRATION  
AND MANAGEMENT**





# APPLICATION OF Z-SCORE MODEL RESEARCH FOR PREDICTABILITY OF BANKRUPTCY: THE CASE OF ENTERPRISES IN VIETNAM

*Dr. Hoang Thi Hong Van*

*vanhth@hvnh.edu.vn*

*Faculty of Accounting and Auditing, Banking Academy, Hanoi, Vietnam*

## **Abstracts**

*There have been many research models built by researchers to assess and forecast bankruptcy risks of businesses based on published corporate financial information. Each model has its advantages and disadvantages. Altman's Z-score model (1986) is considered to be the original model applied by many researchers to different countries to forecast credit risk, bankruptcy risk. The paper is done to apply the Z-score coefficient model to evaluate the correct forecasting rate of the model with Vietnamese enterprises through collecting data of 30 bankrupt and 30 enterprises. The business is operating at the time of research. The research results show that the accuracy of the Z-score model for bankruptcy forecast of enterprises in Vietnam for a year before bankruptcy is 76.67% and for 2 years before the bankruptcy is 70%. Accordingly, investors who are interested in the financial situation of the business can fully use the Z-score model for risk assessment before making their decision.*

**Keywords:** *Bankruptcy, Z-score, risk*

## **1. Research overview**

Bankruptcy is a situation in which an enterprise or cooperative becomes insolvent and is declared bankrupt by a People's Court (Clause 2, Article 4 of the Bankruptcy Law 2014). Bankruptcy is legal evidence of a company's inability to pay its due debts. If a company goes bankrupt, it will have to settle a deal with creditors or bank credit or file bankruptcy with the court. For investors, creditors, when the business goes bankrupt, their risks and losses are not small.

Since the 1960s, many researchers have been making efforts to verify the bankruptcy forecast in various countries around the world. Fitzpatrick (1931) pioneered the use of financial ratio analysis to predict the likelihood of bankruptcy of businesses. His research data was collected from the financial statements of 20 businesses not involved in the manufacturing and business industry during the years 1920-1929 in the United States. A total of 13 financial ratios were selected based on regular use by top analysts at the time. The findings show that the best financial ratios to predict bankruptcy from the last annual report before business bankruptcy are the Profitability of assets; Fixed asset turnover; Debt to assets ratio; and Quick ratio.

Beaver (1966) empirically investigated 79 bankrupt firms and the corresponding number of successful businesses for 10 years (1954 - 1964) using binary classification testing. He pointed out that businesses in the financial crisis are those with low cash value, inventory, but the proportion of receivables accounts for the majority of revenue. It is also pointed out that the net cash flow / total liabilities ratio is the most important indicator of the risk of bankruptcy because it clearly shows the solvency of the enterprise. Besides, some other indicators such as the rate of return of assets (calculated by net income / total assets) and debt ratio (total liabilities / total assets) are also important predictors. This is because they reflect the business performance and the level of financial risk of the business. Xu and Zhang (2008), pointed out that accounting indicators within two years are relatively low for both bankrupt and non-bankrupt businesses, but still much higher for firms bankrupt. This is evidence that the economic and financial situation of bankrupt companies depends heavily on its business history when compared to normal operating companies. The research focuses primarily and the key point is the influence of non-financial factors leading to the loss of payment and bankruptcy of enterprises, such as operating history, development orientation of enterprises as well as the impact of macroeconomic fluctuations. The biggest disadvantage of this method is that it ignores the strong impact of financial factors, only interested in how non-financial factors will affect financial factors. While the method has shown the cause of the failure of the business, it cannot accurately indicate which business is at risk of bankruptcy. This makes the method not highly applicable because non-financial factors are difficult to evaluate while using financial indicators will be much simpler and more accurate.

Rose and Giroux (1984) also suggest that forecasting individual indices can lead to bias (Anjum, 2012). Ohlson (1980) proposed a model to predict bankruptcy. The author has succeeded in developing O-score by using 9 typical accounting variables for factors that are important in predicting bankruptcy: (i) size (SIZE), (ii) Financial structure is represented by leverage measure (TLTA), (iii) profit measure (NITA and / or FUTL), (iv) measure of current liquidity (WCTA or WCTA and CLCA). Ohlson proposes an O index to distinguish between bankrupt and non-bankrupt companies. A company with an  $O > 0.038$  is classified as bankrupt with other factors constant.

Altman (1986) proposed a model using the polynomial analysis method to overcome the problem of conflict between accounting indicators in Beaver's previous univariate model. The Altman Z - score model is an empirical research result on 66 manufacturing enterprises from 1946 to 1965 (including 33 bankrupt and non-bankrupt businesses). The overview model consists of a combination of 5 financial ratios with different weights. After using the re-inspection model with 25 other businesses, the probability of 96% is also true (in fact, there are 24 bankrupt enterprises, 1 non-bankrupt enterprise). According to Altman (2000), this model is estimated to be a relatively accurate prediction of companies that will go bankrupt within 2 years (the probability is 94% within 1 year and 2 years is 72%). Grice and Ingram (2001) test the appropriateness of the Altman Z score model in predicting the bankruptcy risk of enterprises. This study indicated that the accuracy when applying the Z score model to predict the bankruptcy of businesses is 57.6% compared to 83.5% as

demonstrated by Altman (1968). It can be seen that Altman's Z - score is one of the most effective models of bankruptcy prediction used in research by many authors for nearly 50 years. This Z index is researched by Edward I. Altman in the US, but based on a combination of empirical studies shows that Altman's Z-score model is applied in many European countries and currently European countries. Asia is also applying a lot in analyzing and forecasting the performance of enterprises, proving the preeminence in classifying enterprises' risk areas in many different fields. Pederzoli and Torricelli (2010) study the bankruptcy risk assessment model based on the published model of Altman. This model is used to determine the credit score for borrowing businesses based on the assumption that the company's financial risk directly affects customers' credit risk. If Altman (1968) uses the quantity Z as an aggregate measure to classify credit risks for businesses and depends on the value of the financial ratios of the business and the importance of the ratios. While in determining the probability of insolvency in the past, Pederzoli, and Torricelli (2010) use financial and weighting indicators to quantify the probability of defaults of small and super small enterprises. The research results show that there are 4 independent variables with the best predictability for the probability of insolvency of the enterprise, namely long-term debt / total assets; Profit before tax / total assets; Liabilities / total assets; and Revenue / total assets. The Altman Z-score model was originally built based on statistical analysis methods on manufacturing companies. Therefore, Z-Score initially only applies to manufacturing businesses, not other types. Altman and Sabato (2007) studied the factors that affect the probability of default of small and medium enterprises in the US market and showed the need to build a separate model to assess risks. Credit of the group of small and medium enterprises. The research results show that there are five independent variables (financial ratios) that have the best predictability for the probability of an enterprise's default, namely: Profit before tax, interest, and depreciation / total assets; Short-term debt/book value of equity; Retained profits / total assets; Cash / total assets; and Profit before tax, interest, and amortization/interest expense. The Z-score model can be applied to the modern economy to predict one, two or even three years before a business goes bankrupt due to its simplicity and relative accuracy.

Nguyen Thanh Cuong, Pham The Anh (2010) used the Z model of Altman to evaluate and came up with several solutions to reduce the RRPS of seafood processing enterprises listed on the stock market. Vietnam securities, and at the same time support banks to improve the efficiency of credit risk management in banking activities. However, the study has not reached any conclusion or assessment of whether the model can be applied in the Vietnam market. The model only provides assessments based on Altman's criteria for each company, proposing the results as a basis for banks to give credit ratings to the company when conducting credit review. Lam Minh Chanh (2007) introduces concepts and ways of calculating Z variables and indicators for each type of company based on models of Altman (2000). The author has not made assessments or tests to see if the model is suitable for use in the Vietnam market. Khong Thanh Hoa (2008) has applied the Z-model in financial analysis of companies listed on Vietnam's stock market. However, due to the undeveloped

debt and bond market of Vietnam, the author did not accurately classify bankrupt and non-bankrupt companies right from the beginning. The research works focus on applying the bankruptcy model of Altman Z-score. This shows that the Z - score model is a good tool in applying the bankruptcy forecasting models in Vietnam.

Point Z Model - The coefficient of predicting bankruptcy of an enterprise of Altman is calculated based on 5 financial ratios combined with the weight, used to forecast the likelihood of bankruptcy of the enterprise within 2 upcoming years. The criteria used in the calculation formula are easily collected on the financial statements of the business and widely disclosed to the public. This model was originally built by Edward I. Altman based on statistical analysis methods with a sample of 66 enterprises, which are manufacturing companies and small businesses, with total assets of less than US \$ 1 million. Half of these forms filed for bankruptcy at the time. The formula for calculating Z-score of Alman et al (2007) includes 5 variables as follows:

$$Z = 1,2 * X_1 + 1,4 * X_2 + 3,3 * X_3 + 0,6 * X_4 + 1,0 * X_5$$

**Inside:**

*X\_1: Working capital / Total assets*

*X\_2: Undistributed profits / Total assets*

*X\_3: Profit before interest and tax / Total assets*

*X\_4: Equity / Total liabilities*

*X\_5: Net revenue / Total assets*

**Table 1: Signs identifying enterprises status by Z-score value**

<b>Z</b>	<b>Interpretation</b>
$2,99 < Z$	Safe businesses, if only based on financial norms used for calculation
$1,81 < Z < 2,99$	Enterprises are in dangerous areas, need to pay attention to the possibility of bankruptcy
$Z \leq 1,81$	The enterprise has a serious financial problem and is likely to go bankrupt.

*Source: Altman et al (2007)*

## **2. Method**

To test the possibility of predicting bankruptcy of the Z-score model for Vietnamese enterprises, the author chose a sample of all joint-stock companies to be delisted from Ho Chi Minh Stock Exchange (HOSE) and Hanoi (HNX) due to liquidation/dissolution under a court order in the period from 2012 to 2019. Data is collected from the financial statements of bankrupt businesses and No bankruptcy shall be publicly announced for 2 years before the bankruptcy. The total sample of both bankrupt and non-bankrupt companies used in this study was 60 companies including 30 bankrupt and 30 non-bankrupt companies.

### Sample selection criteria

Firstly, the company's stocks were traded on the Ho Chi Minh Stock Exchange (HOSE) or the Hanoi Stock Exchange (HNX) during the listing period.

Second, companies must be in the non-financial sector because financial companies have other bankruptcy environments.

Third, the company must have financial information (financial statements) for at least three years

Fourth, bankrupt companies must have a compatible non-bankrupt company in the same industry and have a total of 1 year of assets before the nearest equivalent bankruptcy. The reason for this selection is that each bankruptcy in the sample selects a company in the same industry with the same assets to test the influence of factors (asset size and industry) on the financial ratio. major and bankruptcy.

### **3. Assess the financial situation of the two groups of businesses**

Indicators and financial information are one of the indicators reflecting the health of the business. The decline in the value of assets, profits or profitability of assets can be the messages for users of financial information to identify the current state of business operations.

**Table 2: Some financial ratios of the two business groups**

Criteria	The group bankrupt		Difference	The group of active business		The rate of increase (%)
	Two years ago bankruptcy	One year ago bankruptcy		Two years ago	One year ago	
<b>Assets</b> (1.000VND)	789.891.393,2	865.138.663,4	9,52%	752.251.217,5	890.049.550,7	18,32%
<b>ROA (%)</b>	2,340	2,557	0,217	4,169	5,587	1,418
<b>ROE (%)</b>	4,998	4,892	-0,106	7,833	11,194	3,361

*Source: author calculations*

From the table above, it can be seen that both groups of enterprises show an increase in asset size from two years before bankruptcy to one year before bankruptcy. Although the rate of increase in assets of the non-bankrupt group is 18.32%, approximately double that of the bankrupt group (9.52%), this only partly shows that the group of non-bankrupt enterprises is operating. However, it does not say much because the increase (decrease) in the value of total assets is affected by subjective factors of the enterprise. As can be seen, in fact, most bankrupt companies often declare or appreciate the value of their existing assets to beautify financial statements in the eyes of investors or shareholders. The presentation of dishonest information creates an invisible illusion about the conditions of the financial assets situation in the company, making the subjective existence within the enterprise itself, not timely proposing solutions. thoroughly resolved. To better analyze the impact of assets on

the risk of business bankruptcy, the total value of assets is not enough, it is necessary to combine additional calculations of other financial indicators.

ROA (Return on Assets), also known as the ratio of profit to total assets, is an equally important indicator when analyzing the financial situation of businesses. The ROA ratio measures the profitability of each company's assets. The higher the ROA, the better because the company is making more money on less investment. Considering two groups of companies, one is bankrupt and one is not, it can be predicted that the ROA of the non-bankrupt group will be higher. And the actual numbers have proved that the speculation is correct. The rate in the non-bankrupt group is about 4% - 5.5%, more than double the bankrupt group, only about 2.5%. That is, for every one asset of the bankruptcy group only generates about 0.025 VND of retained earnings while the non-bankrupt group can generate about 0.055 VND. With the same size of total assets, the ROA of the non-bankrupt group is significantly higher than the group of bankrupt enterprises. The reason is that the profits of the non-bankrupt group are much higher than those of the bankrupt ones. This is quite reasonable because when businesses have high business efficiency, the risk of business bankruptcy is low.

Another point to note is that in terms of time, this ratio also fluctuates over the years. If the company bankrupt, in particular, the ROA in 2 consecutive years almost no volatility. As a matter of fact, the more it operates, the more it grows, the ROA must increase relatively over time. However, this index is almost at a standstill, while the size of total assets is still increasing, showing that the business is slowing down, business operations are stalled and at risk of falling. slope. In contrast to this group, the group of companies that are not bankrupt and are operating well has an annual ROA growth of at least 1%. Although not a commendable number, this is a good sign, showing that companies are still doing business effectively and have a steady growth. The analytical results show that ROA is also an important indicator of business performance. When businesses are in the same industry, at the same time but different ROA is also a sign that investors need to keep in mind because it may be predictive of future bankruptcy.

In addition to ROA, when evaluating a business, people often use it with another indicator, ROE (Return On Equity) - Return on Equity or Return on Capital. ROE is calculated by dividing the net profit after tax by the total equity value based on the balance sheet and financial statements at the end of the period. ROE ratio shows the level of efficiency when using the capital of the business, or in other words, how much profit can one profit. ROE is a measure of the efficiency of capital use of the business. Theoretically, the higher the ROE, the more efficient the capital is used. Stocks with high ROE are usually preferred by investors and of course stocks with high ROE also have higher stock prices.

The high ROE maintained for many years also demonstrates the competitive advantage of enterprises, enterprises with competitiveness, high competitive advantage, or monopoly often have very high ROE. Considering the bankrupt company, ROE is at 4%,

and there is no change over time. Especially, the average ROE of 1 year before the bankruptcy enterprises is reduced compared to the previous year. ROE of these businesses is small interest rates on bank loans (about 10%), proving that the profit made is not enough to pay the bank interest. This is an alarming number. Because when there is not enough interest payment, it will not be possible to have money for production and business activities, more and more difficult and bankruptcy is only a matter sooner or later.

In the same difficult period, ROE in the group of companies not bankrupt is not only higher than the other group but also has a growth rate over the years. The ROE of companies in this group is about 11.2%, higher than the bank's lending rate, which is a good sign that the business is getting good results. Besides, ROE of this group reached a relatively high level in the years and tends to continue to increase in the future. This not only assesses good performance but also affirms the competitive advantage in the market, opening a future with the potential for growth.

Also, when considering the financial statements of an enterprise, in addition to the review of business results, to consider the performance of the business, the consideration of the enterprise's liabilities is extremely important. important. If the liabilities account for too much compared to the equity, it means that the borrower is borrowing more than the existing capital, so the business may be at risk of debt repayment, especially if The enterprises face more and more difficulties when interest rates on banks increase. Creditors or banks also often consider and evaluate this ratio (and some other financial ratios) to decide whether to lend or not. The use of debt also has the advantage that interest expenses will be deducted from corporate income tax. Therefore, businesses must weigh the financial risks and advantages of debt to ensure a reasonable ratio. The ratio of equity to total liabilities tells us that the capital structure of the business, the higher the ratio, the better for the business, but if it is smaller or approximately 1, it is the alarm on the corporate financial situation when liabilities have passed equity.

#### **4. Applying the Z-score model in bankruptcy forecast**

The aggregated financial variables include total assets, working capital, retained earnings, profit before tax and interest, equity, and total revenue. The above variables were collected to calculate the indicators in the Z-score model from which to produce a Z score for each company. At the same time, use variables to assess the difference between the financial ratios of the two bankruptcy and non-bankruptcy groups in the same asset size. Based on the calculated Z point, the author compares Z with the limit points to find the percentage of probability of predicting the bankruptcy of the Z-score model. If the Z-score is less than 1.81, the business is expected to be bankrupt, now it is in group 1. If the company's Z-score is greater than 1.81, the predicted business is still possible. The ability to



continue production and business activities is now in Group 2. Results of calculating the Z value of 60 enterprises Table 3.

**Table 3: Results of calculating Z values of enterprise groups**

<b>Z</b>	<b>The group bankrupt</b>		<b>The group of active business</b>	
	Two years ago bankruptcy	One year ago bankruptcy	<b>The forecast before 1 year</b>	<b>The forecast before two years</b>
$2,99 < Z$	9	12	16	14
$1,81 < Z < 2,99$	8	7	9	10
$Z \leq 1,81$	13	11	5	7
<b>Summaries</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>

*Source: author calculations*

#### *4.1. Forecast result for a year before bankruptcy*

**Table 4: Results of applying the Z-score model to the one-year prediction for bankruptcy**

	True Number	Correct Percentage (%)	Percentage Accuracy (%)	Samples	Actual	Predicted	
						Group 1	Group 2
					Group 1	21	9
					Group 2	5	25
Type I	21	70	30	30			
Type II	25	83.3	16.7	30			
<b>Summaries</b>	<b>46</b>	<b>76.67</b>	<b>23.23</b>	<b>60</b>			

*Source: author calculations*

We can see that in Vietnam if we apply the Z-score model to predict the bankruptcy business before one year, we can achieve an average accuracy of 76.67%: Specifically, in the total of 30 enterprises that have broken. Besides there were 21 bankrupt enterprises with a value of Z less than 2.99. That means the model correctly predicted the situation of bankruptcy and the bankruptcy of the business 1 year before the bankruptcy accounted for 70%. Meanwhile, with 30 healthy and active enterprises, there were 25 (83%) of enterprises with Z value greater than 1.81. This means that predicting healthy signs of businesses by Z value is completely reliable. The ratios mentioned above are considered to be quite high and of great accuracy. The Z-score model studied and experimented in the US has a high prediction rate (95%), but in the Vietnam environment, this prediction rate is only 76.76%. This difference may be due to incomplete financial information disclosed by Vietnamese enterprises and lack of reliability.

#### 4.2. Forecast results for two years before the bankruptcy

**Table 5: Results of applying the Z-score model for the two-year prediction for bankruptcy**

	Actual	Correct Percentage (%)	Percentage Accuracy (%)	Samples	Actual	Predicted	
						Group 1	Group 1
					Group 1	18	12
					Group 2	6	24
Type I	18	60	40	30			
Type II	24	80	20	30			
<b>Summaries</b>	<b>42</b>	<b>70</b>	<b>30</b>	<b>60</b>			

*Source: author calculations*

Through the data shown in Table 5, it is noticeable that there is a marked decrease in accuracy when applying the Z-model applied to the financial statements two years before the bankruptcy. While the forecast for group 2 (not bankrupt) to achieve an accurate forecast result of up to 80% (correctly predicting 24/30 companies not going bankrupt), the group of bankrupt enterprises (group 1) only achieves correctly forecast results at 60% (correctly predicting 18/30 bankruptcy companies). This fact is true as the results that Altman has experimented with, that the longer the forecast time is, the less the accuracy is. The 6.67% reduction in overall accuracy compared to the one-year bankruptcy forecast (76.67%) shows that the time factor has a significant impact on the forecast results. However, it can be seen that in both predictions, group 2 always gives better forecasting results. This means that users of financial information can be more assured about their ability to maintain production and business activities for the next 1-2 years if only based on the Z index.

#### 5. Conclusion

It is clear that while the model does not produce good predictive results like the experiments done in the US, it is capable of accurately forecasting 76.67% of bankruptcy for one year before bankruptcy reports. and 70% for two-year reports before bankruptcy is also a pretty good predictor. This shows the reliability and accuracy in using the Z-score model in bankruptcy prediction for Vietnamese businesses. The main model is the premise for the study of a more optimal model with higher accuracy based on the Z-point model premise. Financial analysts, users of financial information can fully use the Z-score model for assessing and assessing the financial position as well as the "health" of enterprises to make the right decisions.

## 6. References

1. Alkhatib, K., Al Bzour, A.E. (2011), '*Predicting corporate bankruptcy of Jordanian listed companies: Using Altman and Kida Models*', International Journal of Business and Management.
2. Altman, E.I. (1968), '*Financial ratios, discriminant analysis and the prediction of corporate bankrupt*', The Journal of Finance.
3. Altman, E.I. (2000), '*Predicting Financial Distress of Companies: Revisiting the Z score and Zeta model*', Stern School of Business, New York University, New York, USA.
4. Altman, E.I., Zhang, L. and Yen, J. (2007), '*Corporate Financial Distress Dianosis in China*', New York University Salomon Center Working paper, New York.
5. Altman, E.I. (1977a), '*Predicting Financial Distress of Companies: Revisiting the Z-Score and ZETA® Models*', The Journal of Finance.
6. Altman, E.I. (1977b), '*The Z-Score Bankruptcy Model: Past, Present, and Future*', The Journal of Finance.
7. Beaver, W.H. (1966), '*Financial ratios as predictors of failure*', Journal of Accounting Research.
8. Christidis, A. C-Y and A. Gregory (2010), '*Some New Models for Financial Distress*', Xfi - Centre for Finance and Investment Discussion Paper.
9. Lam Minh Chanh (2007a), '*Z-Index - bankruptcy risk detection tool and credit rating ranking*', Investment Bridge Rate Alert, No. 41.
10. Khong Minh Hoa, '*Application of the Z-model in financial analysis of companies listed on Vietnam's stock market*', Master thesis, National Economics University.
11. Nguyen Trong Hoa (2009), '*Building a credit rating model for Vietnamese enterprises in the transition economy*', Ph.D. thesis, National Economics University.

# DEMOGRAPHIC CHANGES AND OPPORTUNITIES FOR BANKING SECTOR IN VIETNAM

*Tran Thi Mai Phuong*

*maiphuongtran109@gmail.com*

*Faculty of Human Resource Economics and Management*

*National Economics University, Hanoi, Vietnam*

## **Abstract**

*Vietnam is experiencing a period of rapid demographic change. Commercial banks can be successful in taking these opportunities to achieve competitive advantages when they better understand the dynamics of market and demand of their customers. So this report aims to present the positive influence of demographic trend on retail operations of Vietnamese commercial banks in the future. Research methods include practice review upon previous findings and analyzing the dynamics of retail banking operations in the context of demographic shifts in Vietnam. Data is collected from customer database of Joint Stock Commercial Bank for Investment and Development of Vietnam. Based on demonstrating the positive effect of demographic changes on retail banking, this report suggest solutions for commercial banks in Vietnam to make good use of those opportunities.*

**Keywords:** *demographic change, opportunity, retail banking.*

## **1. Introduction**

It is apparent that retail banking will remain the dominant source of revenue for banks in the upcoming years. Thus, there has been considerable interest in the effect of demographic changes in retail banking activity in countries with aging populations like Vietnam. After 30 years of Doi Moi period, Vietnam comes into the era of rapid industrialization and modernization, and also confronts with problems of urbanization process including urban sprawl, land use change and natural environment management in rural areas. Thus, this paper raises key issues in the relationship between demographic changes and retail banking in Vietnam. Two issues, elaborated in this paper, are the impacts of urban boundary expansion and urban population increase on the change of agricultural land use for industrialization and modernization activities and the habit of land exploitation of farmers. These changes in the context of unplanned and rapid urbanization will have considerable influence on soil quality such as soil degradation, and in the long - term it triggers further problems of imbalance of hydrate system and ecosystem in rural environment. The analysis of problems is implemented by using the data of General Statistics Office of Vietnam and other relevant research results. Based on theoretical framework presented in the first part and a description of land use change due to urbanization process and some overall impacts on rural environment, the final part will give some suggestions of land conservation and sustainable rural environment for policy makers in Vietnam.

## 2. Method

The research framework of this paper is established through summarizing, analyzing and comparing previous research on diverse impacts of demographic changes on retail banking in Vietnam. Based on this framework, secondary data are taken from customer database of Joint Stock Commercial Bank for Investment and Development of Vietnam of 2017, press, documents by institutions and other research. These provide more detailed information on demographic trends and their impacts on activities of commercial banks in Vietnam and support managers and policy makers to produce effective solution for urbanization process in Vietnam.

## 3. Results

### 3.1 Aging population

Many developing countries are experiencing very rapid changes in the numbers of children, working age population and older persons. Those changes lead to the consequences of aging population in most developing countries like Vietnam. According to the Forecast of General Statistics Office for the period 2009-2049 (GSO,2010), the consequence of low fertility and increased life expectancy is that the aging index will increase rapidly.

**Table 1: The aging index for the period 2009-2049**

*Unit: %*

Year	1979	1989	1999	2009	2019	2029	2039	2049
Aging Index	16	17	24	36	50	85	124	158

*Source: GSO,2010*

In 1979, about 100 people under 15 years of age had about 17 people over 60 years old. After 20 years (1999), this index increased 1.5 times. The aging index in 2014 was three times higher than the 1979 index. Changing population structure also means changing the customer structure. Therefore, banks need to cater to the aging population and their products and services need to be tailored accordingly. Those in the age group of above 50 years will be potential customers in the next 10-20 years. Credit and consumer loans for young people gradually shift to long-term savings and investment services, the preferred type of the middle-aged and elderly. According to survey of customer data at BIDV bank in 2017 (Table 1), the savings rate is mainly in the group of customers above 50 years old (45.67%). At the same time, the highest proportion of consumer and credit loans is still in the 35-50 age group (53.1%) and <35 years (34.87%).

**Table 2: The rate of savings, consumer loans and credit loans by age groups**

*Unit: %*

Age group	<35 years old	35-50 year olds	>50 year olds
The rate of savings	22,28%	32,05%	45,67%
Consumer loans and credit loans	34,87%	53,01%	12,12%

*Source: Customer database of BIDV*

In particular, the old age group (> 50 years old) prefers long-term savings products (> 1 year) to short-term products. The remaining age groups follow the opposite trend. Data in Table 2 shows that 46.5% of people over 50 years old prefer long-term savings products, while this proportion in the group of 35 and 35-50 accounts for only 21.64% and 31, 86 % respectively.

**Table 3: Short-term and long-term savings rate by age group**

Age group	< 35 years old	35 - 50 years old	> 50 years old
Short-term savings (< 1 năm)	22,56%	40,71%	36,73%
Long-term savings (> 1 năm)	21,64%	31,86%	46,5%

*Source: Customer database of BIDV*

Therefore, it can be clearly seen that customers in the aging population will have lower demand not only for credit loans and consumer loans but also for high-risk short-term savings. Instead, long-term savings products with stable interest rates will be preferred. Especially when life expectancy is improved, middle-class customer group will pay more attention to savings products to ensure financial security when they get old. Moreover, savings products in combination with life insurance will meet their needs in the next upcoming years.

However, opportunities also come with challenges for commercial banks when the proportion of elderly people increasing rapidly. After retiring, income will decrease significantly, the amount of savings deposits also decreases accordingly. Retired elderly people will gradually use their savings to spend on health problems or old age activities when income from work is no longer available. Therefore, it also affects the mobilization of savings from this group. In addition, small banks with poor financial potential will be eliminated by customers (aging) seeking long-term and firm financial security.

### ***3.2. The improvement of population quality, especially young customers***

The socio-economic development impacts apparently on the fertility decision of household. Fertility decline induces higher education and population quality, especially in terms of young people is improved. Therefore, the target group of young customers in commercial banks also gradually changed their spending habits and use of financial services. They are quick to use financial services especially online payment services, using services on mobile application or websites. According to the big data, the percentage of customers who register for electronic banking services, payment via telephone and internet is mainly under 35 years old, accounting for 69.83% of the total number of customers. The proportion of online savings deposit is also mainly under 35 years old, accounting for 73.81%.

**Table 4: Percentage of using electronic banking services, payment via phone and internet by age group**

Age group	Below 35	35-60	>60
Percentage of using electronic banking services, payment via phone and internet	69,83%	26,93%	3,24%

*Unit: %*

**Table 5: Percentage of savings and online savings by age group***Unit: %*

Age group	Below 35	35-50	>50
Percentage of savings	22,28%	38,05%	39,67%
Percentage of online savings	73,81%	23,73%	2,45%

*Source: Customer database of BIDV*

However, approaching these young and dynamic groups also presents challenges. The pressure of competition in the domestic banking market is increasingly fierce due to the presence of foreign banks. Currently, joint-venture banks and foreign banks only account for a small market share in Vietnam market (10-15% credit market share, 5-7% market share capital mobilization). However those foreign banks dominate with modern technology system and human resources with high professional qualifications. Therefore, the drastic change of young customer behavior in Vietnam will bring for foreign bank a higher competitive advantage than domestic commercial banks in terms of revenue from services. An undeniable fact is that the foreign banks is gradually having greater attractiveness than domestic commercial banks as Vietnamese people increasingly have higher intellectual levels and higher incomes, they will target better service provider. In the segment of high and middle-income customers, intellectual customers will gradually shift to foreign banks, the risk of losing right at home is an existing challenge of Vietnamese commercial banks. This challenge requires Vietnamese commercial banks to improve service quality, diversify products, invest in modern technology to attract more customers, especially young groups.

### ***3.3. The improvement of women's relative wage and shifts in women's relative bargaining power.***

World Bank reports that women's economic empowerment has also steadily improved in Vietnam over the past decade. Women's labor force participation rate is within 10 percent of that of men, a smaller gap than that found in most other countries. In addition, there has been an upward trend in the share of women in wage work, mostly driven by increased employment opportunities for women in foreign-owned export-oriented factories (World Bank, 2019). The data of General Statistics Office of Vietnam illustrates that the proportion of women participating in labor has increased considerably, thus increasing the accumulation and income of this group. According to the 2016 Labor Force Survey (GSO), the female labor force increased by 497 thousand people in the period of 2013-2016, and the average monthly income also increased from 3884 thousand VND in 2013 to 4739 thousand VND in 2016 (Table 6).

**Table 6: The female labor force and the average monthly income of female workers during 2013-2016**

Year	2013	2014	2015	2016
The number of female workers (thousands people)	25875	26187	26141	26372
The average monthly income of female workers (thousand VND)	3884	4235	4430	4739

*Source: GSO, 2016*

The improvement of female labor income results in the drastical change of role of women in family. Therefore, decisions related to consumption and savings in household will change with more involvement of women. Some research in developing countries indicated that an increase in women's relative wages and bargaining power raises household saving and therefore aggregate saving rates (Floro & Seguino, 2002).

The customer data also presents the fact that the proportion of women saving banks is much higher than men in Vietnam, so this will be a potential customer group that commercial banks need to focus on. According to Vinaresearch's survey data in Vietnam, compared to men, most women choose to open savings accounts at banks as their lucrative investment channel with 82.2% of respondents, meanwhile this proportion in men only accounts for 65.4%.

**Table 7: Profitable investment channels by gender**

*Unit: %*

Type of Investment	Savings	Gold	Stock	Real Estate	Forex	Government Bonds	Other investment
Total	72,7	48,9	30,7	18,6	14,3	5,6	6,9
Male	65,4	45,4	36,9	19,2	13,1	3,1	9,2
Female	82,2	53,5	22,8	17,8	15,8	8,9	4,0

In particular, according to customer database, women have also demonstrated higher saving rates than male clients. Statistics show that among customers who send personal savings at BIDV, 67.64% are female, while men accounts for only 32.36%. Especially, the group of elderly women accounts for a significant proportion.

**Table 8: Rate of Savings by gender**

*Unit: %*

Gender	Male	Female
Rate of Savings	32,36%	67,64%

*Source: Customer database of BIDV*

Along with the dominant percentage of the savings ratio in the female group, the number of female customers in the elderly group also needs to be fully exploited. The trend



of aging of women has become more and more evident in developing countries such as Vietnam, where the proportion of women is higher than the proportion of men corresponding to the increasing age. In 2009, out of 7,452,747 older persons, there were 3,012,476 elderly men. Meanwhile, the number of older women is 4,440,271 people. In other words, 147 out of every 100 men. The older the age group, the bigger the gender difference is. In terms of the age group of 60-64, the number of elderly women is 1.25 times than that of the old men. Other age groups also follow the general trend. For example this percentage in the age group of 65-70 is 1.38, the 70-74 group is 1.49 and the 75-79 group is 1.5, groups of 80-84 are 1.74 and 85 years and older are 2.39. Men and women always have different choices and requirements for savings and investment decisions, so developing products for potential female customers will be a great opportunity for commercial banks today.

### ***3.4. The rising of middle - income class***

The middle-income class in Vietnam is expanding rapidly. According to Euromonitor, per capita disposable income is at over VND40 million (US\$1,773) in 2018 and expects an average growth of 5.9% annually from 2019-2030. It is reported that 49% of households will have an annual disposable income of between US\$5,000 and US\$15,000, up from 33.8% in 2018 (The Hanoitimes, 2019). Income affects the potential capital that a bank can raise in the future. In fact, the higher the income of a person, the greater the amount of money he or she can save. Especially when the per capita income has reached a certain level, the savings rate will increase at a faster pace than the improvement of income because the essential demand is now fully satisfied and the excess money will increase rapidly. According to the latest report of the National Financial Supervisory Commission (National Financial Supervisory Commission, 2017), in the first 10 months of 2017, mobilization of the whole banking system has increased by 12% in value. Customer deposits increased by 11.5% compared to the beginning of the year and capital mobilization also increased sharply, in which foreign currency deposits increased by 3.7% and VND deposits increased by 13%.

Besides, the increase of middle - income class results in the growth of consumer spending. Viet Nam leads ASEAN in terms of growth of per capita spending by the middle 60% of the population from 2016 to 2021, with a compound annual growth rate (CAGR) of 10.1%. This growth rate puts it ahead of other major ASEAN markets such as Singapore and Malaysia (PWC Vietnam, 2018). Since 2014, the Vietnamese consumer confidence index (CCI) has increased, peaking at 129 in the third quarter of 2018 and in the first quarter of 2019, while payment method gradually shifted from cash to non-cash, and Vietnamese tend to be more willing to borrow for instant purchase instead of saving until they accumulate enough to afford it. This trend will open opportunity for retail banks to develop the products and service of consumer credit. Currently, in Vietnam, consumer credit plays an increasingly important role in the economy as the proportion of consumer credit in the total credit has increased from 12.3% in 2016 to 17% in 2017, respectively. And it is forecasted that sustained credit growth of 15% to 17% over the 2018 and 2019 periods driven by a rising income levels and affluence as well as an increase in urbanisation, with more people exposed to financial service offerings (The Hanoitimes, 2019).

Thus, a deeper understanding of the determinants of saving rates and consumer credit of middle-income group is especially useful in planning for savings mobilization and in the formulation of financial and investment policies for banks.

#### **4. Discussion and Conclusion**

Facing the opportunities and challenges that demographic change brings, Vietnamese commercial banks need to overcome challenges from the intrinsic, continue restructuring, improving competitiveness, expanding the scope of activities. To achieve that goal, Vietnamese commercial banks need to focus on the following orientations:

Firstly, it is necessary to improve financial capacity, increase equity. Vietnamese commercial banks, especially small and medium-sized banks, need to develop a roadmap and implement increasing the equity size, improving capital adequacy ratio according to Basel II standards. Increasing charter capital is a condition for achieving the growth, meeting the requirements of deeper and deeper integration and sufficient financial potential to deal with the instability of the international business environment.

Second, banks need to have a clearer plan to find sources of profits not only from interest on deposits and loans but also other complementary financial services. Increasing cross-selling of products and services, combining e-banking to reduce costs, manpower, packages combining insurance and deposits, separate products to serve each target customer.

Thirdly, domestic banks, especially state-owned banks need to actively invest in technology because it is an indispensable trend during the 4.0 revolution, when the demand of customers is increasing. The application of technology will create a friendly and convenient environment quickly, avoiding to slip into this attractive potential market with foreign banks.

Fourthly, banks need to evolve their customer experience to be more female-friendly. In one survey in South East Asia, 73% of women said they were dissatisfied with the financial services industry. Complaints range from a lack of respect, to being given contradictory advice and worse terms than men. A combination of branding, product and service solutions with the concentration on women will create the competitive advantage of current commercial banks. We expect many more bankers to be women in 2020, and many more banks to publicly state this as an ambition.

Thus, it can be affirmed that demographic change is an indispensable trend of all economies, opening up many opportunities for the development of nations in general and of banks in particular, but also poses many challenges, pressures countries, organizations and banks face. The problem is that, equipping a certain knowledge of integration, clearly identifying the opportunities and challenges of integration, will help bank managers and policy makers. proactively, carefully and confidently confront challenges and take opportunities, with the ultimate goal of improving the competitiveness of Vietnamese commercial banks in the international market.

## 5. References

1. Floro, M. S., & Seguino, S. (2002). *Gender Effects on Aggregate Saving*. Retrieved from World Bank:  
<http://siteresources.worldbank.org/INTGENDER/Resources/wp23.pdf>
2. National Financial Supervisory Commission. (2017). *Tổng quan thị trường tài chính*. Retrieved from National Financial Supervisory Commission:  
[http://www.nfsc.gov.vn/sites/default/files/bao\\_cao\\_tong\\_quan\\_thi\\_truong\\_tai\\_chinh\\_2017.pdf](http://www.nfsc.gov.vn/sites/default/files/bao_cao_tong_quan_thi_truong_tai_chinh_2017.pdf)
3. PWC Vietnam. (2018). *The future of ASEAN: Vietnam Perspective*. Retrieved from  
<https://www.pwc.com/vn/en/publications/2018/future-of-asean-vietnam-perspective.pdf>
4. The Hanoitimes. (2019). New consumption trend leads to surge in Vietnam's consumer credit growth. *The Hanoitimes*. Retrieved from  
<http://www.hanoitimes.vn/economy/2019/07/81e0d8e0/new-consumption-trend-leads-to-surge-in-vietnam-s-consumer-credit-growth/>
5. World Bank. (2019). Overview of Vietnam. Retrieved from  
<https://www.worldbank.org/en/country/vietnam/overview>

# EMPLOYEE COMMITMENT TO ORGANIZATIONAL CHANGE WITH THE ROLE OF JOB SATISFACTION AND TRANSFORMATIONAL LEADERSHIP

*Nguyen Thi Bich Thuy*

*thuyntb@lhu.edu.vn*

*Phan Dang Ngoc Yen Van*

*vanpdny@lhu.edu.vn*

*Lac Hong University, Faculty of Administration-International Economics, Vietnam*

## **Abstract**

*This study aimed to analyze the role of job satisfaction and transformation leadership for employees' commitment to organizational change. Based on a survey sample of 381 employees in post-merger enterprises in retail and pharmaceutical sector and a linear regression model. The results revealed that Transformational leadership was associated positively and significantly with Affective Commitment ( $\beta = .42, p < .000$ ), Normative Commitment ( $\beta = .32, p < .000$ ), and Continuance Commitment ( $\beta = .27, p < .000$ ); Job satisfaction was associated positively and significantly with Affective Commitment ( $\beta = .24, p < .000$ ) and Normative Commitment ( $\beta = .30, p < .000$ ) among employees' to organizational change. The results of this study provide a foundation of theory and practice for organizational changes that can efficiently exploit the human resource for the development in the next period.*

**Keywords:** *job satisfaction; organizational commitment; organizational change; transformational leadership; Vietnam*

## **1. Introduction**

Commitment is arguably one of the most critical factors involved in employees' support for change initiatives (Herscovitch & Meyer, 2002). In the context of vibrant economic development in Vietnam, where competition is taking place so fiercely that the result may be the acquisition of large businesses for smaller businesses that often take place (Hosseini, Thu, & Trang, 2017; Vuong, Napier, & Samson, 2014). Mergers and acquisitions (M&As) have been a very popular strategic maneuver for global businesses, attaining growth, diversification, or profitability (Schweizer, 2005). While there are positive outcomes associated with M&A activity, such as growth and development, some of their disappointing results are associated with the mismanagement of the human side of it (Cartwright & Schoenberg, 2007). Organizational change, such as merger and acquisition (M&A) activity, continue to occur at a high rate in organizations (Herold, Fedor, Caldwell, & Liu, 2008). Even though 70% to 90% of these mergers and acquisitions fail, organizations continue to

look for opportunities to merge (Cartwright, Tytherleigh, & Robertson, 2007; Pike, 2017; Raukko, 2009). There is undoubtedly a range of contributing explanations of these high M&As failure rates; however, recently there has been growing acceptance among management researchers that the neglect and mismanagement of the human aspects during and following the actual merger or acquisition are significant determinants of merger success or failure (Seo, Taylor, Hill, Zhang, Tesluk, & Lorinkova, 2012; Van Knippenberg, Martin, & Tyler, 2006). M&As have come to be associated with outcomes such as lower morale and job dissatisfaction, acts of sabotage, increased labour turnover and absenteeism rates rather than increased profitability (Armstrong-Stassen, Cameron, Mantler, & Horsburgh, 2001). There is a consensus that such change activities result in reduced organizational commitment among employees (Datta, Guthrie, Basuil & Pandey, 2010). Therefore, lowered commitment of employees after periods of mergers and change is identified as one of the reasons as to why the intended long-term effects of organizational change does not succeed (Cascio & Wynn, 2004; Van Dierendonck & Jacobs, 2012). Previous findings have indicated the potential importance of assessing employees' psychological contracts during a merger, in order to reach both the desired organizational outcomes and employee job satisfaction (Bellou, 2007; Shield, Thorpe, & Nelson, 2002).

Organizational commitment and its determinants have received considerable attention from scholars with many studies, and explanatory factors tested to predict the commitment behaviour of employees with organizations (Chua et al., 2014; Currivan, 1999; Enache, Sallán, Simo, & Fernandez, 2013; Igbal, 2010; Firth, Mellor, Moore, & Loquet, 2004; Irving, Coleman, & Cooper, 1997; Kumasey, Delle, & Ofei, 2014; Meyer & Allen, 1991; Mowday, Steers & Porter, 1979; Rutishauser & Sender, 2019; Saha, 2016). In the case of M&As enterprises, employees experienced several unmotivated feelings, attitudes, and commitment behaviour to the new system (Bellou, 2006; Bligh, 2005; Cartwright and Cooper, 1993). Human resource management plays an crucial role in M&As process success, and correlate significantly with positive employee behaviours and employee wellbeing (Aklamanu, Degbey, & Tarba, 2016; Amiot, Terry, & Callan, 2007; Chung, Du, & Choi, 2014; Vasilaki, Tarba, Ahammad, & Glaister, 2016). Leadership is vital in the context of acquisitions and advocated the elements of transformational leadership (Morosini, Shane, & Singh 1998; Nguyen & Kleiner, 2003). Cumming et al. (2010) suggested that transformational leadership should be adopted to improve employees' satisfaction, selection, work environment, and to avoid employee turnover. Leaders provide vision and inspiration to their followers and create a structure and culture that will enable and facilitate various positive behaviours needed for integrating two organizations. In which, transformational leadership will support for effective human resource management practices in maintaining the employee's commitment of M&As process (Brătianu & Anagnoste, 2011; Jiali Zhang et al., 2014; Nemanich & Keller, 2007; Pike, 2017; Savović, 2017; Vasilaki et al., 2016). The factors affecting the commitment behaviour of employees in organizational change which will be different from the factors that govern this behaviour in general and need to have empirical researches done to identify, accreditation. However, very few researchers have investigated the commitment perceptions of the employees who feel the full impact of these

restructurings in the Vietnamese context. This study aims to identify and analyze the effects of job satisfaction and transformational leadership on employee commitment to organizational change in Vietnamese firm's context.

## **2. Review of literature**

According to Vietnamese Enterprise Law (2014), enterprise merger is one or several companies that can be merged into another company by transferring all legal assets, rights, obligations and benefits to the merged company, and at the same time stop the existence of the enterprise merged.

Commitment is widely defined as the extent of an individual's loyalty and attachment to an organization, linked to the degree of effort an individual will exert to support the organization's goals. Meyer and Allen (1991) widely used three-component commitment model is based on earlier work by Mowday, Steers, and Porter (1979). Commitment is the degree of attachment to an organization (O'Reilly & Chatman, 1986). It has three major components: (i) a strong belief in the organization and acceptance of the organization's goals, (ii) a willingness to exert considerable effort on behalf of the organization, and (iii) a desire to maintain organizational membership (Mowday, Steers, & Porter, 1979).

Organizational commitment, a psychological contract that influences whether or not to remain affiliated with an organization, has three primary psychological states: (i) affective commitment: an employee wants to stay in the organization because of emotional attachments, (ii) continuance commitment: an employee remains with an organization because he/she has little chance of finding a better job, and (iii) normative commitment: an employee feels personally or ethically responsible for remaining with an organization (Meyer & Allen, 1991). Studies show that each of these forms of commitment is associated with labour turnover. They also suggest that a strong relationship exists between affective commitment and a range of desirable employee outcomes, including attendance, job performance, good health, low stress, and minimize conflicts between work and other activities. As affective commitment is driven by work experience, rather than through the recruitment and selection of employees, perceived organizational support by employees is essential in this process (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002). Therefore, this study adopted affective commitment in measurement of employee's commitment in post-merger enterprises.

In examining human factors in M&As, researchers have employed psychological, social, and cultural perspectives (Chung, Du, & Choi, 2014; Marmenout, 2010). The psychological perspective shows that employees affected by M&As are frequently exposed to high levels of psychological distress, role ambiguity, and anxiety from uncertainty (Cooper, Cooper, Dewe, & O'Driscoll, 2001). According to the social perspective, employees both in acquired and acquiring firms tend to classify people based on the origin of their firm's identity theory, so they experience difficulties in overcoming biases (Amiot, Terry, & Callan, 2007). The cultural perspective maintains that combining two distinct

organizations with different cultures often leads to a cultural clash or collision that undermines performance (Marmenout, 2010).

### ***Job Satisfaction and Organizational Commitment to Change***

Theories of Maslow (1943), and Herzberg & Mausner (1959), both emphasized the importance of meeting the different workers' needs such as jobs, payments and promotions that affect their behaviour in the organization, satisfaction and commitment. Job satisfaction is the attitude, resulting from reviewing and summarizing the specific likes and dislikes combined with the employees' evaluation on the work in the organization. Employees with high levels of organizational commitment are more work-oriented than other employees. They get more satisfaction from work and view their jobs as fulfilling more of their personal needs. As a result, they are willing to exert considerable effort on behalf of the organization (Van Scotter, 2000). The more satisfied the worker is with the job, the higher the commitment with the organization (Firth, Mellor, Moore, & Loquet, 2004; Martin & Roodt, 2008). Kyei-Poku and Miller (2013) provided evidence for the positive relationship between job satisfaction with a merger and the affective and normative components of organizational commitment among employees.

According to the investigation, carried out by Aydogdu and Asikgil (2011), on the employees working in the service and production industry, a significant relationship is discovered between affective commitment and internal and external job satisfaction. Similar to this finding, it is realized that there is also a significant relationship between normative commitment and external and internal job satisfaction. Whereas a negative relationship was found out between internal job satisfaction and normative commitment; contrary to the expected findings, they found out a significant and positive relationship between external job satisfaction and continuance commitment.

Eslami and Gharakhani (2012) indicated that factors of Job satisfaction (promotions, personal relationships, and favourable conditions of work) have positive and significant effects on three components of organizational commitments in firms of services. Dirani and Kuchinke (2011) investigated the relationship between job satisfaction and organizational commitment in the banking sector. Results of the research showed that satisfaction and commitment were significantly correlated and satisfaction was a good predictor of commitment. Malik, Nawab, Naeem, and Danish (2010) indicated that the satisfaction with work-itself, quality of supervision and pay satisfaction had significant favourable influence on organizational commitment of employees. Ahmad and Oranya (2010) aimed to examine the relationship between nurses' job satisfaction and organizational commitment in culturally and developmentally different societies. According to the results, there was a positive and significant correlation between job satisfaction and total organizational commitment. Markovits, Davis, and Dick (2010) found out that extrinsic satisfaction and intrinsic satisfaction were more strongly related to affective commitment and normative commitment for public sector employees than for private-sector ones. A study conducted by Tsai, Cheng

and Chang (2010) showed that job satisfaction positively influenced organizational commitment on hospitality industry employees. Likewise, Silva (2006) investigated the relationship between job satisfaction and organizational commitment on hospitality employees. The results showed that significant positive relationship between job satisfaction and organizational commitment was found.

H1a: Perceived job satisfaction positively influences an employee's affective commitment to organizational change.

H1b: Perceived job satisfaction positively influences an employee's normative commitment to organizational change.

H1c: Perceived job satisfaction negatively influences an employee's continuance commitment to organizational change.

### ***Transformational Leadership and Organizational Commitment to Change***

The keys to successful integration process of enterprises are a hands-on leadership styles, a bias for action, involvement of the entire staff, continuous focus on customers, and most of all, open and honest communication with employees (Nguyen & Kleiner, 2003). Leadership can play a significant role in the preparation and integration of mergers and acquisitions by helping organizational members achieve common goals and minimizing the adverse effects associated with culture, the size of the organization, diversity, conflict, change, role modelling, team building, communication, planning and preparation, corporate reputation, and demographics (Pike, 2017). Mergers can be a significant source of trauma for both employees and management and often result in lowered trust, commitment, satisfaction, and productivity, and increased absenteeism, turnover and attitude problem (Bligh & Carsten, 2005). Kotter (1996) claims that change always demands strong leadership. Leadership style has a substantial impact on the satisfaction, commitment for both the merger and the merged party's employees, in which the adaptive factor of leadership style changes that strongly affected the satisfaction as well as the employees' commitment of the merged party. Joyce Covin, Kolenko, Sighler, and Tudor (1997) explores the relationship between leadership style and post-merger satisfaction, noting from the results that leadership style is significantly related to merger satisfaction for employees of both acquiring and acquired firms. Being able to integrate quickly with enterprises after the merger will help employees with great motivation to associate with enterprises and the role of leadership style characterized by relationships, context, and inspiration, support and management will help workers in the process of rapid integration with the post-merger organization, thereby helping them connect with the organization (Schweizer & Patzelt, 2012). Purvanova, Bono, and Dziewieczynski (2006) explained that the transitional leadership style plays a crucial role in creating employee commitment to work. Lok and Crawford (2004), and Lo, Ramayah, and Min (2009) explained that positive behaviour of leaders to motivate employees and enhance their commitment. Erkutlu's (2008) findings support the suggestion in the literature that transformational leadership behaviours stimulate



organizational commitment and job satisfaction. Transformational leadership has a significant effect on job satisfaction, notably when employees demonstrated openness to change (Atmojo, 2015; Hinduan, Wilson-Evered, Moss, & Scannell, 2009; Yang & Islam, 2012). Nemanich and Keller (2007) investigated the influence of transformational leadership on the acceptance of acquisitions, employees' satisfaction, and employees' performance. Joyce Covin, Kolenko, Sightler, and Tudor (1997) explores the relationship between leadership style and post-merger satisfaction, noting from the results that leadership style is significantly related to merger satisfaction for both acquiring and acquired firm employees.

H2a: Perceived transformational leadership positively influences an employee's affective commitment to organizational change.

H2b: Perceived transformational leadership positively influences an employee's normative commitment to organizational change.

H2c: Perceived transformational leadership positively influences an employee's continuance commitment to organizational change.

### **3. Method**

#### ***Sample and Data Collection***

Hair, Black, Babin, and Anderson (2010) indicated that the sample size must total at least 100 to use exploratory factor analysis. Bentler and Chou (1987) proposed that the ratio of sample size to the number of free parameters may be 5:1 for a rational theory, primarily when many latent variables exist. Due to resource constraints, this study used a sample of 381 observations that ensure reliability for statistical tests in the research model. Table 1 presents descriptive statistics of demographic characteristics. Questionnaires were administered to employees of the post-merger enterprises in retail and pharmaceutical sector in Ho Chi Minh City of Vietnam, based on the non-probability sampling method (with convenient technique). The surveyed subjects in this study are employees working at post-merger enterprises, excluding newly recruited employees after the merger. The survey was conducted by the self-administered method, and employees were encouraged to complete the survey during work time.

#### ***Measures***

To measure organizational commitment to change, we used the 18 items Organizational Commitment Questionnaire modified from Herscovitch and Meyer's (2002) scale. The items were classified in terms of the three dimensions of affective commitment, normative commitment and continuance commitment to organizational change. Job satisfaction was measured using the Hackman and Oldham's (1974) scale. This scale consists of five-items scale. The transformational leadership style was measured by a 16-items scale that was modified from the multi-factor leadership questionnaires (Bass & Avolio, 1994).

**Table 1. Demographic Differences Among Respondents**

Demographic characteristics	Frequency	Percentage
Gender		
Male	150	39.4
Female	231	66.6
Age		
< 25 years	101	26.5
25-34 years	142	37.3
35-44 years	85	22.3
> 45 years	53	13.9
Education level		
Bachelor or higher	221	58.0
Otherwise	160	42.0
Working experience		
Less than three years	122	32.0
3-5 years	167	43.8
6-10 year	50	13.1
> ten year	42	11.1
Management position in post-merger		
Higher	71	18.6
Otherwise	310	81.4
Type of organizations		
Retail service	231	66.6
Pharmaceutical sector	150	39.4

Participants responded on a 5-point Likert-type scale dictating the extent to which they agreed with each statement as it reflected their present work environment (1= strongly disagree, 5= strongly agree). Cronbach's alphas were as follows: 0.842 for affective commitment; 0.788 for normative commitment; 0.856 for continuance commitment; 0.825 for job satisfaction; 0.882 for transformational leadership. The Cronbach's alpha is considered adequate in order to ensure the reliability of the internal consistency of a scale (Hair, Black, Babin, & Anderson, 2010).

#### **4. Results**

Table 2 showed the correlation coefficients between the independent variables are generally, and the variance inflation factors do not exceed 0.5 suggesting that multicollinearity is unlikely to prove a significant problem (Hair, Black, Babin & Anderson, 2010). All of the hypothesized correlations are significantly different from zero and have the anticipated sign. Table 2 reports means, standard deviations, correlations among variables in the research model.

**Table 2. Descriptive Statistics and Inter-correlations among Variables**

	Mean	S. D	(1)	(2)	(3)	(4)
Job Satisfaction (1)	3.89	0.70				
Transformational Leadership (2)	3.86	0.52	0.40***			
Affective commitment (3)	3.92	0.63	0.41***	0.42***		
Normative commitment (4)	3.91	0.63	0.44***	0.40***	0.34***	
Continuance commitment (5)	4.05	0.71	0.21	0.19***	0.25***	0.14***

Note: \*\* Correlation is significant at the 0.01 level (2-tailed).

The regression analysis was carried out to determine the efficacy level of the job satisfaction and transformational leadership on affective commitment, normative commitment, and continuance commitment to organizational change.

The relationship between employee commitment to organizational change and job satisfaction and transformational leadership were estimated using OLS, and the results are shown in Table 3. As predicted, job satisfaction and transformational leadership were positively and significantly correlated with affective commitment to change at the 0.01 level. The result supported H1a and 2a. Also, job satisfaction and transformational leadership were positively related to normative commitment. Namely, H1b and H2b were supported. Finally, transformational leadership was positively related to continuance commitment. Namely, H2c was supported. The causal relationship between job satisfaction and continuance commitment was not significant. This result did not support H1c.

**Table 3. The Results of Regression Analyses**

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
<i>Dependent Variable: Affective Commitment to Change</i>							
Constant	1.37	.22		6.29	.000		
Job Satisfaction	.24	.04	.27	5.53	.000	.84	1.19
Transformational Leadership	.42	.06	.36	7.41	.000	.84	1.19
<i>R<sup>2</sup> = 0.27; Adjusted R<sup>2</sup> = 0.267; F = 70.33; Durbin-Watson = 1.56</i>							
<i>Dependent Variable: Normative commitment to Change</i>							
Constant	1.52	.22		6.79	.000		
Job Satisfaction	.30	.04	.33	6.86	.000	.84	1.9
Transformational Leadership	.32	.06	.26	5.44	.000	.84	1.9
<i>R<sup>2</sup> = 0.25; Adjusted R<sup>2</sup> = 0.247; F = 63.32; Durbin-Watson = 2.09</i>							
<i>Dependent Variable: Continuance commitment to Change</i>							
Constant	3.06	.29		10.74	.000		
Job Satisfaction	-.02	.06	.06	-.28	.783	.84	1.19
Transformational Leadership	.27	.08	.08	3.63	.000	.84	1.19
<i>R<sup>2</sup> = 0.038; Adjusted R<sup>2</sup> = 0.033; F = 7.40; Durbin-Watson = 1.11</i>							

Note:  $p < 0.05$ ; Independent Variable: Job Satisfaction and Transformational Leadership.

The results of regression analysis in Table 3 suggest that the  $R^2_{\text{adjusted}}$  (0.267) was significant at the 0,000 level for affective commitment. This means that 26.7% of the variance in affective commitment was significantly explained by job satisfaction ( $\beta = .24$ ;  $t = 5.53$ ;  $p = .000$ ) and transformational leadership ( $\beta = .42$ ;  $t = 7.41$ ;  $p = .000$ ). Namely, job satisfaction and transformational leadership were found to be a significant predictor of normative commitment to organizational change ( $R^2_{\text{Adjusted}} = .247$ ;  $\beta = .30$  and  $.32$ ;  $t = 6.86$  and  $5.44$ , respectively;  $p = .000$ ). This means that 24.7% of the variance in normative commitment were significantly explained by the job satisfaction and transformational leadership. Addition, transformational leadership was found to be a significant predictor of continuance commitment ( $R^2 = .033$ ;  $\beta = .27$ ;  $t = 3.63$ ;  $p = .000$ ). This means that 3.3% of the variance in continuance commitment was significantly explained by the transformational leadership.

## 5. Discussion and Conclusion

The findings of this study align with other research results (Pike, 2017; Yan, Wu, & Zhang, 2016; Buitter & Harris, 2013; Kyei-Poku, & Miller, 2013; Calisir, Gumussoy, & Iskin, 2011). This showed the relevance of the research model to the foundation of related theory and also indicated that human resource management activities in this field in the Vietnamese context and other environments are not different.

During the organizational change such as M&As process, employees experience the merger syndrome, which is accompanied by increased self-interest, as employees become preoccupied with what the integration means for themselves, their incomes, and their careers. Employees seem to go through the merger as a loss of a loved one, often treated as a personal crisis, which may manifest itself as listlessness, apathy, a preoccupation with the past, lack of commitment to the new culture, fear, and active resistance to the new system (Cartwright & Cooper, 1993). As a result, several negative attitudes and behaviours are realized, including decreased job satisfaction, organizational commitment, loyalty and productivity and increased defective products, mistakes and withdrawal behaviours (Bellou, 2006).

Human resource management plays an essential role in merger and acquisition integration success, emphasizing communication, employee involvement, teamwork and training and development and correlate significantly with positive employee behaviours and employee wellbeing (Aklamanu, Degbey, & Tarba, 2016; Vasilaki, Tarba, Ahammad, & Glaister, 2016). Employee participation and information sharing during M&As increase self-efficacy and reduce the level of uncertainty and dysfunctional outcomes among employees (Chung, Du, & Choi, 2014; Amiot, Terry, & Callan, 2007).

Vasilaki, Tarba, Ahammad, and Glaister (2016) argued that communication, employee involvement, teamwork, and training and development have a positive effect on employee behaviour and their commitment with the newly formed organization. Training programs that offer employees appropriate information on M&A, new organizational culture, and task-related skills and knowledge can reduce adverse reactions and enhance self-efficacy, resulting in improved post-change task performance.

Training programs also elicit employee participation by promoting communication and information sharing related to the change among employees as well as by offering opportunities for them to voice their input to specific changes (Chung, Du, & Choi, 2014; Brătianu & Anagnoste, 2011). Job insecurity may lead to increased stress, anxiety, and turnover intentions among employees (Staufenbiel & Konig, 2010). Thus, ensuring job security is an effective change management practice in reducing employee uneasiness and distress caused by M&As as well as in maintaining and further enhancing task performance (Chung, Du, & Choi, 2014; Stanwick & Stanwick, 2001).

Human resource practices cannot be fully implemented if they are not monitored and controlled, and if employees are not coached to adapt to the new entity and not able to express their opinions, suggestions, and feelings about the challenges that may arise through the post-acquisition integration. Therefore, transformational leadership behaviours will moderate the implementation of human resource management practices in M&As, leading to positive employee behaviour and employee identification in the new organization (Vasilaki, Tarba, Ahammad, & Glaister, 2016; Jiali Zhang et al., 2014).

### **Conclusion**

This study was carried out in the context of organizational change such as the M&A market in Vietnam, is taking place very excitingly as a result of the business's strategy of enterprises as well as the consequence of competition becoming more and more so fierce. The merged enterprises in addition to the advantages, market opportunities, technology, finance and competitiveness acquired through merger deals, which also faced challenges due to the interests and cultural conflicts between the merged enterprises and the enterprises being merged, between members of merging organizations. Therefore, it is imperative to identify the factors affecting the employees' commitment in the post-merging enterprises based on harmonizing conflicts occurring to ensure the enterprises' success after the merger period, towards the stages of sustainable development. This study used a sample of primary data surveyed from 381 employees in the post-merger retail and pharmaceutical businesses in Vietnam. The results revealed the effect of job satisfaction and transformational leadership on employees' commitment to organizational change. The results of this study provide a foundation of theory and practice for organizational changes that can efficiently exploit the human resource for the development in the next period.

This study contains certain limitations. Firstly, the research sample that was collected only in two groups with new validation, including retail and pharmaceutical industry, surveyed in Ho Chi Minh City of Vietnam. Secondly, this study did not test the difference in organizational commitment between the attached employees' group before and after newly being recruited in the post-merged enterprises or the difference between the sectors after the merger. Thirdly, this study did not examine the influence of other factors on each component of organizational commitment to organizational change basic of models such as structural equation model. Further studies can exploit this topic as the research directions above.

## 6. References

1. Ahmad, N., & Oranye, N. O. (2010). Empowerment, job satisfaction and organizational commitment: a comparative analysis of nurses working in Malaysia and England. *Journal of nursing management*, 18(5), 582-591.
2. Aklamanu, A., Degbey, W. Y., & Tarba, S. Y. (2016). The role of HRM and social capital configuration for knowledge sharing in post-M&A integration: a framework for future empirical investigation. *The International Journal of Human Resource Management*, 27(22), 2790-2822.
3. Amiot, C. E., Terry, D. J., & Callan, V. J. (2007). Status, equity and social identification during an intergroup merger: A longitudinal study. *British Journal of Social Psychology*, 46(3), 557-577.
4. Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modelling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411-423.
5. Armstrong-Stassen, M., Cameron, S. J., Mantler, J., & Horsburgh, M. E. (2001). The impact of hospital amalgamation on the job attitudes of nurses. *Canadian Journal of Administrative Sciences*, 18(3), 149-162.
6. Atmojo, M. (2015). The influence of transformational leadership on job satisfaction, organizational commitment, and employee performance. *International Research Journal of Business Studies*, 5(2), 113-128.
7. Aydogdu, S & Asikgil, B (2011). An empirical study of the relationship among job satisfaction, organizational commitment and turnover intention. *International Review of Management and Marketing*, 1(3), 43-53.
8. Bass, B. M., & Avolio, B. J. (1994). Transformational leadership and organizational culture. *The International Journal of Public Administration*, 17(3), 541-554.
9. Bellou, V. (2006). Psychological Contract Assessment After A Major Organizational Change: The Case of After Mergers and Acquisitions. *Employee Relations*, 29(1), 68-88.
10. Bentler, P. M., & Chou, C.-P. (1987). Practical issues in structural modelling. *Sociological Methods & Research*, 16(1), 78-117.
11. Bligh, M. C., & Carsten, M. K. (2005). Post-merger psychological contracts: exploring a “multiple foci” conceptualization. *Employee relations*, 27(5), 495-510.
12. Brătianu, C., & Anagnoste, S. (2011). The role of transformational leadership in mergers and acquisitions in emergent economies. *Management & Marketing*, 6(2), 319-326.
13. Buitter, J. E., & Harris, C. M. (2013). Post-merger influences of human resource practices and organizational leadership on employee perceptions and extra-role behaviors. *SAM Advanced Management Journal*, 78(4), 14-22.
14. Calisir, F., Gumussoy, C., & Iskin, I. (2011). Factors affecting intention to quit among IT professionals in Turkey. *Personnel Review*, 40(4), 514-533.
15. Cartwright, S., Tytherleigh, M., & Robertson, S. (2007). Are mergers always stressful? Some evidence from the higher education sector. *European Journal of Work and Organizational Psychology*, 16(4), 456-478.

16. Cartwright, S., & Cooper, C. L. (1993). The role of culture compatibility in successful organizational marriage. *Academy of Management Executive*, 7(2), 57-70.
17. Cascio, W. F., & Wynn, P. (2004). Managing a downsizing process. *Human Resource Management*, 43(4), 425-436.
18. Chua, G. N., Yee, L. J., Sim, B. A., Tan, K. H., Sin, N. K., Hassali, M. A., Shafie, A. A., & Ooi, G. S. (2014). Job satisfaction, organisation commitment and retention in the public workforce: a survey among pharmacists in Malaysia. *International Journal of Pharmacy Practice*, 22(4), 265-274.
19. Chung, G. H., Du, J., & Choi, J. N. (2014). How do employees adapt to organizational change driven by cross-border M&As? A case in China. *Journal of World Business*, 49(1), 78-86.
20. Cooper, C. L., Cooper, C. P., Dewe, P. J., & O'Driscoll, M. P. (2001). *Organizational stress: A review and critique of theory, research, and applications*. Sage.
21. Cummings, G. G., Macgregor, T., Davey, M., Lee, H., Wong, C. A., Lo, E., Muise, M., & Stafford, E. (2010), Leadership styles and outcome patterns for the nursing workforce and work environment: A systematic review, *International Journal of Nursing Studies*, 47, 363-385
22. Currivan, D. B. (1999). The causal order of job satisfaction and organisational commitment in models of employee turnover. *Human Resource Management Review*, 9(4), 495-524.
23. Datta, D. K., Guthrie, J. P., Basuil, D., & Pandey, A. (2010). Causes and effects of employee downsizing: A review and synthesis. *Journal of Management*, 36(1), 281-348.
24. Dirani, KM & Kuchinke KP (2011). Job satisfaction and organizational commitment: validating the Arabic satisfaction and commitment questionnaire (ASCQ), testing the correlations, and investigating the effects of demographic variables in the Lebanese banking sector. *The International Journal of Human Resource Management*, 22(5), 1180-1202.
25. Enache, M., M. Sallán, J., Simo, P., & Fernandez, V. (2013). Organisational commitment within a contemporary career context. *International Journal of Manpower*, 34(8), 880-898.
26. Erkutlu, H. (2008). The impact of transformational leadership on organizational and leadership effectiveness: The Turkish case. *Journal of Management Development*, 27(7), 708-726.
27. Eslami, J., & Gharakhani, D. (2012). Organizational commitment and job satisfaction. *ARPN Journal of science and technology*, 2(2), 85-91.
28. Firth, L., Mellor, D. J., Moore, K. A., & Loquet, C. (2004). How can managers reduce employee intention to quit?. *Journal of managerial psychology*, 19(2), 170-187.
29. Hackman, J. R., Oldham, G. R. (1974), *The Job Diagnostic Survey: An instrument for the diagnosis of jobs and the evaluation of job redesign projects*.
30. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis: A Global Perspective (7th ed)*. Upper Saddle River, NJ: Pearson Education.

31. Herold, D. M., Fedor, D. B., Caldwell, S., & Liu, Y. (2008). The effects of transformational and change leadership on employees' commitment to a change: A multilevel study. *Journal of applied psychology*, 93(2), 346-357.
32. Herscovitch, L., & Meyer, J. P. (2002). Commitment to organizational change: Extension of a three-component model. *Journal of applied psychology*, 87(3), 474.
33. Herzberg, F., Mausner, B., & Snyderman, B. (1959). *The motivation to work*. New York: John Wiley and Sons.
34. Hosseini, J. C., Thu, N. K., & Trang, N. T. T. (2017). Vietnam Inbound M&A Activity: The Role of Government Policy and Regulatory Environment. *The South East Asian Journal of Management*, 58-69.
35. Hinduan, Z. R., Wilson-Evered, E., Moss, S., & Scannell, E. (2009). Leadership, work outcomes and openness to change following an Indonesian bank merger. *Asia Pacific Journal of Human Resources*, 47(1), 59-78.
36. Igbal, A. (2010). An Empirical Assessment of Demographic Factors, Organisational Ranks and Organisational Commitment. *International Journal of Business and Management*, 5, 16-27.
37. Irving, P. G., Coleman, D. F., & Cooper, C. L. (1997). Further assessments of a three-component model of occupational commitment: Generalizability and differences across occupations. *Journal of Applied Psychology*, 82(3), 444-452.
38. Jiali Zhang, Mohammad Faisal Ahammad, Shlomo Tarba, Cary L. Cooper, Keith W. Glaister & Jinmin Wang. (2014). The effect of leadership style on talent retention during Merger and Acquisition integration: evidence from China. *The International Journal of Human Resource Management*, (26)7, 1021-1050.
39. Joyce Covin, T., Kolenko, T. A., Sightler, K. W., & Tudor, R. K. (1997). Leadership style and post-merger satisfaction. *Journal of management development*, 16(1), 22-33.
40. Kotter, J.P. (1996). *Leading Change*. Harvard Business School Press, Boston, MA
41. Kumasey, S.A., Delle, E. & Ofei, B.S. (2014) Occupational Stress and Organisational Commitment: Does Sex and Managerial Status Matter? *International Journal of Business and Social Research (IJBSR)*, 4, 173-182.
42. Kyei-Poku, I. A., & Miller, D. (2013). Impact of employee merger satisfaction on organizational commitment and turnover intentions: A study of a Canadian financial institution. *International Journal of Management*, 30(4), 205-223.
43. Lo, M.-C., Ramayah, T., & Min, H. W. (2009). Leadership styles and organizational commitment: A test in Malaysia manufacturing industry. *African Journal of Marketing Management*, 1(6), 133-139
44. Lok, P., & Crawford, J. (2004). The effect of organizational culture and leadership style on job satisfaction and organizational commitment: A cross-national comparison. *Journal of management development*, 23(4), 321-338.
45. Markovits, Y, Davis, AJ, Fay, D & Dick, RV. (2010). The link between job satisfaction and organizational commitment: Differences between public and private sector employees. *International Public Management Journal*, 13(2), 177-196.



46. Marmenout, K. (2010). Employee sensemaking in mergers: How deal characteristics shape employee attitudes. *The Journal of Applied Behavioral Science*, 46(3), 329-359.
47. Martin, A., & Roodt, G. (2008). Perceptions of organizational commitment, job satisfaction and turnover intentions in a post-merger South African tertiary institution. *SA Journal of Industrial Psychology*, 34(1), 23-31.
48. Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50(4), 370-396.
49. Meyer J P, Stanley D J, Herscovitch L., & Topolnytsky L. (2002). Affective, Continuance and Normative Commitment to the Organization: A Meta-analysis of Antecedents, Correlates, and Consequences. *Journal of Vocational Behavior*, 61, 20-52.
50. Meyer, J. P., & Allen, N. J. (1991). A three-component conceptualization of organizational commitment. *Human resource management review*, 1(1), 61-89.
51. Morosini, P., Shane, S., & Singh, H. (1998). National cultural distance and cross-border acquisition performance. *Journal of International Business Studies*, 29(1), 137-158.
52. Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). The measurement of Organisational commitment. *Journal of vocational behavior*, 14(2), 224-247.
53. Nguyen, H., & Kleiner, B. H. (2003). The effective management of mergers. *Leadership & Organization Development Journal*, 24(8), 447-454.
54. Nemanich, L. A., & Keller, R. T. (2007). Transformational leadership in an acquisition: A field study of employees. *The Leadership Quarterly*, 18(1), 49-68.
55. O'Reilly, C. A., & Chatman, J. (1986). Organizational commitment and psychological attachment: The effects of compliance, identification, and internalization on prosocial behavior. *Journal of applied psychology*, 71(3), 492-499.
56. Pike, B. (2017). Mergers: What ethical leaders can do to help ensure success. *The Siegel Institute Journal of Applied Ethics*, 4(1), 1-26.
57. Purvanova, R. K., Bono, J. E., & Dzieweczynski, J. (2006). Transformational leadership, job characteristics, and organizational citizenship performance. *Human performance*, 19(1), 1-22.
58. Raukko, M. (2009). Organizational commitment during organizational changes: A longitudinal case study on acquired key employees. *Baltic Journal of Management*, 4(3), 331-352.
59. Rutishauser, L., & Sender, A. (2019). Effect of Team-Member Exchange on Turnover Intention: A Cross-Cultural Perspective on a Selected Aspect of Employee Engagement. *International Studies of Management & Organisation*, 1-20.
60. Saha, R. (2016). Factors influencing organisational commitment-research and lessons. *Management research and practice*, 8(3), 36-48.
61. Savović, S. (2017). The impact of dimensions of transformational leadership on the post-acquisition performance of an acquired company. *Ekonomski Horizonti*, 19(2), 95-108.
62. Schweizer, L., & Patzelt, H. (2012). Employee commitment in the post-acquisition integration process: The effect of integration speed and leadership. *Scandinavian journal of management*, 28(4), 298-310.

63. Schweizer, L. (2005). organizational integration of acquired biotechnology companies into pharmaceutical companies: The need for a hybrid approach. *Acad. Managt. J.*, 48(6), 1051-1074.
64. Seo, M. G., Taylor, M. S., Hill, N. S., Zhang, X., Tesluk, P. E., & Lorinkova, N. M. (2012). The role of affect and leadership during organizational change. *Personnel Psychology*, 65(1), 121-165.
65. Shield, R., Thorpe, R., & Nelson, A. (2002). Hospital mergers and psychological contracts. *Strategic Change*, 11(7), 357-367.
66. Stanwick, P. A., & Stanwick, S. D. (2001). Human resources: Your secret weapon for post-merger success. *Journal of Corporate Accounting & Finance*, 12(2), 9-14.
67. Staufenbiel, T., & König, C. J. (2010). A model for the effects of job insecurity on performance, turnover intention, and absenteeism. *Journal of Occupational and Organizational Psychology*, 83(1), 101-117.
68. Schweizer, L. (2005). Organizational integration of acquired biotechnology companies into pharmaceutical companies: The need for a hybrid approach. *Acad. Managt. J.*, 48(6), 1051-1074.
69. Silva, P. (2006). Effects of disposition on hospitality employee job satisfaction and commitment. *International Journal of Contemporary Hospitality Management*, 18(4), 317-328.
70. Tsai, MC, Cheng, CC & Chang, YY (2010). Drivers of hospitality industry employees' job satisfaction, organizational commitment and job performance. *African Journal of Business Management*, 4(18), 4118-4134.
71. Van Dierendonck, D., & Jacobs, G. (2012). Survivors and victims, a meta-analytical review of fairness and organizational commitment after downsizing. *British Journal of Management*, 23(1), 96-109.
72. Van Knippenberg, B., Martin, L., & Tyler, T. (2006). Process-orientation versus outcome-orientation during organizational change: the role of organizational identification. *Journal of Organizational Behavior*, 27(6), 685-704.
73. Van Scotter, J. R. (2000). Relationships of task performance and contextual performance with turnover, job satisfaction, and affective commitment. *Human resource management review*, 10(1), 79-95.
74. Vasilaki, A., Tarba, S., Ahammad, M. F., & Glaister, A. J. (2016). The moderating role of transformational leadership on HR practices in M&A integration. *The International Journal of Human Resource Management*, 27(20), 2488-2504.
75. Vuong, Q. H., Napier, N. K., & Samson, D. (2014). Relationship between innovations, capital expenditures and post-M&A performance: evidence from Vietnam, 2005-2012. *The IUP Journal of Business Strategy*, 11(1), 34-41.
76. Yan, S., Wu, S., & Zhang, G. (2016). Impact of connective leadership on employees' goal commitment during M & A integration. *Leadership & Organization Development Journal*, 37(6), 789-801.
77. Yang, Y. F. & Islam, M. (2012). The influence of transformational leadership on job satisfaction: The balanced scorecard perspective. *Journal of Accounting & Organizational Change*, 8(3), 386-402.

# IMPROVING THE REMUNERATION SYSTEMS OF ORGANIZATIONS FOR SUSTAINABLE HUMAN RESOURCE MANAGEMENT IN VIETNAMESE FIRMS

*Hoang Thi Thanh Chung*

*hoangthithanhchung@gmail.com*

*Duong Thi Phuong Hanh*

*chunghtt@lhu.edu.vn*

*Faculty of Administration - International Economics,  
Lac Hong University, Bien Hoa City, Vietnam*

## **Abstract**

*The present study aims to investigate the characteristics of remuneration systems practices of Vietnamese enterprises. The study was based on qualitative approaches with 20 firm HR managers in domestic and FDI enterprises in Dong Nai province, Vietnam. The result shows that the sustainability of the remuneration system, through the links between remuneration system characteristics and SHRM principles. Empirical validation of these links opens up guidelines for further research into the sustainability of remuneration systems.*

**Keywords:** *Remuneration system, Sustainable human resource management, Vietnam*

## **1. Introduction**

Sustainability and sustainability development is an entirely new phenomenon which was raised in 1987 by Brundtland report (1987). Based on different analyses, it could be stated that this report has received one of the highest citation rates focusing on sustainability. Olawumi and Chan (2018) executed a wide range scientometric review of global research on sustainability and sustainable development, revealing increased attention on this topic by government agencies, academics, practitioners and international organisation. Keyword cluster network analysis disclosed that one of two keywords is sustainable development equal to sustainability indicator. Sustainable development raised new venues towards a wide range of interpretation in the context of sustainability (Lélé, 1991). Different perspectives on sustainable development created conditions to explore and develop the more complex and more precise field of research on sustainability concept.

Ehnert (2015) proposed terms of SHRM which is being defined as the adoption of HRM strategies and practices that enable the achievement of financial, social and ecological goals, with an impact inside and outside of the organisation and over a long-term time horizon while controlling for unintended side effects and negative feedback. Macke and Genari (2018) executed systematic review on sustainable human resource management and revealed that organisational sustainability is tightly dependent on human resource management practice where sustainability concept in HRM is a mediator factor or a final

objective. This leads to general idea that changes in modern times challenge the development of society and organisations focusing not only on economic qualitative growth, but also on sustainability targeting existing systems, processes and human resources. SHRM itself is a multi-dimensional where authors disclose concepts of “green” human resource management (Renwick et al., 2012; Opatha & Arulrajah, 2014), ethic human resource management (Greenwood, 2004, Legge, 1998), socially responsible human resource management (Becker, 2011; Becker & Smith, 2013) and sustainable works systems (Kira, 2003; Shani & Docherty, 2003). Radvila and Silingiene (2018) already have revealed the theoretical approach of characteristics of remuneration systems of the organisation towards SHRM.

There is a lack of research covering managerial approach of remuneration systems covering sustainability of HRM. Taken this into consideration, it is necessary to practical identify key characteristics which lead to SHRM. Radvila and Silingiene (2018) have already developed theoretical remuneration system construct which is based on five characteristics of remuneration system, including orientation towards remuneration goals, the purpose of the remuneration, the formalisation of the remuneration system, remuneration system orientation towards performance and the flexibility of remuneration systems. A disclosed gap of knowledge in SHRM in the context of the remuneration system and its principles compiled scientific problem of the article - what characteristics of remuneration systems of organisations effect SHRM.

The main purpose of this paper is to investigate the characteristics of remuneration systems affecting SHRM in Vietnamese firms. The findings of the research are newly systemised and empirically evaluated characteristics of remuneration systems which impact the sustainability of HRM through work systems.

## **2. Literature review**

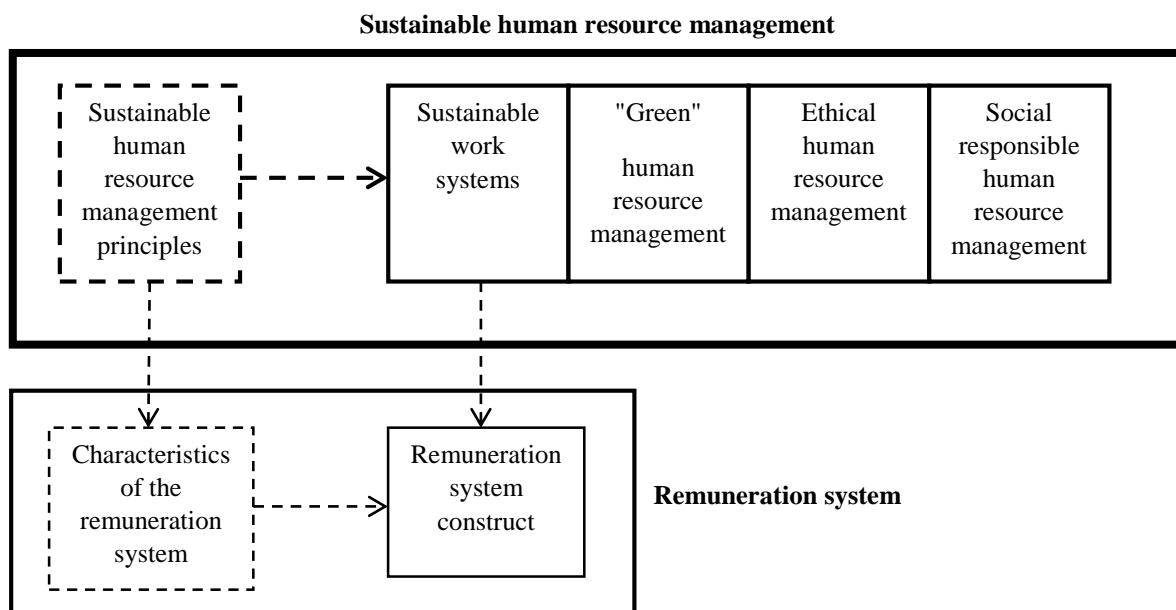
### ***2.1. Sustainability concept approaching working systems***

This Brundtland (1987) report has been used the most and is the key one who started this scientific venue. Lélé (1991) revealed a wide range of interpretations on sustainability which created a possible new venue for sustainability development. As a result of this first decent implication of sustainable human resource management could be identified by Wright and McMahan (1992). Working on different perspectives towards sustainability in HRM, it has been identified that likely the first scientific venue of sustainable work systems started in 1999 (Eijnatten, 2000). Docherty et al. (2002) elaborate sustainable work systems, even more, creating the conditions for further researches. Still, no relevant, sustainable approach towards remuneration systems has been discovered. There were some terms like sustainable wages or sustainable salary used, but, in the content, it does not provide a systematic approach through work systems. Radvila and Silingiene (2018) have theoretical grounded the dependency between remuneration systems and SHRM. Based on scientific researches, the development of sustainability towards the remuneration issue is being revealed in the timeline:

- 1987 - Sustainability and sustainable development;

- 1992 - Sustainable human resource management;
- 1999 - Sustainable work systems;
- Likely 2018 - Sustainable approach towards remuneration systems.

Theoretical interdependency among SHRM and remuneration systems analysis has been revealed by Radvila and Silingiene (2018). Emphasis has been placed on the relationship between SHRM and the remuneration system through the influence of SHRM principles on both the sustainability of work systems (at the same time the remuneration system) and the expression of remuneration characteristics. This part of the analysis created additional implications to disclose characteristics of remuneration systems and their relationship to SHRM principles (Figure 1).



**Figure 1. Sustainable human resource management**

## **2.2. Characteristics of remuneration systems**

Scientific literature analysis revealed that the characteristics of the remuneration system are not clearly defined. Different authors use different terms, such as parameters, characteristics, principles, and more. There are also no clear systematic studies that accurately define the limits of the remuneration system's characteristics. This synthesis and systematisation are necessary to reveal the manifestation of remuneration characteristics. The analysis of remuneration system characteristics disclosed multi-dimensional and multifold managerial approach, which has not been done in any previous researches. In the theoretical approach, authors have disclosed these key remuneration characteristics:

- Orientation towards remuneration system goals.
- The purpose of the remuneration system.
- The formalisation of the remuneration systems.
- Remuneration system orientation towards performance.

- The flexibility of the remuneration system.

First one discloses perspectives of soft and hard remuneration goals. Wang, Thornhill, and Zhao (2016) executed research in pay for performance study covering outcome evaluations assessment and employee participation. Still, it disclosed a trend that challenging remuneration goals focused systems are more applicable in comparison to the soft goals. The entire disclosure of this characteristic has been supported by Kuvaas, Buch and Dysvik (2018), Holmström, (2017), Wang, Thornhill, and Zhao (2016) Wang, Zhao, and Thornhill (2015), Armstrong (2009), Armstrong and Cummins (2011), Flannery, Hofrichter, and Platten (1996).

The purpose of the remuneration system disclosed two focus groups. The first organisation focused, and other employees focused. This kind approach has been generated by the contribution of Larkin (2019), Trif and Geary (2016), Sundberg (2015), Milkovich, Newman, and Gerhart (2014), Martocchio (2013), Lipinskienė (2012) Armstrong (2009), Vanagas (2009), Armstrong, Murlis (2007), Henderson (2006), Mačernytė-Panomariovienė (2003), Dubinas (1996). No generic trends regarding current business are being revealed. The third one addresses the relationship between individual pay and pay structures of the organisation. Mostly target separate elements or their system towards well-formalised remuneration systems. They have been disclosed by Fuller and Cooke (2018), Thanassoulis and Tanaka (2018), Abraham (2017), Milkovich, Newman, Gerhart (2014), Armstrong (2009), Armstrong and Murlis (2007).

Characteristic of remuneration system orientation towards performance stated quite a different targeting for implementation. At this point, it is more likely hierarchy type structure characteristic which leads to success covering step by step approach. The critical focus belongs to a successful transfer from an individual to a company performance criterion. Such approach might be supported by Ferreira (2019), Gryglewicz, Hartman-Glaser and Zheng (2018), Makikangas, Aunola, Seppala, Hakanen (2016), Costs, Passos, and Bakker (2014), Martocchio (2013), Biswas (2013), Armstrong and Cummins (2011). The last one has no clear point to be revealed. Most of the flexibility indicators in remuneration systems could be identified in the usage of pay schemes grading and time-consuming to transfer from one to another. This could be grounded by Babecký, Galuščák, and Žigraiová (2017), Schmitt-Grohé and Uribe (2016), Favilukis and Lin (2016), Milkovich, Newman, and Gerhart (2014), Armstrong (2009, 2017).

To sum up, the authors created a semi-structural interview to confirm existing characteristics of remuneration systems. Additionally, no final set of characteristics had been defined. Given this, the disclosure of characteristics created conditions to deepen knowledge in remuneration issues and assess possible theoretical and practical venues for further researches.

### 3. Method

#### 3.1. Data Sample and Collection

The complexity of the characteristics of the remuneration system as the object of the study, the lack of existing empirical data and the nature of the study requires qualitative research access (Poria, Reichel, & Brandt, 2011). Afterwards, the semi-structured interview method has been selected, and 20 firm HR unit managers or HR functional specialist were interviewed. Twenty companies in Dong Nai province, Vietnam were selected based on their diversity idea to cover the different dimensions that characterise them: type of activity, size, sector, level of centralisation of the HR function. All respondents are Vietnamese.

**Table 1. Profile of organisations and respondents**

Respondent Number	Organisation type of activity	Organization Sector	Organisation Size (workers)	HRM Function	Respondent management position
R1	Manufacturing	Private/FDI	Approx. 5000	HRM Department	Head of HR
R2	Manufacturing	Private/Domestic	Approx. 800	HRM Department	Business partner for Staffing
R3	Manufacturing	Private/FDI	Approx. 2000	HRM Department	Head of Accounting
R4	Manufacturing	Private/FDI	Approx. 2000	HRM Department	Head of the remuneration unit
R5	Trade	Private/Domestic	Approx. 150	HRM Department	Head of HR
R6	Manufacturing	Private/FDI	Approx. 2000	HRM Department	Head of HR
R7	Manufacturing	Private/FDI	Approx. 1200	HRM Department	Head of HR
R8	Manufacturing	Private/FDI	Approx. 7000	HRM Department	Business partner for Staffing
R9	Manufacturing	Private/Domestic	Approx. 180	No HRM department	Head of the production
R10	Services	Private/Domestic	Approx. 40	No HRM department	Deputy Head
R11	Service	Private/Domestic	Approx. 30	No HRM department	Chief constructor
R12	Manufacturing	Private/FDI	Approx. 1200	HRM Department	Deputy Director of Personnel
R13	Manufacturing	Private/Domestic	Approx. 200	HRM Department	HR specialist
R14	Manufacturing	Private/FDI	Approx. 2600	HRM Department	Head of HR
R15	Manufacturing	Private/FDI	Approx. 500	HRM Department	Head of HR
R16	Manufacturing	Private/FDI	Approx. 470	HRM Department	Head of the company
R17	Manufacturing	Private/FDI	Approx. 1500	HRM Department	Head of HR
R18	Manufacturing	Private/FDI	Approx. 400	No HRM department	Head of the company
R19	Trade	Private/Domestic	Approx. 100	HRM Department	Head of HR
R20	Service	Private/Domestic	Approx. 30	HRM Department	HR specialist

### 3.2. Data Analysis

Based on the ideas of various authors in qualitative research, a qualitative content analysis approach was chosen for the analysis of data of semi-structured interview (Mayring, 2014). Following a semi-structured interview to determine remuneration system characteristics, the following research steps were followed:

*Step 1:* development of a questionnaire of a semi-structured interview. Based on the theoretical identification of remuneration system characteristics, key topics and questions were foreseen in advance, leaving room for additional, refinement questions. The structure of the interview consisted of five blocks of questions corresponding to the characteristics of the remuneration system. Main interview questions are presented in Table 2.

**Table 2. The main interview questions**

<b>Characteristics of Remuneration System</b>	<b>Main Interview Questions</b>
Orientation towards remuneration system goals	What determines the salary in your organisation?
The purpose of the remuneration system	What are your organisation's priority objectives (organisation or employee-oriented) of remuneration system?
The formalisation of the remuneration systems	What is the level of formalisation of your company remuneration system? Is it based on job evaluation?
Remuneration system orientation towards performance	What are the incentive plans in your company?
The flexibility of the remuneration system	Please describe how quickly would your organisation be able to transform its remuneration system?

*Step 2:* Conducting the interview. The most extended interview lasted 90 minutes. On average, the semi-structured interviews lasted about 40 minutes, with a total interview time of 19 hours 25 min. The interviews were conducted in respondent's places, recorded and later transcribed.

*Step 3:* Transcription of the data obtained during the interviews. During this step, audio transcripts were analysed by writing down the interview transcripts.

*Step 4:* Define of the unit of analysis, construction of the categories and construction of the coding scheme. One sentence was chosen as the unit of analysis for the interview texts—the category selected at the highest level of coding and a subcategory as the lowest level of coding. Subcategories are obtained by heuristic reading the sentence of the research participants, abstracting the information contained therein and creating a subcategory for it. Subcategories, grouped into a single idea, merged into a single category and defined by the wording in the category. Multiple categories merge into a theme.

*Step 5:* Encode the whole text. In twenty electronic files it was executed under the coding scheme - subcategory, category and topic - unanimously analysed interview texts.



*Step 6:* Evaluation of coding integrity. Coded texts have been read many times, the names of subcategories and categories have been revised, and the categorisation of subcategories into topics.

*Step 7:* Summary of the encoded material. The contents of the coded texts are presented in the constructed tables.

## 4. Results

### 4.1. Orientation towards remuneration goals

Orientation towards remuneration goals is linked to the essential parameters on which the level of pay depends. Analysing respondents' responses to the question of what determines the salary in your organisation, two categories were extracted: challenging remuneration goals and soft remuneration goals (Table 3).

**Table 3. Sub-themes and themes that relate to an orientation towards remuneration goals**

Sub-Themes	Themes	Characteristic
Additional employee responsibilities; employee initiative; competences; professional knowledge; communication skills	Soft remuneration goals	Orientation towards remuneration goals
Individual sales results; productivity; the number of orders; the number of shipments delivered; the number of errors; the benefit to the enterprise of the employee's financial result	Hard remuneration goals	

The two distinguished categories reflect different estimates of the remuneration goal targets of the respondent firms. The answers belonging to the first category revealed the dependence of remuneration on the competences and abilities of the employees. Emphasising the soft remuneration goals, respondents note that wage levels in their organisation depend on "*<...> professional knowledge, <...> communication skills*" (R15); "*<...> remuneration depends on the competences of the employee. The longer he works, the more he earns competencies that are rewarded in grading systems of position*" (R3). During the interviews, it was noticed that organisations are trying to appreciate employees: "*<...> doing very well, maybe taking on some additional responsibilities, maybe trying very hard <...> accordingly from the employee's initiative <...> do more, we can also encourage that*" (R6).

The second category of answers emphasises the dependence of remuneration on employee performance, productivity and contribution to company results. Respondents' answers illustrate the challenging remuneration goals: "*<...> If we talk about pharmacy staff, then variable pay is not stable depending on individual sales results and is calculated monthly.*"; "*<...> Variable pay of employees of the logistics centre is being calculated each month based on the individual performance of each employee.*"; "*<...> In the logistics centre pay changes every month, that consists of the base pay adding the variable pay partly for work done: number of orders, number of goods collected, number of shipments delivered,*

*number of goods received, number of errors, etc.*" (R11). The statements made by the respondents reveal that the salaries of the investigated organisations depend on the individual performance of the employees, which includes the fulfilment of norms, fulfilment of individual and team goals, sales results and so on.

To sum up this remuneration characteristic, it is necessary to note that the organisation indicate their focus on remuneration systems goals. Likely this only supports that different organisation has different perspectives on employees. For this case, these kinds of remuneration goals have kind of organisational focus relations. For general, we could describe that organisational focus which is based on processes efficiency likely corresponds to soft remuneration goals. Contrary to this, the organisational focus on results basis likely rearranges remuneration based on challenging remuneration goals.

#### **4.2. The purpose of the remuneration system**

The purpose of the remuneration system is related to the remuneration system's goals' priorities. Analysing the respondents' answers to the question of what are your organisation's priority objectives (organisation or employee-oriented) of remuneration system extracted three categories (themes): an organisation focused, employees, focused and alignment of organisational and employee goals (Table 4).

**Table 4. Sub-themes and themes that relate to purposes of the remuneration system**

<b>Sub-Themes</b>	<b>Themes</b>	<b>Characteristic</b>
Involvement in internal organisational processes; labour cost control; implementation of the organisation's strategy; performance improvement	Organisation focused	Purpose of the remuneration system
Motivating employees; remuneration for the result achieved; attracting and retaining the best employees.	Employees focused	
The balance between the goals of the organisation and the employees; collaborative organisation	Alignment of Organizational and employee goals	

The three categories distinguished reflect different priorities for remuneration systems. The first category of answers highlights organisation focused purpose, prioritising employee engagement in internal organisational processes, controlling labour costs, and implementing an organisation strategy. Emphasising the organisation focused purposes, respondents note that in their organisation, "*<...> the purpose of the remuneration policy is still incorporated within the organisation <...>*" (R1). During the interviews, it was noticed that in organisations, employees provide "*<...>their thoughts, ideas on some performance improvement process or how to control labour costs <...>*" (R5).

The answers belonging to the second category of answers emphasise employee-focused remuneration system goals, giving priority to the motivation of employees,

remuneration for the achieved result. These purposes are illustrated by respondents' responses: "*<...> because an organisation needs to achieve business results, and in order to achieve it, it needs <...> to attract the best employees according to the criteria they have set or retain its best employees*" (R1); "*<...> the overall objective of the company is to attract and retain the best employees and the remuneration system is an integral part. We are committed to motivating our employees to keep our business successful.*" (R4). The statements made by the respondents has revealed that the remuneration of the investigated organisations depend on personal motivating the employees both to achieve good results and to have the best employees.

The third category of responses also emerged, where respondents noted that a balance was struck between the focus of the purposes of the organisation and the employees: "*<...> there is a balance between the purposes of the employee and the organisation, <...> we are a collaborative organisation*" (R2); "*<...> remuneration system purposes are in the middle, <...>, it is important that <...> both the employee and the organisation would be happy*" (R5).

In summary, it could be stated that the new category has been revealed which comprises alignment of organisational and employee goals. Moreover, some of the indicators disclosed that this kind of character might have a decent grading system. Authors of the article clarified this characteristic by creating three categories which are structured based on measurement tool they have used. Still, it is noted that adjustments to the current assessment tool of characteristics of the remuneration system are needed.

#### ***4.3. The level of formalisation of the remuneration system***

The level of formalisation of the remuneration system is linked to the clarity of its structure definition. Respondents' answers to the question of whether the remuneration system in the organisation is based on job evaluation were extracted from 2 categories, including formalised and semi- or utterly non-formalized remuneration system (Table 5).

**Table 5. Sub-themes and themes that relate to the formalisation of the remuneration system**

<b>Sub-Themes</b>	<b>Themes</b>	<b>Characteristic</b>
A clearly defined remuneration structure; remuneration structure covers all work/positions of the organisation; individual payrolls integrated into the overall payroll structure; the remuneration system is based on job evaluation; the payroll system is documented in the internal records of the organisation.	Well formalised	The formalisation of the remuneration system
Only individual payrolls are recognised; wages are defined only in the employment contract; pay is based on a confidential agreement with the head.	Semi- or completely non-formalized	

The two categories reflect the different levels of formalisation of corporate remuneration systems. Responses to the first category highlight well-defined remuneration systems, where the payroll structure covers all the jobs/positions in the organisation and the individual payroll are integrated into the overall payroll structure. Emphasising the formalised remuneration system, respondents note that their organisation's "*<...>remuneration system clearly defines each position and its payroll. <...> established the system of remuneration <...> is set out in the description of the procedure for remuneration. Once it is known, all employees must sign*" (R7). During the interviews, it was noticed that the organisations try to apply the same payroll rates to the same position: "*<...>The salaries of the employees of the same position in the shop are the same. This means that two grocery workers receive the same fixed salary<...>*" (R8). In organisations with a formalised remuneration system, positions are evaluated and graded: "*<...> the remuneration system is based on job evaluation and has a high level of formalisation*" (R11); "*<...> roles <...> are evaluated based on the Hay group level methodology, and each of our roles has a certain level <...>*" (R2).

The remuneration systems mentioned in the second category of answers are non-formalized or semi-formalised, they only recognise individual payroll, and pay is defined only in the employment contract. Responses to this category illustrate this category of remuneration systems: "*<...> Remuneration system in the enterprise is semi-formalised in that there is payroll distribution by jobs, <...> however, there are different payrolls in each job, subjected by a confidential agreement with the head. "; <...> The payroll of an employee shall be determined when applying for a specific post during the first job interview and shall be recorded (fixed) in the employment contract. (R10). <...> It is, in fact, everyone's personal matter and agreement<...>. With us individually on employment contracts, when it comes to working and the payroll is agreed upon*" (R12). The statements made by the respondents has revealed that the remuneration of the investigated organisations is primarily based on an individual agreement between the employee and the manager.

As a result of this, it might be stated that the main focus goes on individual positions and payroll for it. Still, it lacks a systematic approach. However, some of the respondents confirmed having well-formalised remuneration systems. In order to have such additional resources should be spent. Given this big enterprise might have these additional resources and it creates added value by simplifying remuneration system and processes. Still, small companies having not so many employees will not receive such added value as big ones from well-formalised remuneration system, and only individual payrolling is being set up.

#### ***4.4. Remuneration system orientation towards performance***

The nature of the objectives of the remuneration system towards performance is linked to the essential parameters on which the level of pay depends. Analysing respondents'

responses to the question of what are the incentive plans in your company, three categories were extracted: individual, team, and organisational promotion plans (Table 6).

**Table 6. Sub-themes and themes that relate to remuneration system orientation towards performance**

Sub-Themes	Themes	Characteristic
The remuneration system focuses on individual productivity (quantity, quality); monthly sales, compliance with occupational safety requirements; work discipline; employee behaviour is directed towards good job performance.	Individual incentive plans	Remuneration system orientation towards performance
The remuneration system is oriented towards the satisfaction of the consumers, saving of the pay costs; saving of material resources; accident prevention, cost reduction of services; productivity of teamwork.	Team incentive plans	
turnover, cost savings; market growth; sales revenue; execution of the production plan; yield	Organisation incentive plans	

The three categories reflect the different orientations of incentive plans integrated into remuneration systems. Responses to the first category mention individual incentive plans that focus on individual productivity (quantity, quality), monthly sales, workplace safety compliance, and job discipline. During the interviews, it was noticed that organisations are trying to encourage employees to evaluate "*<...> Each personally created spoilage. The benefits of everyone personally. Everyone's personal effort is shown.*" (R5). With an emphasis on individual incentive plans, respondents note the individual contribution of employees to performance determined through annual evaluation interviews: "*<...> Individual payroll depends on annual performance evaluation. It shall be recorded throughout the year whether an employee has achieved results<...>*" (R4). It has also been noted that individual incentive plans are not only resulting oriented but also good performance "*<...> not only in numbers but also in employee behaviour <...>*" (R4).

Responses to the second category of answers emphasise team-based incentive plans that measure consumer satisfaction, salary cost savings, material resource savings, accident avoidance and service cost reduction. Respondents' response plans illustrate team-based incentive plans: "*<...> indicators do not depend solely on the individual; they often depend on the unit, shop, and team working in the store*" (R11); "*<...> works as a team, we also look at the productivity of teamwork*" (R5). The statements made by the respondents highlight features of team incentive plans such as resource efficiency and the maintenance

of the unit's payroll: "<...> indicators have more to do with <...> the division's goals of how to use resources saving and efficiently, increase profitability, maintain the division's remuneration budget and so on" (R11).

The third category of responses includes organisation incentive plans that focus on the organisation's profit, cost savings, market growth and sales revenue. They are illustrated by respondents' responses to indicators that "<...> relate to the profitability of the enterprise and the turnover of the firm" (R1); focuses on "<...> profit, cost-seeking, seeking new customers to maximise revenue" (R5); <...> we pay monthly bonuses for the execution of the production plan and the outcome <...> (R13). Respondents responses have revealed that the attributes of organisational incentive plans in the organisations surveyed are primarily through the various dimensions of overall corporate performance.

To sum up, it is necessary to state that some organisations based on their size might not have team-based incentives plans. Given this, it is essential to identify which type of element creates value for the organisation. As we see individual performance cover all three themes but still company in order to support strategy creates additional incentives plan so support the main focus. Additional to that organisation sector might play an essential role in setting up these plans. Public sector organisations are minimal to create such remuneration-based incentives plans, and it leads to another characteristic of the flexibility of the remuneration system.

#### **4.5. The flexibility of remuneration system**

The nature of the flexibility if remuneration pay system is linked to the critical adaptation processes linked to organisational changes. Analysing the respondents' answers to the question of how quickly would your organisation be able to transform its remuneration system two categories were identified: the flexible remuneration system and the stable remuneration system (Table 7).

**Table 7. Sub-themes and themes that relate to the flexibility of the remuneration system**

<b>Sub-Themes</b>	<b>Themes</b>	<b>Characteristic</b>
Could be replaced within a short period; easily adaptable to the changing situation does not require a large number of resources quick decision making and taken in action.	Flexible remuneration system	The flexibility of the remuneration system
Changes to remuneration system are time-consuming; additional resources required; difficult decision making and overcoming	Stable remuneration system	

The distinction between the two categories reflects the speed with which companies' remuneration systems can be changed when needed. The answers in the first category show that the remuneration system can be changed in a short time, easily adapted to the changed

situation, does not require much additional resources, and the process is speeded up by quick decision making. Emphasising remuneration flexibility, respondents note that, if necessary, changing the company's current remuneration system would not be difficult: "*<...> very quickly and easily*"; *<...> adjusting this system or making another system, writing down counting and that is it, <...> payroll could be calculated on another system starting the following month.* " (R5). During the interviews, it was noticed that changing of the remuneration system in organisations would not require substantial time, human and material resources: "*<...> is part of our work and we do not see it as extra time to change something. It is merely a constant principle of growth in the organisation <...>*" (R2). Respondents also stressed out the great influence on flexibility followed by management board responsibility and constant monitoring of the remuneration system: "*<...> fast. If the CEO says from tomorrow we do so* (R9); "*<...> every year we carry out <...> a survey of the remuneration salary market <...> and at all times trying to make that system as relevant as possible <...> concerning the remuneration of the whole market. <...> it would be straightforward for us to deal with it quickly*" (R6).

The second category of answers emphasises that remuneration modifications require much time and additional resources: "*<...> This is certainly not a quick process. <...> It would take about 1-1.5 y. <...> an additional specialist post in the personnel unit would be required* (R14); *<...> to that, we would look for professional help from outside <...>* (R7). The statements made by the respondents have revealed that changing of the remuneration system of the investigated organisations is highly dependent on capabilities and formal bureaucratic constraints, which results in more complexity, more resources and contact time within the stakeholders required: "*<...> for the change the heads of the departments concerned, analytics, finance teams, commerce are being implemented. The union and the CEO approve the offer, so many employees need to be contacted, and usually, such adjustments take time*" (R4); "*<...> It would take a considerable amount of time and effort to prepare and deal with relevant sections on the new versions of the orders and regulations <...>*" (R13).

Development of these characteristics disclosed that there are three key indicators in this category: time, recourses (excl. time) and decision making. Base on the finding's authors raises the idea that flexibility might be related to certain levels and dependencies on different indicators. Alternatively, it might be critically assessed if an organisation reaches decent values for the certain abbreviation of flexibility. For the first case, it could be an example of an organisation which has resources to a quick change of remuneration system still the hierarchy and democracy do not allow to change the system due to decision process contrary to that some organisation can make a fast decision on change but still need additional resources which might be not planned in budgets. For the second case, it might create a special tool which states decent indicators which determine if an organisation remuneration system is stable or flexible. The organisation needs to meet all of them to reach a certain flexibility level.

Research has disclosed that theoretically disclosed core characteristics might be not sufficient, and it requires constant development. The results of the qualitative study have confirmed all five characteristics of the remuneration system and significantly expanded the

list of their indicators. Interviews disclosed 42 additional indicators and one feature. These core remuneration system characteristics contribute to the remuneration system construct and also provide design for sustainable human resource management principles.

#### **4.6. Links between SHRM principles and remuneration system characteristics**

Empirical research has identified features of remuneration system characteristics, and their indicators were used to identify links with SHRM principles (Table 8).

**Table 8. Empirically tested links between SHRM principles and remuneration system characteristics**

<b>SHRM principles</b>	<b>SHRM features</b>	<b>Indicators</b>	<b>Remuneration system characteristics features</b>	<b>Remuneration system characteristics</b>
HR preservation	Employee- friendly physical environment	Compliance with safety requirements	Individual incentive plans	Remuneration system orientation towards performance
Environmental protection	Economical, environmentally friendly solutions	Saving material resources; production output of the unit	Team incentive plans	Remuneration system orientation towards performance
The pursuit of economic efficiency	Profit as a prerequisite for the survival of an organisation	Organisational profit, market growth; company turnover	Organisation incentive plans	Remuneration system orientation towards performance
		Implementation of the organisation's strategy	Organisation focused	Purposes of remuneration system
Sustainability orientation	Consistency between employee and organisational values/goals	The balance between organisational and employee goals	Alignment of organisational and employee goals	Purposes of the remuneration system
	Fostering a sense of community	Cooperating organisation	Alignment of organisational and employee goals	Purposes of the remuneration system
Employee as an equal partner	The value of the employee	Competencies and skills	Soft remuneration goals	Orientation towards remuneration goals
Respect for the employee	Meaning of equal opportunities	Attracting and retaining the best employees	Employees focused	Purposes of the remuneration system
	Constructive coordination of the interests of the organisation and the employee	The pay is based on a confidential agreement with the supervisor.	Semi- or completely non-formalized	The formalisation of the remuneration system



<b>SHRM principles</b>	<b>SHRM features</b>	<b>Indicators</b>	<b>Remuneration system characteristics features</b>	<b>Remuneration system characteristics</b>
	Transparency of labour relations	The remuneration system is based on the evaluation of positions; the remuneration structure covers all the work/positions of the organisation, acquaintance of employees with descriptions	Well formalised	The formalisation of the remuneration system
Flexibility	Mobility	Easy to adapt to changes in the situation, does not require ample resources, quick decision-making and implementation	Flexible remuneration system	The flexibility of the remuneration system
Employee cooperation	Employee cooperation is encouraged	Productivity of teamwork	Team incentive plans	Remuneration system orientation towards performance
	Non - competing employees	Team indicators	Team incentive plans	Remuneration system orientation towards performance
Employee participation	Suggestions for improving the production process	Performance improvement, involvement in internal organisational processes	Organisation focused	Purposes of the remuneration system
	Motivating employees to participate	Employee motivation, remuneration for the achieved result	Employees focused	Purposes of the remuneration system
Employee potential development	More efficient performance of work functions	Employee behaviour is favourable to the organisation	Employees focused	Purposes of the remuneration system
	The decrease in organisational costs	Labor cost control	Organisation focused	Purposes of the remuneration system
	Work quality assurance	Quality, number of errors	Hard remuneration goals	Orientation towards remuneration goals

Individual indicators of the features of the characteristics of the remuneration system have links with the characteristics of the SHRM principles. *Orientation towards remuneration goals* fulfil the principle of developing the potential of employees through challenging goals aimed at ensuring the quality of work, and through soft goals - giving meaning to the value of employees, revealing the principle of the employee as an equal partner. The indicators of the characteristics of *the purposes of remuneration system* demonstrate the expression of even several SHRM principles in remuneration systems. Organisational and employee-oriented goals ensure the principles of respect for employees, employee participation and employee potential development in different aspects. Organisation-oriented goals emphasise the pursuit of economic efficiency.

Meanwhile, the newly identified feature of alignment of organisational and employee goals reveals the principle of sustainability through the coherence of employee and organisational values/ goal r the employee. Formalised remuneration systems satisfy respect for employees through an emphasis on transparent employment relationships, and informal/semi-formalised ones through a constructive balance between the interests of the organisation and the employee. *Remuneration system orientation towards performance* characteristic reveals the expression of all three aspects of sustainability (economic, social and environmental). Organisation incentive plans through the provision of profit as a necessary condition for the survival of the organisation satisfies the pursuit of economic efficiency, Team incentive plans - ensuring environmental sustainability through economical, environmentally friendly solutions, individual incentive plans - saving human resources through ensuring an employee-friendly physical environment. Team incentive plans also focus on the implementation of the principle of cooperation of SHRM employees. The characteristic of *the flexibility of the remuneration system* is directly related to the disclosure of the principle of flexibility, ensuring the adaptability of the remuneration system itself to changing conditions.

The results of the qualitative research provide insights into the sustainability of remuneration systems. All five characteristics of the remuneration system have revealed various principles of SHRM through different characteristics and indicators and confirm the economically, socially and environmentally sustainable nature of remuneration systems.

## **5. Discussion and Conclusion**

### **Discussion**

s and the fostering of a sense of community. The characteristics of *the formalisation of the remuneration system* from different perspectives reveal the principle of respect fo

Analysis of the scientific literature has shown that most researches on sustainable remuneration systems are descriptive, lacking empirical insights. There is a lack of qualitative researches that allows looking at the object of research in a complex way, looking from different prisms of approach. An empirical study has confirmed Hahn and Figge (2011), and other researchers claim that sustainability at the organisational level is a complex, multi-faceted construct that determines environmental, social, and economic

outcomes. The research also confirmed the expression of all three aspects of sustainability in remuneration systems. The ideas of economic, social and environmental sustainability are realised through separate characteristics of the remuneration system. The study of the characteristics of the remuneration system revealed that based on the indicators defined in the study, it is possible to define not only the indicators of the characteristics of the remuneration system but also the features of the SHRM principles.

Meanwhile, authors deepened knowledge on sustainability idea addressing sustainable work systems (Docherty et al., 2002; Eijnatten, 2000). Hereby it was already theoretical addressed on linkage from sustainable human resource to the characteristics of remuneration systems. The main lineage belongs to remuneration system construct which is directly interlinked within work systems which may or might not have sustainability in it. Empirical research has revealed how current sustainable human resource management could be affected by merely challenging characteristics of the remuneration system. Given this, all remuneration system characteristics provide a decent input towards sustainability rating of organisation. Authors of this empirical research have revealed the importance of characteristics of remuneration systems towards sustainable human resource management by using the not financial, legislative, but managerial approach.

### **Conclusion**

The article provides empirical insights into the sustainability of the remuneration system. The value of the article is based on two main results: first, empirically confirmed characteristics of the remuneration system, revealing their features and indicators, second, defined the sustainability of the remuneration system, through the links between remuneration system characteristics and SHRM principles.

The added value of this empirical research has revealed and supplemented with new features and indicators of critical characteristics of remuneration systems which contributes to sustainable human resources management in an organisation:

- The orientation towards remuneration systems goals confirmed theoretical insights and corresponded to the idea that different organisation might have different approaches. Twelve new indicators such as additional employee responsibilities, employee initiative and others were identified.
- Previous theoretical dispersion of the purpose of remuneration systems criterion challenged authors during the research. With this new category was identified where the organisation tries to the alignment of organisational and employee focuses. On this case, some sure grading from organisational to employee focus might be revealed, but still, the need for balance has already been identified. Additional to these nine new indicators like performance improvement, attracting and retaining the best employees, collaborative organisation and others were determined.
- The characteristic of the formalisation of the remuneration systems confirmed primal theoretical insights that only having decent resources formalisation level might be increased. Research has revealed four new indicators of the remuneration system is based on

job evaluation; the remuneration system is documented in the internal records of the organisation, staff briefing and pay is based on a confidential agreement with the head. Still, mainly focus belongs to the assessment of individual positions.

- Remuneration system orientation towards performance determined and confirmed the importance of incentives plans. These plans disclose the critical focus of added value. The sector of organisation here plays a huge role because of budgeting and creation of incentives plans practice issues; for this typical 13 new indicators were identified.

- Development of characteristic of the flexibility of the remuneration system determined three main elements which lead to a confident assessment of flexibility which is: time, recourses (excl. time) and decision making. This approved characteristic by itself but still challenged authors on the assessment tool. Indicators of part of direct labour, constant salary market research, additional specialist occupation in the HR unit and outside help from professionals were identified.

The features and indicators of remuneration systems revealed by the qualitative study allowed to refine the expression of SHRM principles in remuneration systems. The results of the qualitative study provide insights into the sustainability of remuneration systems, stating that they have all three aspects of sustainable management: economic, social and environmental features through the implementation of different SHRM principles:

- The social dimension of sustainable management is being reflected by the characteristics of orientation towards remuneration goals, purposes of remuneration system, formalisation of remuneration system, remuneration system orientation towards performance, the flexibility of remuneration system.

- The economic aspect of sustainable management is being reflected by the characteristics of purposes of remuneration system, remuneration system orientation towards performance, the flexibility of the remuneration system.

- The environmental dimension of sustainable management is being reflected by the characteristics of purposes of remuneration system, remuneration system orientation towards performance.

## 6. References

1. Abraham, M. (2017). Pay formalization revisited: Considering the effects of manager gender and discretion on closing the gender wage gap. *Academy of Management Journal*, 60(1), 29-54.
2. Armstrong, M., & Taylor, S. (2017). *Armstrong's handbook of human resource management practice*. London: Kogan Page.
3. Armstrong, M., & Murlis, H. (2007). *Reward management A handbook of reumeration strategy and practice*. London: Kogan Page.
4. Becker, W. (2011). Are you leading a socially responsible and sustainable human resource function?. *People & Strategy*, 34(1), 18-28.
5. Bennett, B., Bettis, J. C., Gopalan, R., & Milbourn, T. (2017). Compensation goals and firm performance. *Journal of Financial Economics*, 124(2), 307-330.

6. Biswas, B. D. (2013). *Compensation and benefit design*. USA: Financial Times Prentice.
7. Brundtland Report. (1987). *Encyclopedia of Environment and Society*.
8. Costa, P. L., Passos, A. M., & Bakker, A. B. (2014). Team work engagement: A model of emergence. *Journal of Occupational and Organizational Psychology*, 87(2), 414-436.
9. Ehnert, I., Parsa, S., Roper, I., Wagner, M., & Muller-Camen, M. (2016). Reporting on sustainability and HRM: A comparative study of sustainability reporting practices by the world's largest companies. *The International Journal of Human Resource Management*, 27(1), 88-108.
10. Eijnatten, F. M. (2000). From intensive to sustainable work systems. *Institute for Business Engineering and Technology Application*.
11. Favilukis, J., & Lin, X. (2016). Does wage rigidity make firms riskier? Evidence from long-horizon return predictability. *Journal of Monetary Economics*, 78, 80-95.
12. Ferreira, P. (2019). *Market competition and executive pay*. IZA World of Labor.
13. Flannery, T. P., Hofrichter, D. A., & Platten, P. E. (1996). *People, performance, and pay: dynamic compensation for changing organisations*. New York: Free Press.
14. Fuller, S., & Cooke, L. P. (2018). Workplace variation in fatherhood wage premiums: Do formalization and performance pay matter?. *Work, Employment and Society*, 32(4), 768-788.
15. Greenwood, M. R., & Simmons, J. (2004). A stakeholder approach to ethical human resource management. *Business and professional ethics journal*, 23(3), 3-23.
16. Gryglewicz, S., Hartman-Glaser, B., & Zheng, G. (2020). Growth Options, Incentives, and Pay for Performance: Theory and Evidence. *Management Science*, 66(3), 1248-1277.
17. Hahn, T., & Figge, F. (2011). Beyond the bounded instrumentality in current corporate sustainability research: Toward an inclusive notion of profitability. *Journal of Business Ethics*, 104(3), 325-345.
18. Henderson, R. I. (2006). *Compensation management in a knowledge-based world*. Upper Saddle River, NJ: Pearson/Prentice Hall.
19. Holmström, B. (2017). Pay for performance and beyond. *American Economic Review*, 107(7), 1753-77.
20. Larkin, I. (2019). Strategic compensation: A critique and research agenda. *Handbook of Research on Strategic Human Capital Resources* (p. 403-424). Glos: Edward Elgar Publishing Limited.
21. Lélé, S. M. (1991). Sustainable development: a critical review. *World development*, 19(6), 607-621.
22. Macke, J., & Genari, D. (2019). Systematic literature review on sustainable human resource management. *Journal of Cleaner Production*, 208, 806-815.
23. Mäkikangas, A., Aunola, K., Seppälä, P., & Hakanen, J. (2016). Work engagement-team performance relationship: shared job crafting as a moderator. *Journal of Occupational and Organizational Psychology*, 89(4), 772-790.
24. Martocchio, J. J. (2013). *Strategic compensation: a human resource management approach*. Boston, MA: Pearson.

25. Milkovich G. T., Newman J. M., & Gerhart B. (2014). *Compensation*. New York: McGraw-Hill/Irwin.
26. Olawumi, T. O., & Chan, D. W. (2018). A scientometric review of global research on sustainability and sustainable development. *Journal of cleaner production*, 183, 231-250.
27. Opatha, H. H. P., & Arulrajah, A. A. (2014). Green human resource management: Simplified general reflections. *International Business Research*, 7(8), 101.
28. Poria, Y., Reichel, A., & Brandt, Y. (2011). Dimensions of hotel experience of people with disabilities: an exploratory study. *International Journal of Contemporary Hospitality Management*, 23(5), 571-591.
29. Renwick, D. W., Redman, T., & Maguire, S. (2013). Green human resource management: A review and research agenda. *International Journal of Management Reviews*, 15(1), 1-14.
30. Sauer, S. J., Rodgers, M. & Becker, W. J. (2018), The Effects of Goals and Pay Structure on Managerial Reporting Dishonesty. *Journal of Accounting, Ethics and Public Policy*, 19(3). Available at SSRN: <https://ssrn.com/abstract=3256350>
31. Schmitt-Grohé, S., & Uribe, M. (2016). Downward nominal wage rigidity, currency pegs, and involuntary unemployment. *Journal of Political Economy*, 124(5), 1466-1514.
32. Shani, A. B., & Docherty, P. (2003). *Learning by design: Building sustainable organisations*. Oxford: Blackwell.
33. Thanassoulis, J., & Tanaka, M. (2018). Optimal pay regulation for too-big-to-fail banks. *Journal of Financial Intermediation*, 33, 83-97.
34. Trif, A., & Geary, J. (2016). The purpose of variable pay schemes and trade unions. *Employee Relations*, 38(2), 182-199.
35. Wang, T., Zhao, B., & Thornhill, S. (2015). Pay dispersion and organizational innovation: The mediation effects of employee participation and voluntary turnover. *Human Relations*, 68(7), 1155-1181.
36. Wang, T., Thornhill, S., & Zhao, B. (2016). Pay-for-Performance, Employee Participation, and SME Performance. *Journal of Small Business Management*, 56(3), 412-434.
37. Wright, P. M., & McMahan, G. C. (1992). Theoretical perspectives for strategic human resource management. *Journal of management*, 18(2), 295-320.

# DETERMINING FACTORS TO THE ACCEPTANCE AND USE OF PEER-TO-PEER LENDING BEHAVIOR OF COLLEGE STUDENTS IN HANOI

**Dr. Dang Anh Tuan**

*tuanda@neu.edu.vn*

*School of Banking - Finance, National Economics University, Hanoi, Vietnam*

**Nguyen Mai Thu Hanh**

*thuhanhnguyenmai@gmail.com*

**Tran Thi Bich Loan**

*tranthibichloanneu@gmail.com*

**Hoang Minh Ngoc**

*minhngochoang.1999@gmail.com*

*Excellent Banking 59, School of Advanced Educational Programs,  
National Economics University, Hanoi, Vietnam*

## **Abstract**

*By utilizing UTAUT theory, this paper shows that students' awareness about this subject is still inadequate. The development of technology and telecommunication networks are preferable conditions for students' access to peer-to-peer lending services. Peer-to-peer lending brings many substantial advantages to students, such as uncomplicated procedures or no requirements for collateral, though it still potentially contains unwanted security risks. It is found that performance expectancy has major impacts on students' acceptance and use of peer-to-peer lending in the city of Hanoi. The aforementioned factor is orderly followed by effort expectancy, facilitating conditions, social influence and trust level. Our findings show that Financial expenses do not affect intention to use this service. Additionally, gender differences have no influence on factors affecting intention to use peer-to-peer lending. Based on research results, we proposed several measures to improve peer-to-peer lending environment. The limitation of this research is that it is only conducted within the city of Hanoi, and we had not taken into consideration every factor affecting intention to use peer-to-peer lending.*

**Key words:** *Fintech, UTAUT model, peer-to-peer lending, personal finance*

## **1. Introduction**

Peer-to-peer lending, also abbreviated as *P2P lending*, connects the borrowers and the investors through an online platform with the responsibilities to manage borrowers' debt service obligations and function as investors' agencies (Kelvin Davis & Jacob Murphy, 2016). Peer-to-peer lending is a product of financial technology in the capital market, and also a new platform for financial transactions that excludes intermediaries by directly

connecting lenders and borrowers (A New Digital Intermediation, MA. Pham Khanh Duy, page 22). In peer-to-peer lending model, lenders in the market usually make small and short-term loans not guaranteed by assets. Each lender focuses on a specific target. Interest rates of these loans are evaluated based on many criteria, which include credit rating scores, hence why these unsecured loans generally come with relatively high interest rates.

Lenders in the market are subjected to online, automatic regulations. Borrowers have to follow a constitutional submit procedure in order to provide personal information (occupational status, income...) and size, purpose and term of the loan that they are searching for. Applicants can also be required to provide other information such as credit points/scores... to the investors. An algorithm uses these aforementioned information to evaluate borrowers' credit-worthiness and if borrowers accept this evaluation they can receive money in just a few days (David W. Perkins, 2018).

According to Gunawan Wang and others (2019), the improvement of internet and smart phones, which are assisting technologies, results in a vigorous development of peer-to-peer lending. As of April, 2020, Vietnam has 85 millions wide bandwidth subscriptions, the number of internet users reached 68.17 millions (accounts for 70% of the population). In 2022, the number of smartphone users in Vietnam will approximately double compare to 2015. According to above figures, the development of peer-to-peer lending is inevitable. The advantages of providing peer-to-peer lending for the borrowers are uncomplicated procedure, easily accessible capital and at acceptable interest rates compare to that of conventional banks. For the investors, P2P lending provides the ability to take initiative actions by adjusting lending profits according to risks due to no ceiling and floor lending profits. For financial companies, this is a new field utilizing available technology resources that brings new revenues and diversifies operations.

Nowadays, peer-to-peer lending is gradually developing on mobile applications, which shows that mobile equipments are competent devices to gain access to potential customers because transactions can be made anywhere, anytime.

This research chooses to study peer-to-peer lending as a beneficial financial channel that opens up new opportunities to access capital for many entities, especially those who are ineligible to borrow from banks such as students. We examines factors affecting students' behaviors towards peer-to-peer lending in the city of Hanoi. Results from this research not only provide suitable solutions for financial corporations to increase the number of students using this service, but also improve current peer-to-peer lending environment. The extended unified theory of acceptance and use of technology (UTAUT) is modified and used to answer questions in this research.

## **2. Method**

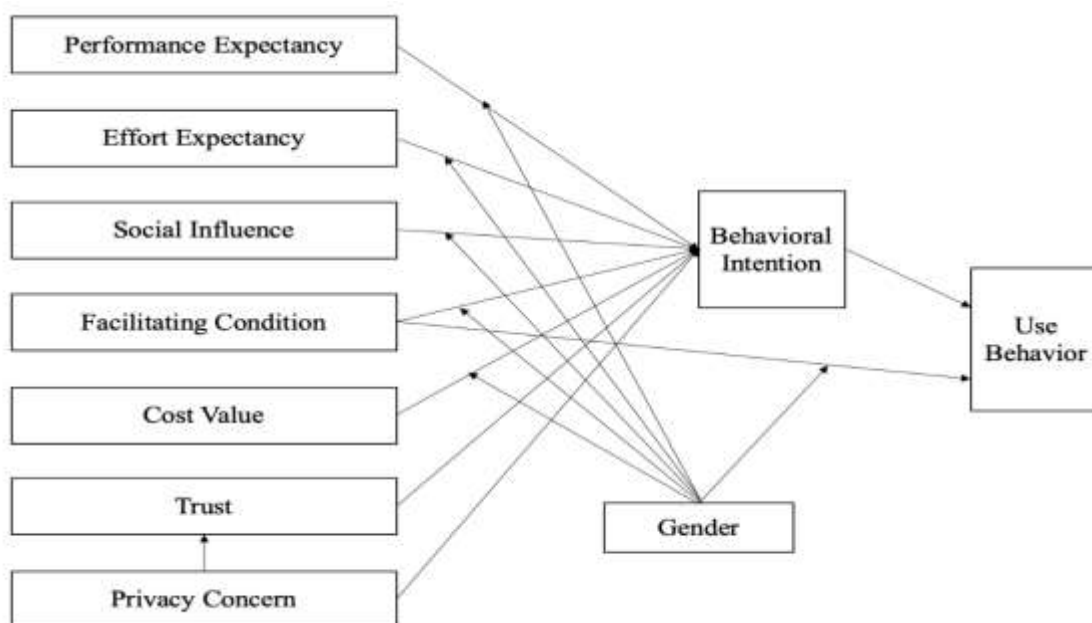
### **2.1. Hypothesis**

The unified theory of acceptance and use of technology (UTAUT) is a technology acceptance model formulated by Venkatesh and others (2003) for the purpose of explaining the acceptance and use of technology. This model is an imperative development and



combination of 8 prior models which shows that performance expectancy, effort expectancy, social influence, facilitating conditions are 4 instrumental factors to determine the acceptance and use of technology. These components directly affect behavioral intention and using behavior. Meanwhile, gender, age, experience and using voluntariness are hypothetical variables that affect the for main factors.

Based on the unified theory of acceptance and use of technology (UTAUT) and the in-depth interview results of 50 university students in January 2020, our group suggests the below research model:



**Figure 1: Research model**

## ***2.2. Data Collection***

According to previous surveys/examinations of Kim and others (2008), Venkatesh and others (2012), Zhou (2011), Deb and David (2016), Roca and others (2009), Cruz (2009) and in-depth interview results, our group has come up with a survey consists of 29 questions/observed variables and conducted survey on online Google Form. A 5-point Likert scale was used, ranging from (1) strongly disagree to (5) strongly agree. Collecting data period: February 1<sup>st</sup> - February 29<sup>nd</sup> 2020 and out of 436 answer sheets, 238 are used for data analysis.

## ***2.3. Population and Sample***

Demographic information of this research shows that 29.3% and 70.7% of surveyors are males and females, respectively. As for monthly expenses, which includes part time job salary and family allowance, 47.9% of respondents have under 3 million VND per month, follows by 45% of those who have from 3 to 7 million VND per month. Only 7.1% have more than 7 million VND per month to spend.

The majority of respondents were women (71%), with men representing 29% of respondents. Statistical results show that males use peer-to-peer lending more than females.

Of those who do not use peer-to-peer lending, 63.5% is the percentage for males, lower than that of females, which is 75.6%. On the other hand, 36.5% and 24.4% of males and females, respectively, have used peer-to-peer lending. It can be seen from the figures above that males utilize peer-to-peer lending more than females.

#### 2.4. Research Instruments

Research results indicate that Hanoi students' awareness about peer-to-peer lending is still somewhat limited. The majority of participants do not have a comprehensive understanding about peer-to-peer lending, hence during the interview process, our group had to repeatedly explain about the definitions, models and P2P lending mechanisms. Many survey sheets were intuitively filled due to the vague understanding regarding this service, especially financial cost determinant. When running EFA, we find that financial cost determinant did not show significant effect on P2P lending usage intention.

Our group conducted Reliability of Scale and one variable has been removed, which was "Awareness about security in cases where mobile equipment is lost while performing peer-to-peer lending". Results of the second Cronbach's alpha's test indicated that Cronbach's alpha factor of scales of all variable is greater than 0.6 and smaller than 0.95, thus ensured the conditions the conduct analysis on EFA.

### 3. Results

EFA analysis shows that:

- (1) Testing the suitability of the model ( $0.5 < KMO = 0.926 < 1.0$ );
- (2) Bartlett's test of correlation of observed variables (Sig. =  $0.000 < 0.05$ ) approves that the variables are closely related;
- (3) The total variance extracted = 70.226% ( $> 50\%$ ) is satisfactory and indicates 70.226% of the change in factors is explained by the observed variables. The factor load of all variables is greater than 0.5 (Hair et al., 2010) except for financial expense factor. This shows that the EFA analysis results are consistent.

**Table 1: Result from rotated component matrix**

Variable explanation	Observed Variables	Factors				
		1	2	3	4	5
The use of peer-to-peer lending fulfill my expenses needs	PE1				.637	
Using peer-to-peer lending increases my labor productivity	PE2				.649	
Peer-to-peer lending simplifies lending procedure	PE3				.756	

Variable explanation	Observed Variables	Factors				
		1	2	3	4	5
Using peer-to-peer lending will assist me in completing transaction faster	PE4				.682	
I can easily use peer-to-peer lending	EE1					.769
I can easily access peer-to-peer lending	EE2					.695
I can easily learn how to use peer-to-peer lending	EE3					.566
Intimate people to me suggest that I should use peer-to-peer lending	SI1		.752			
People influencing my behaviors think that I should use peer-to-peer lending	SI2		.824			
Most people around me highly approve the use of peer-to-peer lending	SI3		.737			
I have necessary tools to use peer-to-peer lending	FC1			.719		
I have awareness about risks and expenses when using peer-to-peer lending	FC2			.767		
Available phone number/online contacts if I have difficulties when using peer-to-peer lending	FC3			.763		
I believe that peer-to-peer lending is reliable	TL1	.704				
I believe that peer-to-peer lending is secure	TL2	.785				
I believe that peer-to-peer lending companies always act according to agreement	TL3	.774				

Variable explanation	Observed Variables	Factors				
		1	2	3	4	5
I am not worried when using peer-to-peer lending	TL4	.736				
I feel secure when providing confidential information to peer-to-peer lending applications	PC1	.776				
I am certain that my transactions are guaranteed and secured	PC2	.777				
I think that peer-to-peer lending companies have adequate technology abilities to assure that my information is not leaked to third parties	PC3	.780				
	KMO	.926				
	Sig.	.000				
	Eigenvalue	10.569	2.680	1.314	1.237	1.054
	Total cumulative of variance (%)	70.226				

\* Only shows value of factors loading > 0.5

Sources: Results from survey data

The given analysis results determined 5 components that affect the intention to use peer-to-peer lending among students, as follow:

- Factor 1: Performance Expectancy
- Factor 2: Effort Expectancy
- Factor 3: Social Influence
- Factor 4: Facilitating Conditions
- Factor 5: Including variables such as TL1, TL2, TL3, TL4, PC1, PC2, PC3. This reflects how people who use peer-to-peer lending judge this service's security reliability.

Factor relating financial expense of P2P lending (interest rate of the loan, management fee, benefit/cost ratio, value of the service) do not have sufficient factor loading (the coefficients are below 0.5 and not shown in Table 1). The initial research model is reduced to

5 factors affecting the intention to use P2P lending service. This result gives us important implication about the understanding about financial cost of P2P of students surveyed.

**Multivariate Regression Analysis**

*Independent variables:* Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Trust Level (TL).

*Dependent variable:* Behavioral Intention (BI)

(i) Unstandardized Regression Model

The results from SPSS20 shows the regression equation as follow:

$$BI = -5.812 + 0.622PE + 0.357EE + 0.199SI + 0.302FC + 0.134TL \quad (1)$$

(ii) Standardized Regression Model Analysis

Standardized regression equation as follow:

$$BI = 0.622PE + 0.357EE + 0.199SI + 0.302FC + 0.134TL \quad (2)$$

Based on the regression result above, we conclude that Performance Expectancy variable have a significant influence on Behavioral Intention (0.622), follows by Effort Expectancy (0.357), while Trust Level is the least impactful (0.134)

Our research group has also conducted analysis on the impact of behavioral intention to use behavior of peer-to-peer lending users and the results have proved that behavioral intention has directly proportional influence and statistical significance on usage behavior of students surveyed in this research.

**Table 2: Model Summary 2**

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.582 <sup>a</sup>	.339	.336	1.064

a. Predictors: (Constant), BI

b. Dependent Variable: UB

Value of Adjusted R<sup>2</sup> is 0.921 (higher than 0.6). Therefore, we can conclude that there is strong correlation between those variables, Performance Expectancy, Effort Expectancy and Social Influence, to Behavioral Intention Adjusted R Square Coefficient is 0.336. Behavioral Intention variable accounts for 33.6% fluctuation of dependent variable UB (Use behavior)

**Table 3: ANOVA 2****ANOVA<sup>a</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	160.958	1	160.958	142.292	.000 <sup>b</sup>
Residual	314.467	278	1.131		
Total	475.425	279			

a. Dependent Variable: UB

b. Predictors: (Constant), BI

Value of Sig is lower than 0.05. Linear regression model is eligible

**Table 4: Coefficient 2****Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.325	.064		36.579	.000
BI	.760	.064	.582	11.929	.000

a. Dependent Variable: UB

ANOVA test on gender differences affecting intention to use peer-to-peer lending has no concrete proof/results.

**2. Discussion and Conclusion**

The research results show that there are 5 factors that affect intention to use: (1) Performance Expectancy has a major impact on students' acceptance and use of peer-to-peer lending in the city of Hanoi; (2) Effort Expectancy; (3) Facilitating conditions; (4) Social Influence; (5) Trust Level (combination of 2 factors in the suggested model: faith and security awareness) Financial expenses has no impact on students' intention to use. Furthermore, there is no difference between genders that impact on intention to use peer-to-peer lending.

Through qualitative research (in-depth interview) and quantitative research (two-stage regression method), our group has found proofs of proportional relationship between intention to use and use behavior. Furthermore, there are some other noticeable points:

Firstly, students' knowledge about peer-to-peer lending is still somewhat limited. Financial expense is a major constituent affecting borrowers' paying ability, but the results show otherwise, as students do not generally take this into consideration, hence borrowers face difficulties repaying when interest rates is abnormally high. This also implies that it is essential that we improve users'/student's knowledge on financial service and increase service providers' responsibilities when providing peer-to-peer lending service.

Secondly, the developments of technologies and telecommunication networks are favorable conditions for students to access peer-to-peer lending. However, social influences are obstacles for these individuals.

Thirdly, peer-to-peer lending provides many benefits for students, such as uncomplicated procedure, fast disbursement, no requirements for collateral. On the other hand, this service still contains security risks.

Fourthly, peer-to-peer lending providers need to consider enhancing security factor of applications and strengthening users'/students' trusts.

### 3. References

1. Kevin Davis, Jacob Murphy (2016), *Peer to Peer lending: Structures, risks and regulation*, JASSA The Finsia Journal of Applied Finance, Issue: 3 2016.
2. MA. Pham Khanh Duy (2018), *A new digital financial intermediation - peer-to-peer lending platform*, University of Economics Ho Chi Minh City.
3. David W. Perkins (2018), *Marketplace Lending: Fintech in Consumer and Small-Business Lending*, Congressional Research Service Report.
4. Gunawan Wang and partners (2019), *Analysis the use of P2P lending mobile applications in Indonesia*, IOP Publishing.
5. Venkatesh and partners (2003), *User Acceptance of information technology: Toward a Unified view*, MIS Quarterly 27(3).
6. Venkatesh and partners (2012), *Consumer acceptance and use of information: extending the unified theory of acceptance and use of technology*, MIS Quarterly, 36(1).
7. Kim, Y., Park, Y. J., and Choi, J. (2016), *The Adoption of Mobile Payment Services for "Fintech"*.
8. Hair and partners (2010), *Multivariate data analysis*, Prentice-Hall, International, Inc.

# FACTORS AFFECTING ONLINE PAYMENT METHOD DECISION BEHAVIOR OF CONSUMERS IN VIETNAM

*Dr Nguyen Thi Phuong Linh*

*linhnp@neu.edu.vn*

*Tran Thi Nga*

*ngatran.1510nt@gmail.com*

*Nguyen Thi Phuong Nhung*

*ntpnhung1212@gmail.com*

*Nguyen Vu Khanh Quynh*

*quynhcong246@gmail.com*

*Nguyen Thi Thao*

*nguyenthithaoneu59@gmail.com*

*Faculty of Business Management, National Economics University, Hanoi, Vietnam*

## **Abstract**

*E-commerce development led to the explosion of online payment. Consumers have many choices when deciding on the online payment method for each transaction. Using a combination of both qualitative and quantitative methods, this study explores the factors that influence consumers' online payment method decision behavior in Vietnam. Research results show that awareness of usefulness, awareness of risk, awareness of trust, awareness ease of use, product uncertainly perception and perceived behavioral control have effects on the behavior of deciding on online payment methods. Awareness of risk has the strongest negative impact on online payment method decision behavior and awareness of usefulness has the strongest positive impact on online payment method decision behavior.*

**Keywords:** *e-commerce, online payment, customers*

## **1. Introduction**

In 1990, the advent of e-commerce introduced a unique way of doing business commerce for the consumer and business world. Since then, e-commerce has grown and changed dramatically with creating extraordinary benefits for customers and businesses worldwide (Bezovski, 2016).

The number of people shopping via the Internet is increasing, leading to a significant increase in worldwide transaction volume (Pozzi, 2013). Significant innovations in payment technology and infrastructure (Kahn and Roberds, 2009) and significant changes in consumer payment habits (Pimentel, 2013) require new ways of processing payments between companies and consumers in e-commerce (Stroborn et al., 2004). Payments and purchases are separated by the nature of e-commerce (Deufel, and Kemper, 2018). Merchants and consumers, purchase intention and goods are physically separated. This



makes it more difficult for consumers to self-regulate when the consumption of goods is separated from payments (Prelec and Loewenstein 1998).

Vietnam's rapidly growing e-commerce market includes 35.4 million users and generated more than US \$ 2.7 billion in revenue in 2019. However, more than 90% of payment transactions in Vietnam are cash payments and consumers prefer cash on delivery over online payment (Vu Van Diep, 2017). Meanwhile, the online payment in the world in general and in Vietnam in particular reduces the amount of cash in circulation, reduces the cost of printing money, preserving and transporting money, reducing social labor costs, at the same time, improving the efficiency of payment in the economy, contributing to speeding up the circulation of capital of the society, promoting the development of production of goods and monetary circulation.

Therefore, it is necessary to study the factors affecting online payment method decision behavior of consumers in Vietnam in the current context. The study selected the context in Hanoi, the capital of Vietnam, where the urban population is densely populated to conduct interviews and surveys.

## **2. Theoretical foundation**

### *2.1. Awareness of Usefulness - AU*

Awareness of usefulness refers to the extent to which a person believes that using a particular system will enhance the work performance (Davis, 1989). Online payment is effective and helpful at work when the characteristics of the online payment system meet the requirements and provide important value to users (Schierz et al., 2010). Referring to the TAM model (Davis, 1989), TAM2 model (Venkatesh and Davis, 2000), awareness of usefulness is understood as the benefits that consumers receive when using online payment systems. Awareness of usefulness has a positive impact on the decision of the online payment method (Gu et al., 2009). Therefore, the following hypothesis is formulated:

H1: Awareness of usefulness has a positive impact on consumers' behavior of deciding on online payment methods in Vietnam.

### *Awareness of Risk - AR*

Bauer (1960) argued that awareness of risk is related to uncertainty and consequences to consumers' actions. A common barrier to accepting online payments is the lack of security on the Internet (Wang et al., 2003). The security of credit card information, hackers or unreliable suppliers is a major concern for consumers. Awareness of risk reduces consumer confidence in online purchases and payments, causes fear of disclosing personal information (Yoon, 2000); causes financial losses (Alam Napitupulu and Kartavianu, 2014). From there, the following hypothesis is formulated:

H2: Awareness of risk has a negative impact on consumers' behavior of deciding on online payment methods in Vietnam.

### ***Awareness of Trust - AT***

According to Lu et al. (2011), awareness of trust plays an important role in promoting the intention to use services. Awareness of trust has an indirect influence on the level of risk of financial transactions (Yang et al., 2015) and the results of awareness of trust also reduce the risk perception, leading to a positive decision on online payment (Yousafzai et al., 2003). Therefore, it can be said that awareness of trust plays an active role in consumers' decision to use online payment. When consumers have awareness of trust, it will minimize barriers when deciding to use online payment. Therefore, the proposed hypothesis is:

*H3: Awareness of trust has a positive impact on consumers' behavior of deciding on online payment methods in Vietnam.*

### ***Awareness Ease of Use - AEU***

Awareness ease of use is the degree to which a person believes that using a particular system will not require much effort (Davis, 1989). Improved technology systems that are easier to use and less complex will be accepted and used more (Davis et al., 1989). Awareness ease of use was studied to positively influence various technology systems such as mobile services (Wang et al., 2006), mobile data services (Faziharudean and Li-Ly, 2011) and commercial services (Kalinic and Marinkovic, 2015). Awareness ease of use is aware when users feel the payment system is easy to understand and easy to use. Especially in online payment, a system that is considered easy to use should have a simple interface, clear steps, appropriate content and layout, understandable functions and notifications. Awareness ease of use is considered to greatly influence the adoption and use of new consumer technologies. From there, the authors propose the following hypothesis:

*H4: Awareness ease of use has a positive impact on consumers' online payment decision-making behavior in Vietnam.*

### ***Subjective Norms - SN***

Subjective norms is the perceived social pressure to perform or not to perform a behavior (Ajzen, 1991). Park (2000) emphasized the influence of important people such as friends, relatives and colleagues to consumers who have positive subjective norms towards a behavior will also tend to engage in a positive behavior (Taylor and Todd, 1995; Han et al., 2010). Many studies have concluded that subjective norms is an important factor in predicting intention and behavior (Baker, 2007; Dean, 2012; Ha and Janda, 2012; Kumar, 2012). When consumers are aware that people who are important to them make online payment, they tend to do so. The proposed research hypothesis is as follows:

*H5: Subjective norms has a positive impact on consumers' behavior of deciding on online payment methods in Vietnam.*

### ***Product Uncertainty Perception - PUP***

Product uncertainty perception is due to doubts about the actual quality and future performance of the product (Dimoka et al. 2011). In the network market, the interaction

between seller and consumer is mediated by technology. Consumers cannot directly check a product for purchase. After the purchase commitment, it will be difficult for consumers to follow the seller's intention to respect the contract between the two parties, such as after-sales service and personal information protection. As a result, buyers form an uncertain product awareness, possibly related to their online payment decisions (Pavlou and Dimoka, 2008; Ghose, 2009; Mavlanova and Benbunan-Fich, 2010-11; Pavlou et al., 2007). Therefore, product uncertainty perception is a factor affecting customers' decision to pay online. The proposed hypothesis is as follows:

H6: Product uncertainty perception has a negative impact on consumers' behavior of deciding on online payment methods in Vietnam.

Perceived Behavioral Control - PBC

Perceived behavioral control is defined as an individual's confidence in the ability to perform behaviors (Stroborn et al., 2004). Perceived behavioral control shows the degree of behavioral control, not the result of behavior (Polančič et al., 2010). In the context of the growing online payment, perceived behavioral control describes consumer awareness of the availability of resources, knowledge and opportunities needed to make payments. Perceived behavioral control has a direct impact on the decision to use a payment method (Kim et al., 2010). According to TPB, perceived behavioral control can be directly used to predict the implementation of acts. Therefore, the authors propose the hypothesis:

H7: *Perceived behavioral control has a positive impact on consumers' behavior of deciding on online payment methods in Vietnam.*

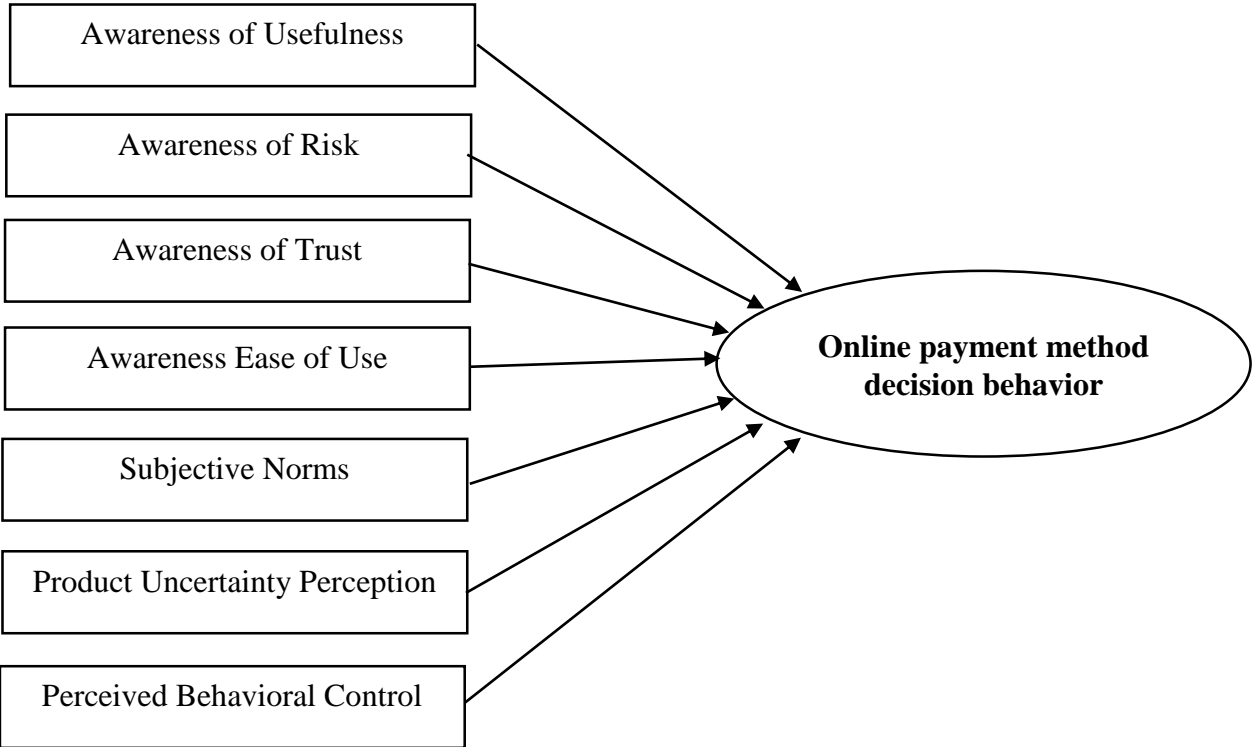


Figure 1. Research model

### 3. Research methodology

#### *Survey and sample*

Qualitative research was conducted through in-depth interviews with 10 consumers in Hanoi. The content of the interview focused on: online shopping, factors affecting the behavior of deciding on online payment methods, the influence of awareness of usefulness, the influence of awareness of risk, the influence of awareness of trust, the influence of awareness ease of use, the influence of subject norms, the influence of product uncertainty perception, the influence of perceived behavioral control, the behavior of deciding on online payment methods. Interviews were conducted for approximately 1 hour at the location selected by the interviewee. The content of the interview was stored, summarized and analyzed to conclude on the factors in the research model.

Quantitative research was used to measure the influence of factors on the behavior of deciding on online payment methods. This method is implemented through a questionnaire survey with consumers in Hanoi. The questionnaire surveys were distributed to consumers in Hanoi area through two forms: utilizing Google Forms - a web-based data solution system, which allows researchers to design only surveys and questionnaires; distributing directly to the respondents at shopping locations, schools, parks ... from January to April 2020.

The statistics of 370 observations in the quantitative research show that the sample of the factors affecting the behavior of deciding on online payment methods in Hanoi area is mainly women (accounting for 65.1%) nearly twice as many as men (accounting for 33.5%); most of them are between the ages of 18 and 30 (accounting for 90.8%); the observations focused on people educated Intermediate/College/University (accounting for 82.7%); the average income per month is mostly below 5 million, specifically 248 observations (67%), followed by the level of 5 to 10 million (15.4%); finally, the frequency of online payment of surveyed consumers is usually 1-2 times/month (accounting for 40.5%), about 3-4 times/month (accounting for 26.5%) and a relatively small proportion. Number of respondents often pay online more than 5 times/month (accounting for 26%), besides there are some consumers who have never paid online (accounting for 7%).

**Table 1. Characteristics of the sample**

<b>Category</b>	<b>Number of respondents</b>	<b>Percentages (%)</b>
<i>Gender</i>	370	100
Male	124	33.5
Female	241	65.1
Do not want to specify	5	1.4
<i>Age</i>	370	100
Under 18	5	1.4
From 18 to 30	336	90.8
From 31 to 40	21	5.7

Category	Number of respondents	Percentages (%)
Over 40	8	2.1
<i>Education qualification</i>	370	100
Have not graduated from high school	6	1.6
Draduated from high school	35	9.5
Intermediate/College/University	306	82.7
Master/Doctor	23	6.2
<i>Average income/month</i>	370	100
Less than 5 million	248	67
From 5 - 10 million	57	15.4
From 10 - 20 million	46	12.4
Over 20 million	19	5.2
<i>Frequency of online payment</i>	370	100
Never	26	7
1-2 times/month	150	40.5
3-4 times/month	98	26.5
5-6 times/month	33	9.2
Over 6 times/month	62	16.8

### ***Analyses***

The authors performed an analysis to assess the contributions of factors (awareness of usefulness, awareness of risk, awareness of trust, awareness ease of use, subjective norms, product uncertainty perception, perceived behavioural control) to online payment method decision behavior. The analysis process includes three main steps. Firstly, Cronbach's alpha and explorative factor analysis (EFA) are implemented to assess the reliability of variables. Secondly, confirmatory factor analysis (CFA) to evaluate models and scales. Finally, regression analysis to test hypotheses and assess the level of influence. In addition, the statistical analysis has been carried out using SPSS 22.0 and AMOS 22.0.

### ***Measures***

All scales used in our study were adapted from the past researches and a new observation suggested by the authors after in-depth interviews. The scales were scored on a 5-point Liker-type format from strongly disagree to strongly agree.

*Awareness of usefulness (Cronbach's alpha = 0.869):* The scale developed by Gu et al. (2009), Hoa et al. (2019), Toeh et al. (2013) which is comprised of 4 items, including 'I find using online payment very convenient in updating and collecting necessary information' (0.813), 'I save money compared to traditional payments' (0.871), 'I save more time when paying online' (0.811), 'I find it easier to make my financial transactions using online payment' (0.830).

*Awareness of risk (Cronbach's alpha = 0.859)*: The scale developed by Hausman and Siekpe (2009), Hoa et al. (2019), Alam Napitupulu and Kartavianu (2014), Yoon (2000) which is comprised of 4 items, including 'I am afraid of having my personal information disclosed when making payments online' (0.803), 'Errors that occur in online payments can cause financial damage to me' (0.792), 'The online payment process may be corrupted' (0.828), 'I realize many risks when using online payment' (0.855).

*Awareness of trust (Cronbach's alpha = 0.829)*: The scale developed by Teoh et al. (2006), Yousafzai et al. (2003) which is comprised of 3 items, including 'I rely on an online payment system to protect my privacy' (0.789), 'I trust the online payment system will not cheat and lose money in transactions' (0.729), 'I believe the risk of paying online is low' (0.768).

*Awareness ease of use (Cronbach's alpha = 0.905)*: The scale developed by Guriting and Ndubisi (2006), Hamidinava and Madhoushi (2010), Teoh et al. (2006), which is comprised of 3 items, including 'I believe the risk of paying online is low' (0.868), 'Learning how to use online payment is easy' (0.841), 'Online payment procedure is simple and easy' (0.880).

*Subjective norms (Cronbach's alpha = 0.624)*: The scale developed by Vu Van Diep et al. (2017), which is comprised of 3 items, including 'My family and my relatives all use online payment' (0.595), 'My friends use online payment and recommend it to me' (0.313), 'The trend of online payment is increasingly popular' (0.627).

*Product uncertainty perception (Cronbach's alpha = 0.773)*: The scale developed by Pavlou and Dimoka (2008), Xu and Riedl (2011), which is comprised of 3 items, including 'Product prices will affect my online payment decision' (0.667), 'Depending on the type of product I will pay online' (0.646), 'Product description influenced my online payment decision' (0.729).

*Perceived behavioural control (Cronbach's alpha = 0.846)*: The scale developed by Hoa et al. (2019), Kim et al. (2010), Vu Van Diep et al. (2017) and an observation (PBC2) proposed by the authors. This scale includes 3 items, including 'I have the necessary resources for using online payment' (0.804), 'I have the necessary knowledge for using online payment' (0.758), 'Using online payment is entirely within my control' (0.796).

*Online payment method decision behavior (Cronbach's alpha = 0.668)*: The scale developed by Hoa et al. (2019), He and Mykytyn (2007), which is comprised of 3 items, including 'I have the necessary resources for using online payment' (0.277), 'I have the necessary knowledge for using online payment' (0.323), 'Using online payment is entirely within my control' (0.668). In particular, the third observation is excluded because of the item-sum correlation less than 0.3.

#### **4. Results**

##### ***Exploratory factor analysis (EFA)***

After assessing the reliability of scales by Cronbach's alpha, total of 25 items are used in the exploratory factor analysis (EFA). The results of testing the reliability of scales by the exploratory factor analysis shows that  $KMO = 0.801$ , Sig. (Bartlett's Test) =  $0.000 < 0.005$ . The final results of the exploratory factor analysis are presented at *Table 2*.

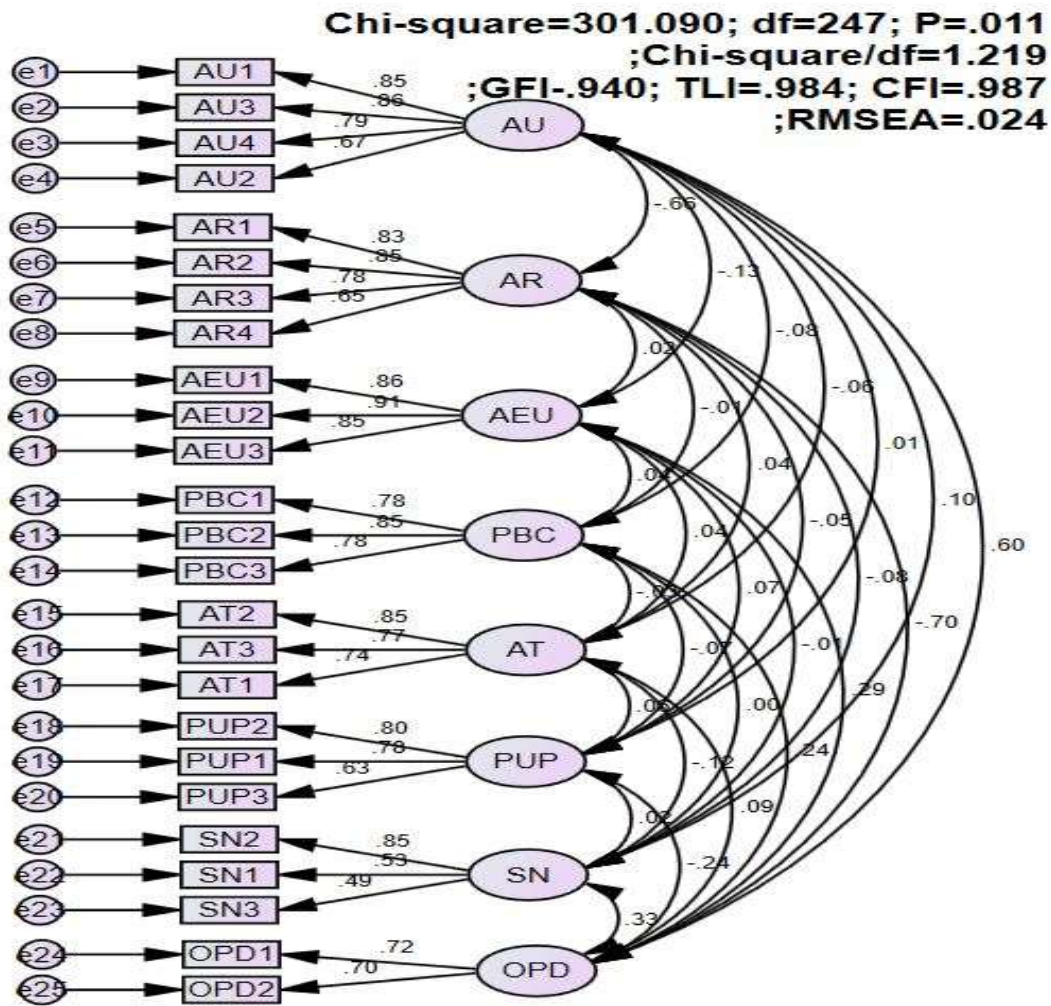
**Table 2. The results of exploratory factor analysis (EFA)**

	Component							
	1	2	3	4	5	6	7	8
AU1	0.837							
AU3	0.829							
AU4	0.827							
AU2	0.747							
AR4		0.838						
AR 2		0.818						
AR 1		0.767						
AR 3		0.713						
AEU2			0.927					
AEU1			0.913					
AEU3			0.901					
PBC2				0.890				
PBC3				0.866				
PBC1				0.861				
AT2					0.880			
AT3					0.858			
AT1					0.846			
PUP2						0.856		
PUP1						0.852		
PUP3						0.779		
SN2							0.853	
SN1							0.712	
SN3							0.689	
OPD2								0.866
OPD1								0.866
Cumulative % = 70.822								
Eigenvalues = 1.710								

### Confirmatory Factor Analysis (CFA)

From the EFA analysis results, we have 8 official factors used in the research model. CFA analysis results are presented in *Figure 2*.

CFA analysis results from the sample with  $GFI = 0.940$ ;  $TLI = 0.984 > 0.9$ ;  $CFI = 0.987 > 0.9$ ;  $CMIN / df = 1,219 \leq 2$  and  $RMSEA = 0.024 \leq 0.08$ . Therefore, the calculation results show that the model's indicators are satisfied, the model is accepted with the research data.



**Figure 2. Confirmatory Factor Analysis (CFA)- standardized estimates**

The results of testing scales by CFA analysis have shown that the factor weights of the indicators for the concepts described in the *Table 3*, all factors have high significance levels ( $p < 0.000$ ); the values of standardized weights are  $> 0.5$  (except for SN3), so the scales achieve the convergence value (Hoang and Chu, 2008). However, subjective norms has the composite reliability of 0.624 less than 0.7 and the total variance extracted is 0.414 less than 0.5, indicating that the survey data only reflects 41.4% of the relationship between observed variables. This factor, in other words, the correlation level between the observed variables of this factor is not high. Therefore, in next step, subject norms will be excluded from the research model.



**Table 3. Testing of scales by confirmatory factor analysis (CFA)**

<b>Scales and observed variables</b>	<b>Standardized weights</b>	<b>Composite reliability</b>	<b>Total variance extracted</b>
<b>Awareness of usefulness</b>		<b>0.869</b>	<b>0.631</b>
AU1	0.847		
AU3	0.860		
AU4	0.787		
AU2	0.67		
<b>Awareness of risk</b>		<b>0.859</b>	<b>0.609</b>
AR2	0.851		
AR4	0.651		
AR1	0.828		
AR3	0.777		
<b>Awareness ease of use</b>		<b>0.905</b>	<b>0.762</b>
AEU2	0.907		
AEU1	0.862		
AEU3	0.849		
<b>Perceived behavioural control</b>		<b>0.846</b>	<b>0.650</b>
PBC2	0.851		
PBC3	0.782		
PBC1	0.783		
<b>Awareness of trust</b>		<b>0.829</b>	<b>0.621</b>
AT2	0.850		
AT3	0.767		
AT1	0.743		
<b>Product uncertainty perception</b>		<b>0.773</b>	<b>0.546</b>
PUP2	0.796		
PUP1	0.778		
PUP3	0.633		
<b>Subject norms</b>		<b>0.624</b>	<b>0.414</b>
SN2	0.853		
SN1	0.525		
SN3	0.490		
<b>Online payment method decision behavior</b>		<b>0.668</b>	<b>0.502</b>
OPD1	0.720		
OPD2	0.697		

*Linear regression analysis*

**Table 4. Model summary**

Model	R	R square	R squared corrected	Std. Error of the Estimate	Durbin-Watson
1	.695 <sup>a</sup>	.483	.475	.64024	1.914

Source: Data analysis results by SPSS 22.0

The linear regression analysis model is shown in detail in Table 4. Adjusted R Square - R corrected square of 0.475 means that the independent variables influence 47.5% of the variation of the dependent variable, the remaining 52.5% is due to the variables outside the model and random errors.

**Table 5. Standardized regression coefficient**

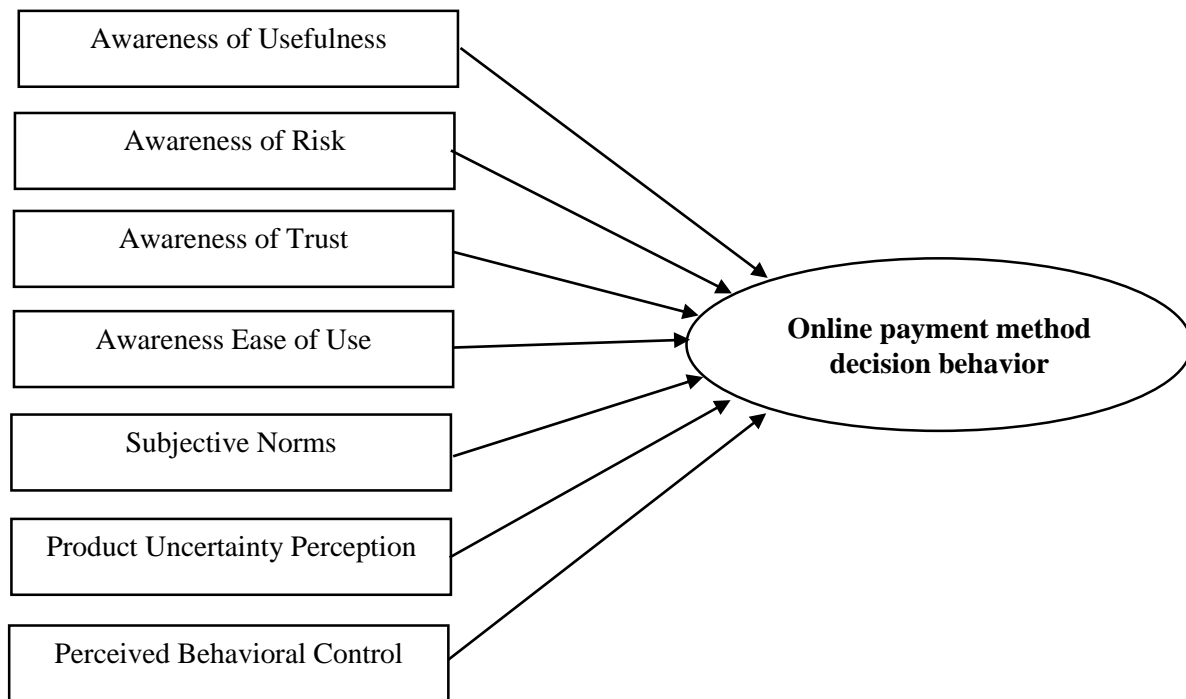
Model		Standardized coefficient	t	Sig.
		Beta		
1	(Constant)		6.063	0.000
	AU	0.308	6.658	0.000
	AT	0.095	2.501	0.013
	AEU	0.276	7.230	0.000
	PBC	0.185	4.875	0.000
	AR	-0.372	-8.117	0.000
	PUP	-0.215	-5.663	0.000

*Dependent variable: OPD*

Linear regression analysis (*Table 5 and Figure 3*) shows that:

- Awareness of risk (AR) with a beta of -0.372 has the strongest negative impact on online payment method decision behaviour (OPD); awareness of usefulness (AU) with a beta of 0.308 has the strongest positive impact on online payment method decision behaviour (OPD).
- Awareness of ease of use (AEU), product uncertainty perception (PUP), perceived behavioural control (PBC) are the variables that moderate impact on online payment method decision behaviour (OPD).
- Awareness of trust (AT) with a beta of 0.095 has the weakest impact on online payment method decision behaviour (OPD).

Thus, hypotheses H1, H2, H3, H4, H6, H7 are accepted. The hypothesis H5 is rejected at the correlation analysis step.



**Figure 3. Results after regression analysis of the research model**

## **5. Discussion and Conclusion**

### ***Discuss research findings***

Awareness of usefulness positively influence online payment method decision behavior. The benefits that online payment brings to consumers such as faster payment, improved work efficiency... This result has been confirmed in the research of Schierz et al. (2010).

Awareness of risk in online payment has a negative impact on consumers' decision to make online payments. When consumers are aware of risks to online payment systems such as faulty online payments that cause financial loss, disruption of payment processes, fear of disclosure of personal information or confidentiality. Regarding credit cards, the higher hackers decide to pay with this method. This result is completely consistent with the study of Wang et al. (2003) when studying the barrier to online payment is the lack of security on the Internet; Thakur and Sirvastava (2014) when studying on risk perception in accepting online payments via Internet and mobile; Research by Alam Napitupulu and Kartavianu (2014) when studying of errors in online payment causing financial losses.

Awareness of trust means that the belief that consumers will make online payments does not affect consumers' decision to make online payments. The influence of the perception of trust has not really had a strong impact on promoting the use of online payment by consumers. Although the results of this study do not coincide with the findings of Lu et al. (2011) when researched awareness of trust plays an important role in promoting the intention to use services in Hong Kong; the study of Yousafzai et al. (2003) confirmed that trust has an indirect effect on the level of risk associated with financial transactions. This can be explained by the difference in the context and the object of study.

Awareness ease of use also affects consumers' decision to make online payments. Awareness ease of use is perceived when consumers feel the payment system is easy to understand and implement. This will affect the acceptance and use of consumer technology. This assertion coincides with the results of Kalinic and Marinkovic (2015).

Subjective norms is one of the factors that positively influence consumers' decision to make online payments. The subjective norms is the influence of close people such as family, friends, colleagues, when those who positively impact consumers will contribute to the decision-making behavior of online payment. The results of this study are consistent with the research of Taylor and Todd (1995) and the study of Han (2010).

Product uncertainly perception is a factor that has a negative impact on consumers' online payment behavior. Consumers cannot directly check products, asymmetric information among consumers makes consumers unsure about the products to make payment decisions online. This research result is completely consistent with the research of Pavlou and Dimoka (2008), Mavlanova and Benbunan-Fich (2010-2011).

Perceived behavioral control is the weakest positive influence on consumers' behavior of deciding on online payment methods. When consumers are aware of the ability and eligibility to make payments online, the intention will increase and vice versa. This result is consistent with the study of Stroborn et al. (2004) and the study of Kim et al. (2010).

### ***Implications***

**Vietnam is considered a potential market to develop online payment services for consumers.** In the era of Industry 4.0 and towards 5.0 society - a super smart society, the problem of developing online payment methods is extremely urgent. Based on the research results, the authors offer some suggestions for companies to improve, promote and develop online payment methods of consumers in the future.

*Firstly*, continuing to invest and upgrade modern technology to ensure customer information absolutely confidential. Enterprises in Hanoi region in particular and Vietnam in general need to lower the fraud rate when paying online, increase the security solutions for electronic payment in the context of e-commerce development to believe that hackers do not take advantage of fraudulent practices.

*Secondly*, converting all ATM cards on the market to EMV chip standard card technology. EMV chip is an electronic chip with a processor like a computer with high technology, capable of storing and encrypting information with high security. In contrast to traditional EMV chip cards will generate a unique transaction code and never repeat. In case a consumer card is stolen information from a store, the fake card will never work because the stolen transaction code will not be reused, that card will be rejected. Currently, besides international banks such as ANZ, HSBC, CitiBank... Vietnamese banks are also on the way to fully convert to EMV cards. There are many big banks introducing international credit and debit cards with advanced EMV chips such as VIB, VietinBank, Vietcombank, Techcombank, ACB, Sacombank, ... In the future, all banks must switch to Chip card for the security and safety of customers.

*Thirdly*, when there are bad situations like losing money in customers, or making payment of errors that cause financial damage, banks and financial institutions need to improve service activities, quickly handle things to create confidence for customers from which peace of mind using online payment methods.

*Finally*, credit institutions operating in the field of online payment linked to e-commerce sites, supermarkets, convenience stores, restaurants must ask partners to increase transparency for their products to help consumers trust the products. In addition, not only e-commerce sites but other units that use online payment methods need to regulate product images, limit risks when buying online for product quality. When programming, we need to create a tool that allows brands to provide unlimited product images and videos on the application website. Thereby, consumers easily make decisions on the choice of online payment method.

### ***Limitations***

The study of factors affecting online payment method decision behavior of consumers still has some limitations:

*Firstly*, the research scope of the research is consumers in Hanoi. However, the subjects mainly surveyed were between the ages of 18-30 and lacked other subjects in the age group. Therefore, the sample does not represent all consumers in Hanoi.

*Secondly*, the authors conducted a survey of consumers in Hanoi with a convenient sampling method so it was difficult to achieve a high level of representation.

*Thirdly*, consumers' online payment decision-making behavior is also influenced by many other factors besides the seven groups of factors mentioned.

## **6. References**

1. Ajzen, I. (1991), The theory of planned behavior, *Organizational behavior and human decision processes*, 50(2), 179-211.
2. Baker, E. W., Al-Gahtani, S. S., & Hubona, G. S. (2007). The effects of gender and age on new technology implementation in a developing country. *Information Technology & People*.
3. Bauer, R. A. (1960). Consumer behavior as risk taking. *Chicago, IL*, 384-398.
4. Bezovski, Z. (2016). The future of the mobile payment as electronic payment system. *European Journal of Business and Management*, 8(8), 127-132.
5. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.
6. Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management science*, 35(8), 982-1003.
7. Dean, M., Raats, M.M., Shepherd, R. (2012) “*The role of self-identity, past behaviour and their interaction in predicting intention to purchase fresh and processed organic food*”.
8. Deufel, P., & Kemper, J. (2018). Online Payment Method Selection: The Habitual Choice of Deferring Payment.

9. Dimoka, A., Pavlou, P. A., & Davis, F. D. (2011). Research commentary—NeuroIS: The potential of cognitive neuroscience for information systems research. *Information Systems Research*, 22(4), 687-702.
10. Faziharudean, T. M., & Li-Ly, T. (2011). Consumers' behavioral intentions to use mobile data services in Malaysia. *African journal of business management*, 5(5), 1811.
11. Ghose, A. (2009). Internet exchanges for used goods: An empirical analysis of trade patterns and adverse selection. *Mis Quarterly*, 263-291.
12. Gu, J. C., Lee, S. C., & Suh, Y. H. (2009). Determinants of behavioral intention to mobile banking. *Expert Systems with Applications*, 36(9), 11605-11616.
13. Guriting, P., & Ndubisi, N. O. (2006). Borneo online banking: evaluating customer perceptions and behavioural intention. *Management research news*.
14. Ha, H. Y., & Janda, S. (2012). Predicting consumer intentions to purchase energy-efficient products. *Journal of Consumer Marketing*.
15. Han, H., Hsu, L. T. J., & Sheu, C. (2010). Application of the theory of planned behavior to green hotel choice: Testing the effect of environmental friendly activities. *Tourism management*, 31(3), 325-334.
16. Hamidinava, F., & Madhoushi, M. (2010). Evaluating the features of electronic payment systems in Iranian bank users' view. *International Review of Business Research Papers*, 6(6), 78-94.
17. Hausman, A. V., & Siekpe, J. S. (2009). The effect of web interface features on consumer online purchase intentions. *Journal of business research*, 62(1), 5-13.
18. He, F., & Mykytyn, P. P. (2007). Decision factors for the adoption of an online payment system by customers. *International Journal of E-Business Research (IJEER)*, 3(4), 1-32.
19. Park, H. S. (2000). Relationships among attitudes and subjective norms: Testing the theory of reasoned action across cultures. *Communication Studies*, 51(2), 162-175.
20. Hoa, N. T., Hien, L. M., & Lien, V. T. P. (2019). Studying the Factors Affecting Online Payment Decision: A Case of Vietnamese Customers. *Journal of Management Information and Decision Sciences*.
21. Hoang, T., & Chu, N. M. N. (2008). Phân tích dữ liệu nghiên cứu với SPSS-tập 1.
22. Kahn, C. M., & Roberds, W. (2009). Why pay? An introduction to payments economics. *Journal of Financial Intermediation*, 18(1), 1-23.
23. Kalinic, Z., & Marinkovic, V. (2016). Determinants of users' intention to adopt m-commerce: an empirical analysis. *Information Systems and e-Business Management*, 14(2), 367-387.
24. Kim, C., Tao, W., Shin, N., & Kim, K. S. (2010). An empirical study of customers' perceptions of security and trust in e-payment systems. *Electronic commerce research and applications*, 9(1), 84-95.
25. Kumar, B. (2012). Theory of planned behaviour approach to understand the purchasing behaviour for environmentally sustainable products.

26. Lu, Y., Yang, S., Chau, P. Y., & Cao, Y. (2011). Dynamics between the trust transfer process and intention to use mobile payment services: A cross-environment perspective. *Information & management*, 48(8), 393-403.
27. Mavlanova, T., & Benbunan-Fich, R. (2010). Counterfeit products on the Internet: The role of seller-level and product-level information. *International Journal of Electronic Commerce*, 15(2), 79-104.
28. Alam Napitupulu, T. O. G. A. R., & Kartavianus, O. (2014). A structural equations modeling of purchasing decision through e-commerce. *Journal of Theoretical & Applied Information Technology*, 60(2).
29. Pavlou, P. A., & Dimoka, A. (2008). Understanding and mitigating product uncertainty in online auction marketplaces. In *2008 Industry Studies Conference Paper*.
30. Polančič, G., Heričko, M., & Rozman, I. (2010). An empirical examination of application frameworks success based on technology acceptance model. *Journal of systems and software*, 83(4), 574-584.
31. Prelec, D., & Loewenstein, G. (1998). The red and the black: Mental accounting of savings and debt. *Marketing science*, 17(1), 4-28.
32. Pimentel, R. (2013). Innovation in retail payments: Challenges posed to regulators. *Journal of Payments Strategy & Systems*, 7(1), 90-97.
33. Pozzi, A. (2013). E-commerce as a stockpiling technology: Implications for consumer savings. *International Journal of Industrial Organization*, 31(6), 677-689.
34. Schierz, P. G., Schilke, O., & Wirtz, B. W. (2010). Understanding consumer acceptance of mobile payment services: An empirical analysis. *Electronic commerce research and applications*, 9(3), 209-216.
35. Stroborn, K., Heitmann, A., Leibold, K., & Frank, G. (2004). Internet payments in Germany: a classificatory framework and empirical evidence. *Journal of Business Research*, 57(12), 1431-1437.
36. Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information systems research*, 6(2), 144-176.
37. Teoh, W. M. Y., Chong, S. C., Lin, B., & Chua, J. W. (2013). Factors affecting consumers' perception of electronic payment: an empirical analysis. *Internet Research*.
38. Thakur, R., & Srivastava, M. (2014). Adoption readiness, personal innovativeness, perceived risk and usage intention across customer groups for mobile payment services in India. *Internet Research*.
39. Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science*, 46(2), 186-204.
40. Vũ Văn Điệp, Nguyễn Quang Hưng and Hà Hải Đăng (2019). Các nhân tố ảnh hưởng đến ý định sử dụng thanh toán di động của người tiêu dùng, *Tạp chí tài chính*, 2.

41. Wang, Y. S., Wang, Y. M., Lin, H. H., & Tang, T. I. (2003). Determinants of user acceptance of Internet banking: an empirical study. *International journal of service industry management*.
42. Xu, Q., & Riedl, R. (2011). Understanding online payment method choice: An eye-tracking study.
43. Yang, Q., Pang, C., Liu, L., Yen, D. C., & Tarn, J. M. (2015). Exploring consumer perceived risk and trust for online payments: An empirical study in China's younger generation. *Computers in Human Behavior*, 50, 9-24.
44. Yoon, S. J. (2002). The antecedents and consequences of trust in online-purchase decisions. *Journal of interactive marketing*, 16(2), 47-63.
45. Yousafzai, S. Y., Pallister, J. G., & Foxall, G. R. (2003). A proposed model of e-trust for electronic banking. *Technovation*, 23(11), 847-860.



# ENTERPRISE ECONOMIC SECURITY: RESEARCH ORIENTATIONS IN VIETNAM

*Pham Minh Duyen*

*minhduyen.psa@gmail.com*

*Faculty of Economic Security, People's Security Academy, Ministry of Public Security*

*Nguyen Thanh Dung*

*ngdung2222@gmail.com*

*Institute of Security Science, People's Security Academy, Ministry of Public Security*

## **Abstract**

*Enterprise economic security is widely researched by many scientists around the world. Despite various viewpoints on economic security at the enterprise level, the importance of economic security in the development of enterprises as well as the prosperity of a nation is apparent. In Vietnam, enterprise economic security is a new issue in terms of security science and economics. This article will clarify the necessity of researching and applying enterprise economic security theory into practice and recommend some research orientations on this subject in the future.*

**Keywords:** *Economic security, enterprise economic security, theoretical research.*

## **1. Introduction**

Enterprise is the main economic institution in all countries. This is the economic entity creating most of the wealth for society in the modern economy. The development of enterprise is one of the prerequisites for determining the prosperity and development of a nation. However, enterprise always encounters many internal and external threats that affect its existence and development. Therefore, ensuring enterprise economic security is a particularly important task in corporate management and national security.

Vietnam is a developing country. Vietnam's economy is undergoing a dramatic transition from a planned economy to a socialist-oriented market economy. The enterprise in Vietnam is increasing in number and playing an important role in the economic growth. For this reason, enterprise economic security must be thoroughly acknowledged and interpreted in theoretical and practical aspect in relation with national security as well as enterprise 's existence and development.

Due to the diversity of economic institutions, the level of development, the viewpoint of security objects, scientists have different notions on enterprise economic security. The US and Western scholars mainly consider economic security from the perspective of national security and individual security, economic security in enterprise is scarcely researched. Meanwhile, researchers in post-Soviet countries, such as the Russian Federation and Ukraine

are interested in enterprise economic security, besides national economic security, and regional economic security.

In their studies, some Western scientists used the notions of “economic security of the enterprise”, “economic security of the firm”, and “economic security of business” (Bowie, 1930; McGraw Hill, 1966; O’Dell, 1968; Keating, 1969; Pelkmans, 1984). However, these notions were not clarified and applied in practice. Buzan et al. (1998) explained this by the fact that “... the firm, has a relatively weak claim to status as a security referent object because of the contradiction between the inherently instrumental, ephemeral nature of the firm and the logic of existential threats that underlies security... They may grow very large and may last a long time, but even the oldest and largest are subject to the market, and when they cease to be efficient or to produce desired goods and services, they are dissolved and replaced by new firms” (Buzan et al., 1998, p.100). Enterprise’ involvement in security issue is mainly derived from (i) the enterprises are the main entities contributing taxes to the national budget, thereby ensuring national security and (ii) the enterprises create jobs and income for workers that ensuring individual security. Besides, Western scholars adhere to the principle of inheritance in scientific research and use more well-proven terms such as competitiveness, business survival, bankruptcy, risk management (Shutyak & Lukianova, 2019). In addition, in term of linguistics, the term “security” when applied to enterprise may be confused with the term “securities” (Shutyak, 2011; Shutyak et al., 2015).

Meantime, in post-Soviet countries, enterprise economic security has been the main subject of research interest to scholars since the 1990s. The explosion of these studies has many reasons. Firstly, in the Soviet era, enterprise economic security was a sensitive subject for open discussions. The theory of planned economy claimed that enterprise would not encounter risks in business as in the market economy. Therefore, research on risks, threats, and economic security in enterprise in the Soviet Union was unnecessary (Shutyak et al., 2015). Secondly, the socio-economic situation in the post-Soviet countries affected economic studies. The increase in corporate fraud and violence was one of the factors driving the research on economic security in enterprise (Taras, 1996; Volkov, 1999). Thirdly, researchers in these countries argued that the theories and concepts in Western studies were inconsistent with the transitioning economies. The main source of references for scholars was the studies of domestic colleagues, therefore the issue of enterprise economic security was commonly mentioned and studied (Shutyak et al., 2015).

Research by scholars in post-Soviet countries has presented multiple views on enterprise economic security, such as concept, essence, content of enterprise economic security, risks and threats to enterprise economic security, and system to ensure enterprise economic security. Enterprise economic security is researched by scholars from many perspectives such as economics, philosophy, politics. Currently, there is no standardized concept of enterprise economic security. Some scientists have attempted to generalize the essence of enterprise economic security.

Ianioglo & Polajeva (2016) indicated that this concept had been considered from several aspects, including state of protection from threats, state of efficient use of resources, ability for a stable functioning and development, presence of competitive advantage, and ability to achieve business goals. On that basis, these scholars stated that “economic security of enterprise is a state characterized by the ability of the economic entity to ensure efficient use of resources and opportunities to prevent threats and increase competitive advantages that will allow to ensure stable functioning and development in order to achieve business goals” (Ianioglo & Polajeva, 2016, p.5). Economic security enterprise included three important elements, namely economic independence, sustainability, and development.

Studying on enterprise economic security in Ukraine, Shutyak et al. (2015) summarized some characteristics of enterprise economic security, including reflects a state when a firm can accomplish goals that correspond to its interests, implies harmonisation or accommodation of interests of the main stakeholders, achieves its goals based on elimination of threats and utilisation of opportunities, achieves development, reproduction, mission, goals achievement, and implies a complexity of relationships between different players in the business environment. The notion of enterprise economic security had a complex internal nature that included a variety of structural interactions among internal elements of a firm and its external environment.

Regarding the structure of enterprise economic security, Ianioglo (2017) has pointed out many components, namely finance, human resources, production, technology, and innovation. Chernysheva et al. (2017) identified the following functional constituents of enterprise economic security: financial-and-economic or economic, personnel and intellectual, technical-and-technological, political-and-legal, information, ecological, and force. Matukova et al. (2019) defined the structure of enterprise economic security in the context of a digital economy including enforcement security, industrial security, financial security, informational security, and legal security.

The main tasks of enterprise economic security are to assess the economic situation in the world, the country, the region, the company, forecast the economic situation at the macro and micro levels, identify possible threats of different levels, decide to prevent the impact of identified threats, monitor and evaluate risk of the decisions’s implementation, and adjust system to encounter dangers (Artemenko, 2016). Creation of an effective system of economic security is to assess the safety factors of economic entities and the creation of a set of measures that include as tools for the prevention or reduction of damage from internal and external threats, as well as compensatory arrangements with their negative manifestations.

With regard to identification of risks and threats to enterprise economic security, Bank et al. (2018) suggested that it could be classified in the following ways. Firstly, the classification based on the existence of factors affecting risks includes predictable and unpredictable risks, objective and subjective risks, force majeure and non-force majeure risks, insured risks and noninsured risks, and pure and speculative risks. Secondly, the classification is based on the measurability of risks, including catastrophic, substantial, and destructive factors; latent, hard-to-detect, and apparent dangers; long-term, short-term, and

current risks; temporary risk and permanent risk. Thirdly, the classification based on the area of threats includes global and separate risks, internal and external risks, production, trade, and financial risks.

Ianioglo & Polajeva (2016) classified hazards and threats to enterprise economic security into external and internal groups. External threats represent changes in the environment that in a certain way may adversely affect the enterprise's activity, its economic security such as economic, political and legal, social, market, technological, and natural threats. Internal threats are directly related to the economic activities of enterprises, their staff, and have a direct impact on business results such as managerial, financial, labor, production, marketing, legal, and technological threats. In the Luhansk region of Ukraine, Pogorelov & Ivchenko (2017) presented modern threats and risks to the economic safety of enterprises including general threats, energy threats, threats of economic nature, transport threats, threats of socio-demographic nature, and lack of modern technology and equipment.

The system of ensuring economic security of the enterprise represents a set of organs, tools, methods, and events, aimed at protecting the business from the actual and/or the potential external and internal threats that could lead to economic losses (Ianioglo & Polajeva, 2017). The purpose of this system is to ensure the efficient operation and sustainable development of the enterprise based on implemented set of measures. Ianioglo & Polajeva (2017) identified four phases to ensuring enterprise economic security, namely planning, monitoring of external environment and internal condition of the enterprise, identifying and implementing of measures to respond to threats, controlling and improving of the system of economic security.

D'yakonova et al. (2018) proved that the system of the management of enterprise economic safety should be presented as a cyclically-functional decomposition set of administrative actions aimed at ensuring the economic safety of organization. The main stages of the management of the economic safety as follow: (i) Formulation of the main goal and tasks of management of economic safety of the enterprise, (ii) analysis of the enterprise environment, (iii) diagnostics of the internal environment of the enterprise, (iv) subsystem of the of enterprise economic safety assessment, (v) subsystem of dominant damages of the enterprise, (vi) construction of scenarios of probable development of an enterprise in case of the onset of dominant threats in the context of separate functional components of the economic security, (vii) development of recommendations for reducing the influence of dominant threats in the context of separate functional components of the economic security and increase the level of the latter, (viii) implement and correction of recommendations for reducing the impact of dominant threats in the context of individual functional components of the economic security and increasing the level of the latter.

In Vietnam, economic security issues are mainly studied in terms of national security (Hieu, 2005; Toan, 2014; Minh, 2014; Tru, 2014; Tho, 2014; Dang, 2017), security for the nation's basic economic resources such as energy security (Hang, 2007) and food security

(Nga, 2009; Tan, 2015), national financial and monetary security (Phung, 2004; Dat & Thanh, 2016). Research on enterprise economic security mainly focuses on financial security aspect (Phung & Tien, 2003; Hung, 2008; Anh, 2017; Cong & Lan, 2019).

### **3. Method**

The objective of this article is to examine the feasibility of studying and applying enterprise economic security theory in practice in Vietnam. To achieve these goals, the article uses the following research methods: the logical reasoning to clarify the absence and the necessary for enterprise economic security in Vietnam; the systematization method to identify issues that need research and clarification in the theory of enterprise economic security. The data in the article is extracted from the results of the research on enterprise economic security of scientists published in some international and national journals in post-Soviet countries and Western nations.

### **4. Results**

Enterprise economic security is new issue in theoretical and practical aspects in Vietnam. The absence of research on enterprise economic security in Vietnam derives from several reasons:

Firstly, like the post-Soviet nations, the Vietnamese economy began its transition from a planned economy to a socialist-oriented market economy in 1986. Number of private enterprises in Vietnam mostly increased after the Enterprise Law of 2000 took effect. In the long period, enterprises in Vietnam were predominantly state-owned, operating based on assigning business quotas from state management agencies, business risks were rarely mentioned. Therefore, it was unessential to research economic security at the enterprise level.

Secondly, the theory of economics in Vietnam is mainly inherited from the economic theory of Western scientists. The concepts and theories about the economy of the post-Soviet nations have little influence in economic studies in Vietnam. On the one hand, the success of economic development in these countries is ambiguous, therefore the reliability of economic theories is difficult to verify. On the other hand, the languages in these countries are not as common as English in Western studies.

Thirdly, the theory of risk management in corporate has been widely researched and accepted in economic studies in Vietnam. Business risks such as external risks (risks from the natural environment, political risks, legal risks, and cultural risks), internal risks (financial risks, management risks, human risks, and information technology risks) have been identified and theorized. The content, process, and tools for risk management in corporate were also clarified. The popularity and completeness of these theories make it difficult to study enterprise economic security due to some overlap in theoretical and practical contents.

Fourthly, security in Vietnam was commonly studied in traditional aspects such as political - military security, territorial security. Recently, non-traditional security has been initially researched. The term “security” has been extended to other entities like enterprise (Huong et al., 2015). However, the study of enterprise security and economic security of

enterprise is a complicated subject. This is an interdisciplinary field of research with a combination of security science and economics. The limitation in the number of scholars in this field has affected the formation and development of enterprise economic security theory.

So, is the research to formulate this new term really feasible and can be applied in practice? From my point of view, several objective reasons might prove the necessity of economic security at the enterprise level in Vietnam.

Firstly, the life cycle of an enterprise often undergoes many stages, namely start-up, construction, growth, maturation, and post-maturity (renewal, recession). Enterprise can survive for a short time, a long time, and even a very long time. The survival time of an enterprise depends on many factors, such as safety from internal and external threats, stable growth of business indicators, changing in accordance with market demand, and competitive advantage compared to competitors in business. These factors create a durable state in the enterprise. In other words, the enterprise is “in good health”, having enough potential to survive and develop in the long time. These are the specific factors that make enterprise security the same as national security or individual security in term of “security”.

Secondly, Vietnam is a developing country with the goal of becoming a modernized industrial country by 2030. In 2008, Vietnam became a middle-income country. To overcome the “middle-income trap”, Vietnam needs using synchronously and effectively resources to grow quickly and sustainably in the future. This requires enterprise - the main contributor to economic growth in Vietnam to constantly develop. The existence and development of enterprises is a particularly important factor for the achievement of Vietnam's socio-economic goals. Therefore, security in enterprises must be comprehensively viewed and assessed in relation with national economic security.

Thirdly, the theory of risk management in corporate has been widely accepted and applied in business. However, identifying, measuring, and controlling risks is only a method to ensure the development of enterprises. The prevention of risks will provide safety for the operation of the business. In addition, to survive and sustainable develop, enterprise needs to use resources effectively and has a flexible business strategy to adapt to market changes. These are some factors in the business that have not yet defined by a comprehensive term. Therefore, the use of the term “enterprise economic security” with a combination of security science and economics and in non-traditional security perspective will be a new orientation in interdisciplinary studies about the enterprise and security issue.

Fourthly, the formation of enterprise economic security awareness has many meanings. For state management agencies, this will be the basis for assessing the situation of businesses, thereby assessing the economy ‘s condition in order to develop appropriate policies and laws. For shareholders, this is the basis for planning a business development strategy, assessing the development potential of the enterprise as well as the efficiency of investing in the enterprise. For business executives, this is the basis for setting effective

policies and decisions in production and business. For partners and lenders, this is the basis for selecting good enterprises in business cooperation.

Fifthly, Vietnam's economy is increasingly integrating into the world economy. Vietnam has signed 13 free trade agreements (FTAs) and become one of the countries with large trade openness in the region. As an effect, the fluctuation of the world economy has a faster and stronger impact on the domestic economy compared to the previous period. For instance, trade protection trend, trade war, oil price war, currency devaluation, and the Covid-19 epidemic have great influences on Vietnam's economy recently. In this context, enterprise encounters extreme risks and threats, requiring strategic preparation to overcome the crisis, maintain their existence, and achieve viable development. For this reason, ensuring economic security becomes an urgent task for every enterprise in the international integration.

## **5. Discussions and Conclusion**

The study of enterprise economic security in Vietnam is necessary. The concept of enterprise economic security and system to ensure enterprise economic security in Vietnam should inherit research findings from post-Soviet countries and base on the specific characteristics of enterprise in Vietnam. The concept of enterprise economic security should clarify the necessary states of the enterprise, such as the state of safety, the state of stable and efficient operation, the state long-term and sustainable development, the state of economic - financial independence, the state without crisis, and the state of compliance with laws and regulations.

To measure enterprise economic security, it is necessary to study and develop a set of economic security indicators. Accordingly, a set of quantitative criteria and qualitative criteria should be clarified to determine the level of economic security in enterprise. For each type of enterprise in different business areas, it requires a corresponding set of indicators based on the characteristics of production and business activities.

System to ensure enterprise economic security should be determined by the state management agencies as well as the enterprise itself. State management agencies should have appropriate policies to create favorable business environment, create equal competition among enterprises, and protect key rights and interests worthy of the business. Enterprises should proactively develop economic security strategies based on identifying their SWOT, identify risks that may be encountered in the process of production and business, develop scenarios to cope with risks to achieve business goals, and determine safety limits and unsafe processes during operation.

Identifying threats to enterprise economic security should also be comprehensive. It can be classified into internal and external threats, intentional threats and unintentional threats, threats in each stages of production activities. With enterprises operating in different business areas, their threats are also various, therefore it is necessary to have specific research to analyze the threats. It is also required to clarify the threats to enterprise economic

security in the international integration with the impact of the industrial revolution 4.0 and in the digital economy.

Besides, it is imperative to interpret the position of economic security management in enterprise management, relationship between enterprise security management and risk management, and the role of enterprise economic security in the development of enterprise as well as national economic security. Studies should be combined security science and economics in non-traditional security perspective.

To conclude, enterprise economic security is a universal research subject studied by scientists in post-Soviet countries. Although this issue is under-researched by Western scholars, the results of research on enterprise economic security have theoretical and practical values. For Vietnam - a developing country with average income, stability and development of enterprise plays a crucial role in the successful implementation of socio-economic goals as well as overcome the “middle-income trap”. Therefore, the study and application of economic security theory into enterprises is feasible. This is a new subject, not yet being studied by scholars in Vietnam. Thus, the subject of enterprise economic security requires to be thoroughly explained by scientists in the coming time.

## 6. References

1. Anh, P.T.P. (2017). *Solutions to ensuring financial security of Vietnam 's aviation business* (Doctoral dissertation, Academy of Finance, Hanoi, Vietnam).
2. Artemenko, L. (2016). The System of Enterprise Economic Security: International and Ukrainian content. *World Scientific News* 57, 695-705.
3. Avanesova, N., & Chuprin, Y. (2017). Enterprise Economic Security: Essential characteristics of the concept. *Innovative technologies and scientific solutions for industries*, 1(1), 98-102.
4. Bank, S.V., Sekerin, V.D., Gorokhova, A.E., Nikolaykin, N.I., & Shcherbakov, A.G. (2018). Risks and Threats Posed to a Company's Economic Security. *International Journal of Engineering & Technology*, 7 (3.15), 210-215.
5. Bowie, J. A. (1930). *Education for Business Management: The Case for the Further Development of Educational Facilities*. Oxford University Press, H. Milford.
6. Buzan, B., Wæver, O., & Wilde, J. (1998). *Security: A New Framework for Analysis*. Lynne Rienner Publishers.
7. Cong, N.V., & Lan, N.T.N. (2019). Financial Security of Vietnamese Businesses and Its Influencing Factors. *The Journal of Asian Finance, Economics and Business*, 7(2), 75-87.
8. Dang, B.N. (2017). *Ensuring economic security in the economic integration in Vietnam* (Doctoral dissertation, Hanoi National University, Ha Noi, Vietnam).
9. Dat, T.T., & Thanh, T.T. (2016). *Vietnam 's financial security in the integration*. Hanoi, Vietnam: Political theory.



10. D'yakonova, I., Nikitina, A., & Gurvits, N. (2018). Improvement of the enterprise economic security management in global environment. *Geopolitics under Globalization*, 2(1), 19-26. doi: [https://doi.org/10.21511/gg.02\(1\).2018.03](https://doi.org/10.21511/gg.02(1).2018.03).
11. Hang, H.T.M. (2007). Energy security in East Asia: Status quo and solutions. *Journal of Northern East Asia*, 4.
12. Hieu, P. (2005). Ensuring national security in international economic integration. *Journal of Business Finance*, 9.
13. Hung, T.T. (2008). *Solutions to ensuring enterprise financial security in Vietnam in the integration* (Doctoral dissertation, Academy of Finance, Hanoi, Vietnam).
14. Huong, N.V, Nam, B.V., & Phi, H.D. (2015). *Non-traditional security management for sustainable development*. Hanoi National University.
15. Ianioglo, A., & Polajeva, T. (2016). Origin and definition of the category of economic security of enterprise. *9th International Scientific Conference "Business and Management 2016", Vilnius, Lithuania* (38-46). <http://dx.doi.org/10.3846/bm.2016.46>.
16. Ianioglo, A. (2017). Economic Security of Enterprise and the innovative component. *Economic and Engineering Studies*, 1(1), 51-56.
17. Ianioglo, A., & Polajeva, T. (2017). Innovative component of Economic Security of Enterprises: A case of the Republic of Moldova. *Journal of Business Economics and Management*, 18(6), 1228-1242. doi:10.3846/16111699.2017.1405365.
18. Keating, S. (1969). The communications of confrontation. *In the Engineer and the city* (54-59). Washington, D.C.: The Fifth Autumn Meeting National Academy of Engineering.
19. Lu, X., & Wang, J. (2018). A Review of the Classification of Enterprise Life Cycle. *Modern Economy*, 9, 1169-1178. <https://doi.org/10.4236/me.2018.97076>.
20. Matukova, H., Mokriak, E., & Matukova, D. (2019). Management of the enterprise economic security system in network economy conditions: essence, basic components, and the diagnosing mechanism. *SHS Web of Conferences* 65. <https://doi.org/10.1051/shsconf/20196503003>.
21. Minh, V.Q. (2014). Economic security. *Economic security in the integration*. Hanoi, Vietnam: Public Security.
22. Nga, N.Q. (2009). Food security in the Greater Mekong Subregion under the impact of climate change. *Journal of Economic and Political Issues world*, 1(153).
23. O'Dell, W. F. (1968). *The marketing decision*. New York: American Management Association.
24. Pelkmans, J. (1984). *Market Integration in the European Community*. Springer.
25. Phung, T.H., & Tien, T. (2003). *Financial security of state enterprise in the integration*. Hanoi, Vietnam: Political theory.
26. Phung, T.H. (2004). *National financial security: Theory, warnings, and countermeasures*. Hanoi, Vietnam: Finance.
27. Pogorelov, Y., & Ivchenko, Y. (2017). The Economic Security of Enterprises in the Luhansk Region in conditions of post-conflict transformation. *Baltic Journal of*

*Economic Studies*, 3(5), 358-366. DOI: <http://dx.doi.org/10.30525/2256-0742/2017-3-5-358-366>.

28. Primorac, T., Kozina, T., & Turčić, I. (2018). Economic Security of Enterprises. *Poslovna Izvršnost Zagreb*, 12(2), 167-176. DOI: <https://doi.org/10.22598/pibe/2018.12.2.167>.
29. Shutyak, Y., Danylenko, O., & Caillie, D. (2015). The concept of Economic Security of Enterprise in Ukrainian economic thoughts. *ZN WSH Zarządzanie*, 4, 27-45. DOI: 10.5604/18998658.1186376.
30. Shutyak, Y., & Lukianova, V. (2019). Enterprise Economic Security: Scientific View and Business Reality. *Advances in Economics, Business and Management Research*, 95, 370-373.
31. Shutyak, Y. (2011). Diagnostics of Economic Security of Enterprises. *Khmelnytskyi National University*. .
32. Tan, T.N. (2015). *Non-traditional security: Theoretical and practical issues*. Hanoi, Vietnam: Political theory.
33. Taras, A. (1996). *Security of business man and business*. Minsk: Sekay.
34. Tho, N.T. (2015). State management on national security in economic: Theoretical and practical issue. *Economic security in the integration*. Hanoi, Vietnam: Public Security.
35. Toan, T.T. (2014). Overview of economic security. *Economic security in the integration*. Hanoi, Vietnam: Public Security.
36. Tru, P.Q. (2014). International context and the issue of national economic security. *Economic security in the integration*. Hanoi, Vietnam: Public Security.
37. Volkov, V. (1999). Violent Entrepreneurship in Post-Communist Russia. *Europe-Asia Studies*, 51(5)
38. Wolfers, A. (1952). "National Security" as an Ambiguous Symbol. *Political Science Quarterly*, 67(4), 481-502.

# FACTORS INFLUENCE CUSTOMERS' SATISFACTION TOWARD ONLINE BRAND COMMUNITY: A CASE STUDY OF NATIONAL ECONOMICS UNIVERSITY'S ONLINE BRAND COMMUNITIES

*Assoc. Prof. Dr Do Thi Dong*

*dongdt@neu.edu.vn*

*Nguyen Thi Kieu Trang*

*kieutrangneu37@gmail.com*

*Nghiem Minh Giang*

*toilaminhgiang@gmail.com*

*Nguyen Thi Thuong*

*thuong16111999@gmail.com*

*Nguyen Ba Viet Trung*

*viettrung.mqi@gmail.com*

*Nguyen Kieu Anh*

*kieuanh.mqi@gmail.com*

*Faculty of Business Management, National Economics University, Hanoi, Vietnam*

## **Abstract**

*This paper investigates factors influencing customers' satisfaction toward online brand community and online communities of National Economics University are taken as case study. A quantitative study is conducted with the sample size of 144 observations. The results reveal that there is sufficient evidence to conclude quality of information, customer interaction, and customer attitude have positive relationship with customer satisfaction toward online brand communities of National Economics University. Additionally, there is sufficient evidence to conclude that customer satisfaction toward online communities has positive relationship with customer brand loyalty.*

**Keywords:** *Brand loyalty, Customer satisfaction, Online Brand Community*

## **1. Introduction**

Social media gradually became closer and more popular in modern life nowadays. Vietnam ranked 18<sup>th</sup> in numbers of people using Internet and in the top ten having biggest numbers of Facebook and You tube users in the world. Among them, teenagers are by all odds large contributors (Kha, 2019). Social media users created their own group with the same concerns and preferences whether how far they are thus, so online brand community is established. The community shows crystal clear in interactive actions between members in groups, groups in social network as a whole and the online brand community in particular.

The online brand community is a copious, high quality, and low-cost sources of data for enterprises in approaching and maintaining the relationship with the customers. In information era, online brand community provides opportunities for organizations to increase their interactions with clients, bringing real benefits for strengthening customers' brand loyalties. This raised question that whether the activities taken by online community administrators can make followers feel satisfied, and thus, their loyalty with product and/ or service brand is enhanced. The answer to this question will help organizations to have the evidence in building a successful online brand community, and then motivate their clients' brand loyalty.

This article examines factors that affect customers' satisfaction toward online brand community. Online brand communities of National Economics University are taken as case study. The study comes up with some implications for managers in managing online communities in order to improve customer satisfaction and finally strengthen customer loyalty to brand.

## **2. Conceptual framework**

### *Community and online community*

According to common understanding, community is a social group of people that have interactions with others and share the same things, it can be a field for a common value, common manners, etc. to create a social engagement. From economic perspective, community is created by 2 factors including spiritual connection and the formation of social network, in which every single person feel assure and safe when they are in a community or social network and so that they are willing to contribute, sacrifice for that community, protect the community's sake in a fierce competing environment (Putnam, 2000). Inspire of approaching many different perspectives, researchers all come to a conclusion that a community is a group of people that connect to others, with criteria of volition, affection, belief and community consciousness, whereby the community members could sense the communion between them and other members.

To classify the community, three criteria can be taken into account, including geographic community, culture community, and community of organization. Geographic communities include ones such as neighbours, hamlets, villages, towns, cities, countries, territories, etc. Communities of culture include types of factions, regions, multi-cultural communities, communities of identities (disabled community, elderly community, etc.). Community of organizations include families, ancestries, networks, and official organizations, economic groups, professional associations from small to large scale.

When everybody gathers for a common subject, a common concern, same preferences, or opinion in human society, with the existence of Internet, interactions and contacts of humans intended to create online community. Rheingold (1993) gave an opinion that online community was a social group came from the internet with the sense enough for people to create one network of relationship through online space. The online community is said to be a basic way of online promotion strategy for the company that can create the brand loyalty effectively.

### *Online brand community*

Online brand community is an online community be formed by the consumers who have love and passion for a brand and this brand is the focal point of the interaction in this online society (Heding et al., 2009). All the members can take part in the community to collect information, contribute and share valuable knowledge more clearly than ever (Auker, 2011). Enterprise can use online brand community for branding, selecting the suitable applications as key tools to select target. The important thing is to send the useful messages and receive feedback immediately from clients or potential clients (Auker, 2011). On the other hand, the popularity, low- cost, and high efficiency of communications drew many organisations' attention to take part in such an environment (Kaplan and Haenlein, 2010).

The online brand community can be considered as a type of existing brand community in the Internet. The social-based online brand community derives from trade-based community of economic-based community (Kim et al., 2008). In online brand community, members exchange their information, share their knowledge about the products or service and suggest solutions for problems relating to products or service (Muniz and Schau, 2005). The online brand community consists a group of people with knowledge of the brand and have no geographical limit (Mc Knight, 2002). Nowadays, it is believed that online brand community provides organizations golden opportunities to communicate with the customers and to access valuable ideas (Jang et al., 2008).

The online brand community can be classified into 2 types. The first is voluntarily initiated by consumers. The second is initiated by companies, who possess brand and want to use community for establishing relationship with consumers and receiving consumers' feedback (Jang et al., 2008). Lee and Kim (2005) assumed the online brand community's characteristics are quality of information, service quality, rewards and interaction. Jang et al. (2008) believed that characteristics of community are quality of information, system quality, interaction and rewards.

### *The customer satisfaction and brand loyalty*

According to American Society for Quality (ASQ), customer satisfaction is defined as a measurement that determines how happy customers are with a company's products, services, and capabilities. Customer satisfaction may relate to a particular feature or characteristic of a product or service, or alternatively it may relate to the product/service as a whole. According to Geyskens et al. (1999), there are two opinions about customer satisfaction. One assumes satisfaction is the affectionate tendency which is maintained by economic conditions, such as sales volume or received profit rate. Consequently, this is satisfaction of economy because it attaches to economic efficiency. The second is called non-economic satisfaction, taking this concept from psychology perspective, for example, your counterpart makes a promise or can be easily make a relationship with him. Then, satisfaction is assessed on the consumers' attitude toward the companies' manners through the results from interactions because of the mutual relationship.

Brand loyalty means customers will intend to motivate the company's products or service actively and express some faithful actions. Brand loyalty can help enterprise to reduce promotion costs, strengthen the relationship with distributors and also decrease threats from competitors. Some researches pointed out that one loyal customer will buy more products and service as well as recommend the brand to other people.

Brand loyalty described characteristics of the consumers and people who strongly commit to a brand. Due to the fact that these people appreciate a specific brand, rather than alternative options so these words are fortified through the repeating brand using. Aaker (1991) said that the brand loyalty was the level of connecting consumers' emotions, price, satisfied rate, switching cost, priority and the brand commitment. In the community context, the brand loyalty can be affected by many factors like the customers' participations and web management. Consumers attend an online brand community because information and trustworthy experiences of the consumers are capable of being committed by the community (Dong, 2019), this things result in strengthening the customers' loyalty to the brand.

## **2. Methodology**

### ***Research hypotheses***

#### *Quality of information*

Members of online brand community research and share information through the applications in the Internet. To provide good experiences to the community participants, the sharing information quality has to be assured as high.

Due to development of information technology and of economic activities, consumers and companies is intending to turn into online transaction, information is becoming essential prerequisite conditions to make positive cooperative relationship between sellers and consumers (Salaun and Flores, 2001). Transferring information platform via internet becomes an important dimension for organizations. High quality information can make users feel satisfied (Liu and Arnett, 2000). Information can help the customers reduce the fumbling time when approaching the products and service. The information quality affects positively to the perceived benefit of the customers (Park and Kim, 2003). Awards for the valuable information in the community can accelerate the committed level of the community (Sheth and Atul, 1995). Since then, the first hypothesis is proposed:

H1: The information quality has positive relationship with customer satisfaction.

#### *Interaction*

Whether in the real world or cyber world, community members interact with each other to deepen exchanged messages (Watson, Akselen and Pitt, 1998). Interaction includes communication between people to people and people to machine. People to machine interaction mentions communication between people and webs or other information system where as people to people communication is the centre in which internet users can have relationship with others in cyber world. When interaction between information facilitator

and recipient happens frequently, the cyber community is considered as a social room and all participants can achieve some emotional and information-exchanged assistances. Interactions between webs and customers will affect customers' loyalty in the cyber world (Deighton, 1996). If a company wants to increase customer satisfaction and strengthen customer relationship, website should be paid attention to. Madupu and Cooley (2010) believed there would be two broad, but separate, types of consequences of participation (community consequences [consciousness of kind, moral responsibility, and shared rituals and traditions] and brand consequences [sustainable brand loyalty, oppositional brand loyalty, and brand recommendation intention]). The second hypothesis is as follows:

H2: Interaction has positive relationship with customer satisfaction.

*Customer attitude*

As suggested by researchers, online brand community is a significant tool for building permanent relationship between brand and consumers (Algesheimer et al., 2005; McAlexander et al., 2002). In the context of online brand community, brand loyalty has an important structure to comprehend these permanent relationship because belief has an intention to motivate efficient relationship. In recent years, researchers have come to a conclusion that believing attitude is an important variable that related to the online environment (Bauernfeind and Zins, 2006). Accordingly, the third hypothesis is as follows:

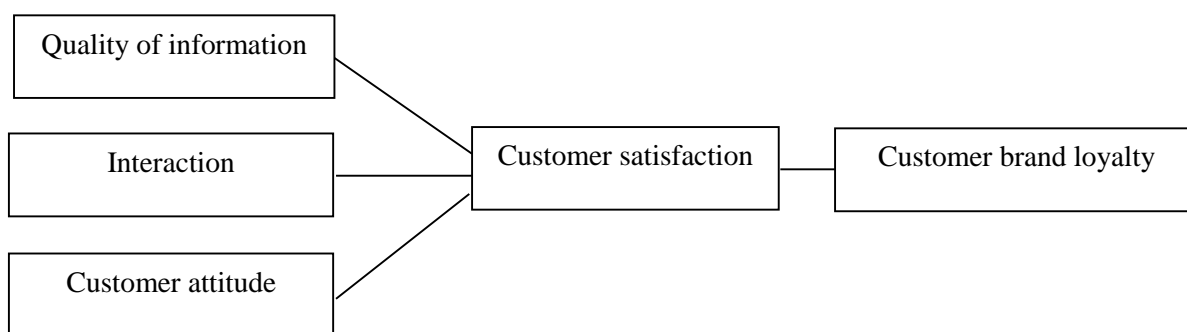
H3: Customer attitude has positive relationship with customer satisfaction.

*Customer satisfaction and brand loyalty*

Customer satisfaction can be understood as a status of customers' feelings from consuming products or service (Phan and Su, 2012). When the customers reach out to some products or service, in their thoughts there is always expectation and if the product or service meet their requirements, they will feel satisfied and intend to recommend it to their acquaintances. In other words, customers will be faithful with your brand product or service. So, the forth hypothesis is:

H4: Customer satisfaction has positive relationship with customer loyalty.

Consequently, the research model is presented in figure 1:



**Figure 1: Research model**

*Source: Conducted by research group*

### *Data collection and analysis*

Since National Economics University is a large- scale university, there are a number of online communities focusing on different perspectives. Facebook is chosen as it is the most popular social media platform in Vietnam (Statista, 2020). Among them, top four communities in number of followers are chosen (Table 1). The study come up with 144 observations. SPSS 20 is used for data processing.

**Table 1. Surveyed communities**

Name of online community	Number of followers
Cong dong sinh vien NEU	53.399
Goc hoc tap NEU	116.190
Goc thong tin NEU	87.314
Nhom thong tin sinh vien NEU	20.973

### **3. Results**

#### *Demographic Characteristics of respondents*

All respondents are students. Table 2 illustrates the demographic characteristics of them.

**Table 2. Demographic Characteristics of respondents**

Characteristics	Frequency	Percentage (%)
Gender		
Female	65	45.1
Male	77	53.5
Other	2	1.4
Age		
18-22	140	97.2
23-30	4	2.8

#### *Cronbach's Alpha Reliability Test*

Analysis results of internal consistency is presented in Table 3. Values of Cronbach's Alpha range from .790 to .921, meaning that the internal consistency is good or acceptable. In other words, indicators in each variable reflect the same underlying entity.

**Table 3. Analysis of Internal Consistency**

Variables	No. of items	Cronbach's Alpha
Quality of information (QINF)	5	.790
Interaction (INT)	5	.825
Attitude (ATT)	5	.899
Customer satisfaction (CS)	5	.921
Customer loyalty (CLOYL)	5	.894



### Exploratory Factor Analysis

The first round of exploratory factor analysis, Kaiser-Meyer-Olkin measure of sampling adequacy is 0.924 and Total Variance Explained is approximately 50%. The QINF 3 is given up as it is loaded solely from other indicators. INT 2 indicator is loaded on both factor 1 and 2 with the loading value difference less than 0.3 and thus, the indicator is discarded. 13 indicators are analysed for the second round. They are loaded on 3 components. Each of them has loading factors more than 0.3. Table 4, 5 and 6 present results of regression analysis to test hypotheses of H1, H2, and H3.

**Table 4. Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.634	.502	.489	.78179925	1.939

**Table 5. ANOVA**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	57.431	3	19.144	31.321	.000 <sup>a</sup>
Residual	85.569	140	.611		
Total	143.000	143			

**Table 6. Coefficients**

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Collinearity Statistics		
					B	Std. Error	Beta
1 (Constant)	8.173E-17	.065		.000	1.000		
REGR factor score 1 for analysis 1	.445	.065	.445	6.801	.000	1.000	1.000
REGR factor score 2 for analysis 1	.289	.065	.289	4.417	.000	1.000	1.000
REGR factor score 3 for analysis 1	.347	.065	.347	5.311	.000	1.000	1.000

Regarding to the relationship between customer satisfaction and customer loyalty, the exploratory factor analysis is also implemented. Indicators are loaded on 2 components. Regression is used to test hypotheses. Results are presented in Table 7, 8, and 9.

**Table 7. Model summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.856 <sup>a</sup>	.733	.731	.50408145	2.023

**Table 8. ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	99.235	1	99.235	390.538	.000 <sup>a</sup>
	Residual	36.082	142	.254		
	Total	135.317	143			

**Table 9. Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.069	.042		1.642	.103		
	REGR factor score 1 for analysis 1	.809	.041	.856	19.762	.000	1.000	1.000

In summary, results of regression analysis is shown in table 10 and 11.

**Table 10. Results of Regression Analysis on customer satisfaction and customer loyalty**

Variables	Beta	t	Sig.	H	Supported
Quality of information (QINF)	.445	6.801	.000	H1	Yes
Interaction (INT)	.289	4.417	.000	H2	Yes
Attitude (ATT)	.347	5.311	.000	H3	Yes
Customer satisfaction (CS)	.169	19.762	.000	H4	Yes

The variances explained (R<sup>2</sup>) were examined and the results are presented in Table 5. The value of adjusted R square for the dependent variable, customer satisfaction, was 0.489. Besides, the adjusted R square for customer loyalty was 0.731. The adjusted R square value indicated that the model explained a significant amount of variance for customer satisfaction and loyalty.

**Table 11. Adjusted R square**

	Customer satisfaction	Customer loyalty
R square	.489	.731

#### 4. Discussion and Conclusion

There is sufficient evidence to support the claim that there are positive relationship between quality of information, interaction, and attitude with customer satisfaction. Three variables could explain about 50% of customer satisfaction. In addition, the relationship between customer satisfaction and customer loyalty seem strong. Customer satisfaction can explain more than 70% of customer loyalty. It means once customers are satisfied with the online brand community, they tend to be loyal with product or service brand. The results seem meaningful to managers of National Economics University in particular and organizations in general. If online brand community of product and/ or service exists, improving quality of information, strengthening interaction among community's participants, and shaping participants' expectation so that they have positive attitude to both community and product and/ or service can lead to their satisfaction. Additionally, there seem to be a strong relationship between community participants' satisfaction and their loyalty.

The research has several limitations. Since the population is large (Table 1), the results would be better if the sample size is larger. Besides, there are still non-student participants in online community of National Economics University but none of them was included in the sample. Future research can increase sample size and take into account non-student respondents.

#### 5. References

1. Aaker, D.A., 1991. *Managing brand equity capitalizing on the value of a brand name; managing brand equity capitalizing on the value of a brand name*. New York: Free Press.
2. Algesheimer, R.; Dholakia, U.M.; and Herrmann, A. (2005), "The social influence of brand community: Evidence from European car clubs", *Journal of Marketing*, 69 (3), pp. 19-34.
3. ASQ (2020), What is customer satisfaction?, retrieved on May 30 2020, from <https://asq.org/quality-resources/customer-satisfaction>
4. Auker, C., 2011. *Social Media and its Application in Business Marketing* Massachusetts : University of Massachusetts Dartmouth Press.
5. Bauernfeind, U. and Zins, A. (2006), The Perception of Exploratory Browsing and Trust With Recommender Websites, *Journal of IT & Tourism*, Vol. 8, No. 2, pp. 121-136.
6. Deighton, J. (1996), "The Future of Interactive Marketing," *Harvard Business Review*, Vol. 74, No. 11, 1996, pp. 151- 161.
7. Dong, D. T. (2019), Nghien cuu thuc tien ve cong dong thuong hieu truc tuyen o Viet Nam, Proceedings of international conference "Digital Business and Marketing in globalization era", National Economics University, Hanoi, Vietnam.
8. Geyskens, I.; Steenkamp, J. & Kumar, N. (1999) "A Meta-Analysis of Satisfaction in Marketing Channel Relationships", *Journal of Econometrics*, 36(2), pp. 223-238.
9. Heding, T., C. F. Knudtzen and M. Bjerre, 2009. *Brand management research, theory and practice; brand management research, theory and practice*. London: Routledge.

10. Jang, H.; Olfman, L.; Ko, I.; Koh, J., and Kim, K. "The Influence of Online Brand Community Characteristics on Community Commitment and Brand Loyalty," *International Journal of Electronic Commerce*, Vol. 12, No. 3, 2008, pp. 57-80.
11. Kaplan, A.M. and Haenlein, M. 2010. Users of the world, unite! The challenges and opportunities of Social Media. *Business Horizons*, 53, 59-68.
12. Kha, T. (2019) "Giới trẻ Việt Nam sử dụng mạng xã hội 7 giờ mỗi ngày", last retrieved on May 30, 2020, from <https://dantri.com.vn/xa-hoi/gioi-tre-viet-nam-su-dung-mang-xa-hoi-7-gio-moi-ngay-20191105193030084.htm>
13. Kim, J. W., J. Choi, W. Qualls and K. Han, 2008. It takes a marketplace community to raise brand commitment: The role of online communities. *Journal of Marketing Management*, 24(3): 409-431.
14. Lee, J. Y . and Kim, Y . G. (2005), "Community Characteristics Effect Customer Commitment and Loyalty in the Online Consumer Community," *Proceedings of the Korea Society of Management Information System Conference*, Korea, pp. 841-848.
15. Liu, C. and Arnett, K. (2000), "Exploring the Factors Associated with Web Site Success in the Context of Electronic Commerce", *Information & Management*, 38, 23-33.
16. Madupu, V. and D. O. Cooley, 2010. Antecedents and consequences of online brand community participation: A conceptual framework. *Journal of Internet Commerce*, 9(2): 127-147.
17. McAlexander, J. H.; Schouten, J. W.; and Koenig, H. F. (2002), "Building brand community", *Journal of Marketing*, 66 (1), pp. 38 - 54.
18. McKnight, D. H.; Choudhury, V.; and Kacmar, C. (2002), "The Impact of Initial Consumer Trust on Intentions Transact with a Web Site: A Trust Building Mode," *The Journal of Strategic Information Systems*, Vol. 11, No. 3, pp. 297-323.
19. Muniz and H. J. Schau, "Religiosity in the Abandoned Apple Newton Brand Community," *Journal of Consumer Research*, Vol. 31, No. 4, 2005, pp. 737-747.
20. Park, C. H. and Kim, Y. G. (2003), "Identifying Key Factors Affecting Consumer Purchase Behavior in an Online Shopping Context," *International Journal of Retail & Distribution Management*, Vol. 31, No. 1, pp. 16-29.
21. Phan, N. D. and Su D. N. (2012), *Managing quality*, NEU Publication, Hanoi, Vietnam.
22. Putnam, R. D. (2000). *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster
23. Rheingold, H. "The Virtual Community: Homesteading on the Electronic Frontier," Addison-Wesley, New York, 1993.
24. Salaün, Y. and Flores, K. (2001), "Information quality: meeting the needs of the consumer", *International Journal of Information Management*, 21(1), pp. 21-37.
25. Sheth, J.N., and Atul, P. Relationship marketing in consumer markets: Antecedents and consequences. *Journal of Academy of Marketing Science*, 23, 4 (1995), 255-271.

26. Statista (2020), *Leading active social media platforms among internet users in Vietnam as of 3rd quarter of 2019*, retrieved on June 9, 2020 from <https://www.statista.com/statistics/941843/vietnam-leading-social-media-platforms/>
27. Watson, R. T.; Akselsen, S.; and Pitt, L. F. (1998), "Attractors: Building Mountains in the Flat Landscape of the World Wide Web," *California Management Review*, Vol. 40, No. 2, pp. 36-43.

# **DETERMINANTS OF OPERATIONAL EFFICIENCY AND THE RELATIONSHIP BETWEEN OPERATIONAL EFFICIENCY AND SOLVENCY OF LOGISTICS JOINT-STOCK COMPANIES**

*Assoc. Prof. Vu Thi Mai*

*maivt@neu.edu.vn*

*Faculty of Human Resources Economics and Management,*

*National Economics University, Hanoi, Vietnam*

***Dinh Gia Hoa***

*hoa8a2@gmail.com*

*School of Accounting and Auditing,*

*National Economics University, Hanoi, Vietnam*

***Mai Thanh Huong***

*huong.maithanh.2212@gmail.com*

*School of Accounting and Auditing,*

*National Economics University, Hanoi, Vietnam*

***Pham Van Hau***

*phamhau100598@gmail.com*

*Vietnam Rural Industries Development and Research Institute, Hanoi, Vietnam*

## **Abstract**

*Operational Efficiency (OE) and solvency play an important role in the success of any enterprises. Therefore, studying the relationship between OE and solvency needs to be taken comprehensively and continuously in order to find out long - term solutions for increasing business effectiveness. This paper examines the determinants of OE and the relationship between OE and solvency of the logistics joint-stock companies (JSCs) listed on the Vietnam Stock market with answers for the above-mentioned issues. This study mainly investigates 30 listed logistics firms from 2014 to 2018. The findings of this study suggested that the relationship between OE and solvency of logistics JSCs is inversely correlation.*

**Key words:** *Operational Efficiency, Logistics JSCs, Solvency.*

## **1. Introduction**

In the world's current trend, logistics has become an important sector in the overall structure of national economy. According to Council of Supply Chain Management Professionals (CSCMP), logistics can bridge the gaps between other economic sectors, as well as promote the overall national economy. Not falling out of this trend, top logistics enterprises in Vietnam have equipped themselves with sustainable resources in order to fully adapt to this change. In this context, managers need to understand the financial structure of

their businesses to make appropriate adjustments and decisions to ensure operational efficiency and enhance their company's development. In Vietnam, researchers have put too much emphasis on capital structure (the relationship between debt and equity) and little attention to solvency. According to statistics of Hanoi Stock Exchange (HNX) and Ho Chi Minh City Stock Exchange (HOSE), the amount of capital listed on the trading floor of Vietnamese logistics enterprises is still moderate. Small and medium-sized companies with limited resources cannot guarantee the ability to pay their own debts and ensure operational efficiency at the same time. This current situation generates deep challenges in management, investment, and production. Therefore, to stimulate sustainably economic development, the link between OE with the solvency of these companies should be taken into careful consideration. Up to now, there is generally hardly any domestic concrete research to clarify the relationship between OE and solvency of enterprises, especially among logistics JSCs in Vietnam. Thus, this article will concentrate on identifying determinants of OE and the tie between OE and solvency of logistics JSCs so as to give supported clues for this problem.

## **2. Literature review**

There are many concepts of Operational Efficiency (OE). Operational efficiency can be formally defined as the ability of an enterprise to ensure the high quality of its products and services in the most cost-effective manner possible (Beal, 2016). Matthew Burrows (2016), OE consisted of reducing costs and service quality to keep existing customers and maintain high revenue. Dennis Hartman (2016) pointed out a method of measuring OE by evaluating how well a business managed its resources and utilized them to generate profits. Neil Kokemuller (2016) focused on OE in terms of encompassing several strategies and techniques to delivering quality goods in the most cost-effective and timely manner; and on OE involving performing similar activities in more efficient ways than their competitors. SubhaVaradan (2016) proposed that "OE is a critical system that can keep a company in business or close it down". In domestic researches, Nguyen Van Cong (2019) pointed out that the OE of a company reflected operation results that a company possibly got when it used its input for business operation. Basically, OE is an indicator of the efficiency of using the input elements of business operation and solvency.

In terms of measuring OE, Bernstein (1988) identified that OE which presented firm performance can be evaluated by financial ratios such as solvency, capital structure, profitability, and turnover. Feng (2000) did also use financial to evaluate performance for airlines by using grey relation analysis and TOPSIS method to overcome the problem of small samples and outranking of airlines. Hobarth (2006) showed the correlation between financial indicators and OE of listed firms in the USA for a 19-year period by using 17 financial indicators and 3 variables to measure firm's performance, namely market performance (measured by changes in stock market value), cash flow performance (solvency), and profitability (ROI). Sandstrom (2007) presented a historical review and some pragmatic solutions to Solvency. Four fundamental issues needed was also discussed for constructing solvency systems, i.e. valuation of assets and liabilities, risk margin for uncertainty in liabilities and assets and risk measures and modeling (risk categories, risk mitigation, diversification, etc.).

Regarding solvency, there is an array of different definitions. First, as to Pentikäinen, T. (1952), solvency was the difference between assets and liabilities. Benjamin (1977) referred to the Oxford Dictionary as "having enough money to meet all liabilities". Developing the theory of Pentikäinen, T, Jackson et al. (2002) defined as "when its total assets were higher than current liabilities". Langiemer (2004), solvency measured the amount of debt and other cost obligations compared to the amount of equity invested in an enterprise. Ibenta (2005) argued that solvency was a firm's ability to meet capital needs.

**Scale of company:** Research by Gleason, L. K Mathur and I.Mathur (2000), Onaolapo and Kajola (2010) showed that firms' size had a positive and significant impact on business performance, i.e. the bigger a business is, the efficiency it could generate. However, according to the results of other studies from such researchers as Mudambi and Nicosia (1998), Lauterbach and Vaninsky (1999), Durand and Coeuderoy (2001), Tzelepis and Skuras (2004), Zeitunand Tian (2007), the scale had positive impact but not significant on business performance of the enterprises.

***H1: Scale of company has a positive impact on Operational Efficiency***

**Degree of financial independence:** The degree of financial independence is presented by the proportion of owner equity out of total equity (abbreviated as ER). The more debts a company owed, the lower degree of financial independence of this company is. According to the theory of Modigliani and Miller, when a business starts to borrow, the business will have advantages of tax shield. The low cost of debt combined with the tax shield advantage will lead to a decrease in total cost. Therefore, business performance is enhanced. Specifically, if the companies kept the degree of financial independence at a low level, its OE would increase. In contrast, the empirical research results of Zeitun and Tian (2007), Neil Nagy (2009); FoziaMemon, Niaz Ahmed Bhutto, GhulamAbbaas (2012) showed that debt ratio had a negative and significant effect on business performance of the enterprise.

***H2: Degree of financial independence has a positive impact on Operational Efficiency***

**Total assets:** Empirical research results of Rami Zeitun and Gary Gang Tian (2007); Onaolapo and Kajola (2010); Marian Siminica, Daniel Circiumaru, Dalia Simion (2011); FoziaMemon, Niaz Ahmed Bhutto and Ghulam Abbas (2012) showed that total assets were significantly negative impacts on business performance of the enterprise. According to the research of Marian Siminica, Daniel Circiumaru, Dalia Simion (2011), total assets also had a negative and significant effect on the OE of the company.

***H3: Total assets has a positive impact on Operational Efficiency***

**Sales:** The revenue will reflect the capacity of sales activities. An increase in goods sold, can positively affect business performance of a business. The study of Nguyen QuocNghi (2010) proved that there existed a direct correlation between total sales and OE.

***H4: Total sales has a positive impact on Operational Efficiency***

***The relationship between OE and solvency***



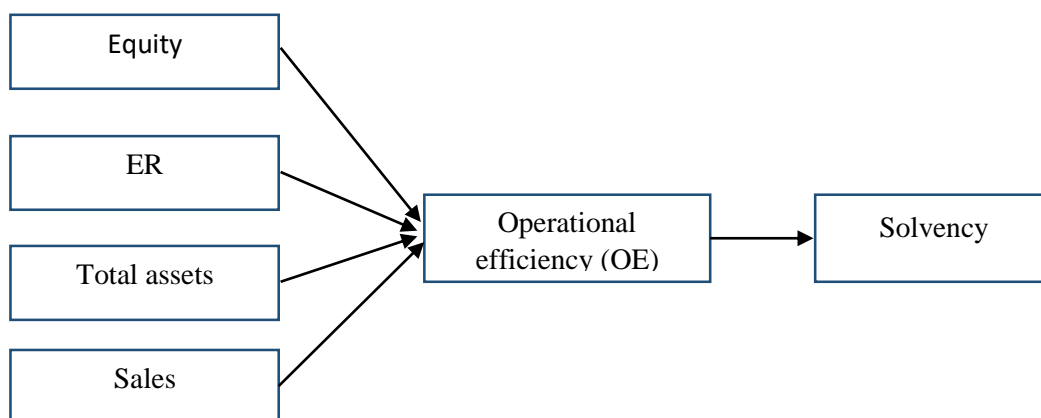
The topic of the relationship between OE and solvency has not attracted many studies from domestic researchers except for some foreign ones.

On the one hand, there exists a positive relationship between OE and solvency. Lambery and Valming (2009) evaluated and compared the solvency of companies on the Stockholm Stock Exchange over two times to see how solvency's changes affecting firms' performance. The results showed that solvency maintenance strategies did not affected greatly operational efficiency. A study of Victor Chukwunwieke (2014) determined the relationship between quick ratio and profitability ratios of listed companies on the Nigerian stock exchange NSE was positive. Rafid Hamad (2016) conducted an assessment of the relationship between solvency and performance of Standard Chartered Bank in Pakistan, which was also positive.

***H5: Operational efficiency has a significant and positive relationship on Solvency***

On the other hand, some researchers announced a negative correlation between OE and solvency. Jennifer Muthio Kyule (2015) after conducting a research on the relationship of OE and solvency for financial activities of listed companies on Nairobi stock exchange, Kenya concluded that solvency was negatively correlated with ROA which presented for OE. Evengi Raykov (2017) explored a trade-off between solvency and profitability in the event of financial crisis from analysis data in quarterly financial reports of 20 companies with different economies in the Bulgarian economy in 2007-2015. A conclusion was that that during the 2007 crisis, financial managers successfully separated profits from payables when the correlation between them was negative.

***H6: Operational efficiency has a significant and negative relationship on Solvency***



**Figure 1. Conceptual model**

**2. Methodology**

***Evaluation indicators***

+ Operational Efficiency

In a study evaluating operating efficiency in Egypt firms, Armer, Mostafa and Eldomiaty (2011) found asset quality, capital adequacy, credit risk and liquidity as major determinants of OE in highly competitive companies. Based on these results and a theory

developed by Hobarth (2006) about using financial ratios to evaluate OE, Nguyen Van Cong (2019) measured OE via:

- Total asset turnover (TAT) presented for asset quality.
- Equity turnover (ET) presented for capital adequacy.
- Equity Ratio (ER) presented for liquidity.

+ Solvency

The dimensions' choice was influenced by the work of Nguyen Van Cong (2019). Based on this scale, Solvency can be measured via two ratios:

- Overall Ratios presented for the ability to repay all companies' debts in overall.
- Quick Ratios presented for the ability to secure short-term debts.

### ***Data collection***

Data used in this study was collected and downloaded from audited financial statements, annual reports of logistic firms listed in two major State Securities Commission of Vietnam: HNX and HOSE for the period from 2014 to 2018.

These logistic firms with their data lead to a research sample with 150 observations during this period. In this case, the above-mentioned data were transferred into Excel and encoded as variables. After that, they become inputs for running regression.

### ***Method***

In order to examine the OE of researched enterprises, there are six variables used as follows. Two dependent variables which present for OE are Equity Turnover (ET) and Total Assets Turnover (TAT) and four other independent variables: Assets (presenting total assets of a company), Equity (presenting scale of a company), Equity Ratio (ER =  $\frac{\text{Owners equity}}{\text{Total assets}}$ , presenting financial independence of company) and Sales (presenting the result of selling process).

After that, in order to measure the solvency of listed logistics firms, there are two dependent variables: Quick ratio (QUICK =  $\frac{\text{Current assets} - \text{inventory}}{\text{Current liabilities}}$ ) and Overall ratio (OVERALL =  $\frac{\text{Total assets}}{\text{Total liabilities}}$ ) three other variables, including TAT, ER, and ET.

The study applies both qualitative and quantitative approaches. For a qualitative approach, the study takes a comparative and analytical method. Theory frame is based on a fundamental base about a system of ratios which reflect the OE (ET and TAT) and Solvency (QUICK and OVERALL) of a company. For a quantitative approach, the study use it by running a regression model of Ordinary Least Square (OLS) with the above-mentioned variables. The OLS's first aim is to investigate how many factors impact OE and what they are. The second purpose is to forecast the link between OE and solvency. This paper uses the statistic software Stata 15 to run the regression to answer these questions.

The use of both qualitative and quantitative approaches aims to strengthen the reliability of the analyses because of evidence from different sources and a multi-directional vision. It also satisfies planned purposes better and leads a scientific-based conclusion.

### 3. Results

This paper has selected 30 logistics listed firms, 14 firms from HNX and 16 firms from HOSE - the two main securities exchanges of Vietnam. Of these, Vietnam Airlines corporation (HVN) has the highest authorized-capital with nearly 82,000 billion Vietnam Dong (VND), which is nearly two times bigger than the second highest authorized-capital (VJC - 36,000 billion VND and three times bigger than the HNX highest authorized-capital (PHP), while the smallest authorized-capital is PRC with only 12 billion VND. Concretely, eight companies including CDN, DL1, PHP, VJC, GMD, HVN, PVT, and VOS have their scale of capital from over 1000 billion VND. In this paper, all surveyed firms shall be mentioned by their coded stocks.

#### *Operational efficiency*

**Firstly**, a company's capital scale is not directly proportional to its OE. More clearly, despite its highest capital scale at nearly 82,000 billion VND, circulating turnover of total assets in HVN only ranks in the eleventh place at 0.75times, which is lower than the lowest authorized-capital firm VNL.

This conclusion is also strengthened when VJC stands in the second place of capital scale (at 36,000 billion VND) but at the tenth place of OE in terms of total assets turnover (TAT). On the other hand, in this period, VNL and PRC have the lowest capital scale but express its graduation in circulating turnover of total assets among the first.

From the above analysis, it can be said that a big capital scale is a convenient condition for a company to increase its OE but whether a company is able to explore this advantage or not, it is a quite different case.

To strengthen the founded result, our research team uses statistical software STATA 15 to model a regression with the ordinary least squares regression method (OLS).

**Table 1. Regression TAT with Equity, ER and Sales**

```
. reg tat er logequity logsales
```

Source	SS	df	MS	Number of obs	=	150
				F(3, 146)	=	97.49
Model	63.4640536	3	21.1546845	Prob > F	=	0.0000
Residual	31.6805086	146	.216989785	R-squared	=	0.6670
				Adj R-squared	=	0.6602
Total	95.1445622	149	.638554109	Root MSE	=	.46582

tat	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
er	1.569933	.1960385	8.01	0.000	1.182493 1.957372
logequity	-.696774	.0428851	-16.25	0.000	-.7815297 -.6120183
logsales	.6702494	.0404042	16.59	0.000	.5903968 .7501021
_cons	.1958264	.2684158	0.73	0.467	-.3346559 .7263087

After running model with the dependent variable of (TAT) as well as the three independent variables including Equity, ER and Sales (Independent variables are under logarithm), the result is:

$$\text{TAT} = 0.20 + 1.57 \cdot \text{ER} - 0.70 \cdot \log(\text{Equity}) + 0.67 \cdot \log(\text{Sales})$$

From the above-mentioned results, it can be seen that independent variables: Sales and ER maintain direct proportion with TAT and have at least 99% statistical meaning. This explains that enterprises with a larger proportion of equity accompanied with higher revenue from sales of goods and services will have significant increases in its OE. However, the independent variable Equity is inversely proportional to TAT and has at least 99% statistical significance. In other words, the smaller the companies are, the larger its OE is and vice versa. This result is consistent with the initial judgment of the group.

**Secondly**, logistics firms' degree of financial independence is not directly proportional to their OE. The percentage of owners' equity in total capital (ER) is the most important ratio to express a company's degree of financial independence. Again, PRC and VNL are still leading companies in circulating turnover of owners' equity at 4,827 and 4,578 times respectively while these firm's percentage of owners' equity is only with its arithmetical mean of 20% during five years.

To strengthen the founded result, our research team uses statistical software STATA 15 to model regression with the ordinary least squares regression method (OLS).

**Table 2. Regression ET with Asset, ER and Sales**

```
. reg et er logasset logsales
```

Source	SS	df	MS	Number of obs	=	149
Model	304.476301	3	101.4921	F(3, 145)	=	77.73
Residual	189.334743	145	1.30575685	Prob > F	=	0.0000
Total	493.811043	148	3.3365611	R-squared	=	0.6166
				Adj R-squared	=	0.6087
				Root MSE	=	1.1427

et	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
er	-2.856085	.4449646	-6.42	0.000	-3.73554	-1.976631
logasset	-.8936799	.0996536	-8.97	0.000	-1.090641	-.6967185
logsales	1.001941	.1021796	9.81	0.000	.7999873	1.203895
_cons	2.750587	.8168767	3.37	0.001	1.136063	4.365111

After running model with dependent variable of (ET) as well as three independent variables including Asset, ER, and Sales (Independent variables are under logarithm), the result is:

$$\text{ET} = 2.75 - 2.86 \cdot \text{ER} - 0.89 \cdot \log(\text{Asset}) + 1.00 \cdot \log(\text{Sales})$$

With the above-mentioned results, it can be seen that two independent variables Asset (Asset) and ER maintain an inverse relationship with dependent variable ET and have

at least 99% statistical meaning. This shows that OE of logistic JSCs will decrease when it keeps total assets and its financial independence at a high level. This result is consistent with the initial judgment of the group.

### ***Solvency***

Regarding the solvency of joint - stock companies listed on Vietnam's stock market, our research group uses two common indicators namely Overall ratio and Quick ratio to measure, evaluate, and our team draws the following conclusions.

Firstly, we can see that the order of all surveyed enterprises has completely changed when compared to OE. In more detail, DL1 is a low-performing enterprise, and its asset and equity turnover ratios are significantly smaller than other firms in the same industry. However, this company has sufficient resources to maintain the overall ratio at 72.02 times, which is the highest among all surveyed firms. In contrast, HVN and VJC are two enterprises with a large capital scale and OE, but the solvency of these businesses is limited when both ratios are ranked at the last level.

In terms of quick ratios, the above order is still unchanged. Enterprises have low operational efficiency will have high solvency and vice versa. Specifically, PGT holds the highest position for quick ratio (36.07 times), followed by DL1 with the second highest solvency at 15.91 times, but the performance of both these businesses is at a low level.

### ***Relationship between operational efficiency and solvency***

After considering both OE and solvency of logistics JSCs listed on the Vietnamese Stocks market, this study draws some findings as follows.

**Firstly**, there is an inverse correlation between OE and solvency of enterprises. A business with good performance always has not enough resources to maintain a stable solvency. This is explained by the fact that VNL and PRC are always the two leading companies in terms of operating efficiency, however, they keep solvency at a low level. Not only does it occur in small and medium-sized companies, but this relationship also exists in large companies (HVN and VJC). Despite their largest scale and high financial independence, HVN and VJC only have enough resources to ensure the overall solvency and cannot guarantee the ability to pay short-term debts.

The results are similar to the results of the previous studies. According to (**Kyule, 2015**), the solvency of companies was negatively correlated with OE. This has been validated for all surveyed companies by our research team, especially VNL, PRC, HVN, VJC and DL1. In addition, (**Raykov, 2017**), companies that reduced their solvency and raise more debts would boost their efficiency of the companies' operations. This is a negative correlation.

To strengthen the founded result, our research team used statistical software STATA 15 to model regression with the ordinary least squares regression method (OLS).

**Table 3. Regression OVERALL with TAT, ER and ET**

. reg overall tat et er

Source	SS	df	MS	Number of obs	=	148
Model	14934.3589	3	4978.11962	F(3, 144)	=	15.71
Residual	45633.608	144	316.900055	Prob > F	=	0.0000
				R-squared	=	0.2466
				Adj R-squared	=	0.2309
Total	60567.9669	147	412.026985	Root MSE	=	17.802

overall	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
tat	-12.91052	3.461433	-3.73	0.000	-19.7523 -6.068733
et	5.44156	1.780232	3.06	0.003	1.922799 8.960322
er	51.77024	9.165592	5.65	0.000	33.65376 69.88672
_cons	-23.95817	7.311551	-3.28	0.001	-38.41 -9.506342

After running model with the dependent variable of (OVERALL) as well as the three independent variables including TAT, ER and ET, the result is:

$$\text{OVERALL} = -23.96 - 12.91 \cdot \text{TAT} + 5.44 \cdot \text{ET} + 51.77 \cdot \text{ER}$$

Moreover, our research team also used statistical software STATA 15 to run model with the dependent variable of (QUICK) as well as the three independent variables including TAT, ER and ET, the result is:  $\text{QUICK} = -8.99 - 4.53 \cdot \text{TAT} + 1.98 \cdot \text{ET} + 20.71 \cdot \text{ER}$

**Table 4. Regression QUICK with TAT, ER and ET**

. reg overall tat et er

Source	SS	df	MS	Number of obs	=	148
Model	14934.3589	3	4978.11962	F(3, 144)	=	15.71
Residual	45633.608	144	316.900055	Prob > F	=	0.0000
				R-squared	=	0.2466
				Adj R-squared	=	0.2309
Total	60567.9669	147	412.026985	Root MSE	=	17.802

overall	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
tat	-12.91052	3.461433	-3.73	0.000	-19.7523 -6.068733
et	5.44156	1.780232	3.06	0.003	1.922799 8.960322
er	51.77024	9.165592	5.65	0.000	33.65376 69.88672
_cons	-23.95817	7.311551	-3.28	0.001	-38.41 -9.506342

The independent variable TAT is inversely proportional to both solvency ratios: Overall ratio and Quick ratio and has at least 99% statistical meaning. This result is consistent with the previous research conclusion of (Raykov, 2017) and (Kyule, 2015). If a logistics company increased the turnover of its total assets to enhance its OE, this firm would have to bear the risk of reducing its solvency. In other words, the more efficient in the use of assets is, the more limited its ability to pay debts and vice versa.

**Secondly**, equity turnover (ET) and ER are necessary yet sufficient conditions to increase solvency. Generally, there is a direct proportion between ET, ER and solvency; or big scales of capital and highly independent JSCs are premises for the creation of a high solvency. This is proven when two independent variables ET and ER are directly

proportional with both solvency ratios and have at least 99% statistical meaning. However as analyzed above, increasing turnover of the total assets reduced the solvency of the enterprises significantly. For logistics JSCs, despite having a large capital scale and high degree of financial independence, these enterprises allocated a large amount of companies' resources on enhancing OE by promoting total assets turnover. Although the efficiency of operations increases, the solvency decreases due to over-utilized resources. This gives rise to payment risk for these businesses. From the results of qualitative and quantitative approach in thirty logistics JSCs, it can be concluded that high performance can lead to low solvency and vice versa.

#### **4. Discussion and Conclusion**

By analyzing the relationship between OE and solvency of logistics JSCs listed on the Vietnam Stock market in the 2014-2018 period, this study draws the conclusion that OE and solvency exist an inversely proportional relationship. In other words, a strong OE possibly causes low solvency and vice versa.

Some policy implications for logistics JSCs can be as follows:

**Firstly**, these surveyed firms should restructure their total asset to control assets turnover and raise solvency. A reasonable usage of capital helps a company save mobilizing capital cost and guarantee solvency. A company should also promote mobilized capital for its business operation or expands its scale of capital and assets. In other words, a reasonable structure of assets is a necessary condition.

**Secondly**, low OE firms should raise more debts to balance between their performance and solvency. Raising more debts helps these companies tighten their cost by tax to improve their operational activities considerably and stabilize their profitability.

By researching the relation between OE with solvency of logistics JSCs listed on the Vietnam Stock market, this paper contributes both certain theoretical (clarifying their links) and practical content (giving solutions to increase both OE and solvency). However, as the data of these logistics JSCs being are only take from a five-year period, it is not long enough to have a large research sample. A related study in the future may be undertaken including more industries rather than the logistics field only and a study over a longer period of time would give out a more precise prediction the relationship between OE and solvency, and more elements which affect them in companies.

#### **5. References**

1. Ahmad, R. (2016). A study of relationship between liquidity and profitability of standard chartered bank Pakistan: Analysis of financial statement approach. *Global Journal of Management and Business Research*.
2. Amer, H. H., Moustafa, W., & Eldomiaty, T. (2011, June). Determinants of operating efficiency for lowly and highly competitive banks in Egypt. In *Cambridge Business and Economics Conference* (Vol. 1, pp. 1-35).

3. Beal, V. (2016). *Operational Efficiency*. cited 30/07/2016 from [http://www.webopedia.com/TERM/O/operational\\_efficiency.html](http://www.webopedia.com/TERM/O/operational_efficiency.html).
4. Bernstein, L.A. (1988). Financial statement analysis, theory, application, and interpretation, *Journal of Accounting Research*, Vol. 3, 61-80.
5. Burrows, M. (2012). *Operational Efficiency-It's not just about Cost Cutting*. cited 30/07/2016 from <http://www.bsmreview.com/oppseff.shtml>.
6. Ehiedu, V. C. (2014). The impact of liquidity on profitability of some selected companies: The financial statement analysis (FSA) approach. *Research Journal of Finance and Accounting*, 5(5), 81-90.
7. Feng, C. M., & Wang, R. T. (2000). Performance evaluation for airlines including the consideration of financial ratios. *Journal of Air Transport Management*, 6(3), 133-142.
8. Gleason, K. C., Mathur, L. K., & Mathur, I. (2000). The interrelationship between culture, capital structure, and performance: evidence from European retailers. *Journal of business research*, 50(2), 185-191.
9. Hartman, D. *How to Calculate the Maximization of Operational Efficiency*. cited 30/07/2016 from <http://smallbusiness.chron.com/calculate-maximization-operational-efficiency-35448.html>.
10. Höbarth, L. L. (2006). *Modeling the relationship between financial indicators and company performance. An empirical study for US-listed companies* (Doctoral dissertation, WU Vienna University of Economics and Business).
11. Kokemuller, N. *Operational Effectiveness Vs. Strategic Positioning*. cited 30/07/2016 from [http://www.ehow.com/info\\_8447934\\_operational-effectiveness-vs-strategic-positioning.html](http://www.ehow.com/info_8447934_operational-effectiveness-vs-strategic-positioning.html).
12. Kyule, J. (2015). Impact of Liquidity And Solvency On Financial Performance Of Firms Listed At The Nairobi Securities Exchange. *Unpublished MSc Finance Project, University of Nairobi*, 6(3), 526-533.
13. Lauterbach, B., & Vaninsky, A. (1999). Ownership structure and firm performance: Evidence from Israel. *Journal of Management and Governance*, 3(2), 189-201.
14. Memon, F., Bhutto, N. A., & Abbas, G. (2012). Capital structure and firm performance: A case of textile sector of Pakistan. *Asian Journal of Business and Management Sciences*, 1(9), 9-15.
15. Mudambi, R., & Nicosia, C. (1998). Ownership structure and firm performance: evidence from the UK financial services industry. *Applied Financial Economics*, 8(2), 175-180.
16. Nguyen Van Cong, *Business Operation Analysis Textbook*, National Economics Publisher, Hanoi, 2009.
17. Onaolapo, A. A., & Kajola, S. O. (2010). Capital structure and firm performance: Evidence from Nigeria. *European Journal of Economics, Finance and Administrative Sciences*, 25(1), 70-82.
18. Pentikäinen, T. (1952). On the net retention and solvency of insurance companies. *Scandinavian Actuarial Journal*, 1952(1-2), 71-92.



19. Raykov, E. (2017). The liquidity-profitability trade-off in Bulgaria in terms of the changed financial management functions during crisis. *Management: journal of contemporary management issues*, 22(1), 135-156.
20. Sandström, A. (2007). Solvency-a historical review and some pragmatic solutions. *Mitteilungen der SchweizerischenAktuarvereinigung*, 1, 11-34
21. Siminica, M., Circiumaru, D., &Simion, D. (2012).The correlation between the return on assets and the measures of financial balance for Romanian companies. *International journal of mathematical models and methods in applied sciences*, 6(2), 232-253.
22. Tzelepis, D., &Skuras, D. (2004). The effects of regional capital subsidies on firm performance: an empirical study. *Journal of Small Business and Enterprise Development*.
23. Varadan S., “What Is the Meaning of Operational Efficiency?”, 2016, cited 30/07/2016 from[http://www.ehow.com/about\\_6495198\\_meaning-operational-efficiency\\_.html](http://www.ehow.com/about_6495198_meaning-operational-efficiency_.html)>.
24. Zeitun, R., &Tian, G. G. (2007). Does ownership affect a firm's performance and default risk in Jordan?. *Corporate Governance: The international journal of business in society*.

# INCREASING SUPPORTIVE BEHAVIOR FOR ORGANIZATIONAL CHANGE IN SOE EQUITIZATION: ROLE OF INDIVIDUAL READINESS FOR CHANGE

*Assoc. Prof. Dr. Bui Duc Tho*

*National Economics University, Hanoi, Vietnam*

**MA. Le Thi Hoai Thu**

*thulh@neu.edu.vn*

*School of Information Technology and Digital Economics,*

*National Economic University, Hanoi, Vietnam*

## **Abstract**

*This report refers to the impact of individual readiness for organizational change in the context of equitization in Vietnamese state-owned enterprises (SOEs). Equitizations often lead to major changes in organizations, and then, these changes will affect employees, both positive and negative aspect. In some cases, the negative influences can cause employee to have an intention to leave job or resistance change behaviors. The individual readiness for change was shown to help employees in accepting and adapting to organizational changes better. It can reduce intention to quit job and increase their supportive behaviors for equitization in state enterprises.. This report also addresses the status of employee' readiness to change in equitized state enterprises in Vietnam by collecting data from 222 peoples who are working there. The research finding is positive impact of readiness change to supportive change behavior. Base it, this study proposes some solutions to increase the individual readiness for change successful.*

**Key words:** *Individual readiness for change, SOE Equitization, Organizational change*

## **1. Introduction**

Equitization is a major policy of the Vietnamese government. It is also an important solution in order for restructuring and improving the performance of state-owned enterprises (SOEs). By now, equitization is being expanded to enterprises that operate in key sectors of Vietnamese economy, such as, banks, insurances, telecommunications, maritime, oil ... Almost these firms are big scale with high profitable. In equitized SOEs, the participation of new ownership investors often causes changes in senior management, development strategies and management styles. These changes in turn affect employees in organization. Miller et all. (1994) argued that, while the failure to successfully implement planned change may be attributed to many factors, few issues are as critical as employees' attitudes toward change. When the organizational change occur, individuals will have different

perceptions about this change. They also have responded change by supportive or against change. The negative reactions can also lead to the intention to leave the organization and look for new jobs.

Previous studies have shown that there are many factors that contribute to the effectiveness of organizational changes, one of them is *readiness for change*. Readiness for change is one of the most important factors involved in employees' initial support for change initiatives (Armenakis, 1993 and Holt, 2007). Readiness for organizational change is an emerging topic that attracts both service academics and practitioners, too. Armenaski (1999) reviewed research of organizational change in the 1990s, concluded that: (i) The process of change often takes place in multiple steps a considerable amount of time to unfold and the efforts to bypass steps seldom yield a satisfactory result and (ii) mistakes in any step can slow implementation, as well as negate hard-won progress. In this study, Armenaski (1999) also suggests that in the early stages of this change process, instead of measuring results, or trying to predict changes, managers should look for alternatives motivation of the forces of the organization. Previously, a study of change processes, Lewin (1947) also suggested that, in the early stages of change, managers had to present evidence to prove the organization's current operation unacceptable or not appropriate. This is antecedence of an attitude that will appear to receive change easily. Later, Armenaski (1993) called this attitude was that readiness for change. Studies have demonstrated the role of individual readiness for organizational change, by reducing resistance to change. (McKay et al, 2013, Renae et al, 2005). Self and Schrader (2009) argued that it is possible to operate a successful change if strategies that increase change readiness take the suitability of resistance resource.

The construct of *Readiness for change* was defined by Armenakis et al. (1993) as an individual's "beliefs, attitudes, and intentions regarding the extent to which changes are needed and the organization's capacity to successfully undertake those changes" (1993: 681).

Inheriting the definition of Armenakis (1993), Holt (2007) also refers to readiness for change as reflecting the extent to which an individual or individuals are cognitively and emotionally inclined to accept, embrace, and adopt a particular plan to purposefully alter the status quo.

Thus, literature review shown that the readiness for change concerned emotional state and cognitive of individuals about organizational change. A scale was developed fully by Holt (2007) in order to exam individual readiness for change. Four components of individual readiness for change were named by both Armenakis (1993) and Holt (2007):

(1) Need of change (*Appropriateness*): Change will make a difference to the current state of organization. Change is appropriate for the organization and organization will benefit from this change.

(2) *Management support*: This factor represented the extent to which organizational members felt senior leaders supported the change. This is also the commitment to support and pursue change of senior managers in organization. The management support creates confidence in the certainty of the changes that will be made.

(3) *Change efficacy*: The capacity of individuals to make changes when participating in the change process. It can be seen that the resistance to change can grow up from the perceptions of employee' capacity when they face to implement change.

(4) *Personal valence*: The value of individual affected when the change takes place. It is clear that an individual will support change if the change is valuable. On the other hand, the feeling of apprehension and anxiety will even appear to act against change if the change does not benefit them or harm their job achievements.

Nowadays in Vietnam, many changes are happening, both in the public and private sectors. In the years after the 1986 - Doi Moi reforms, the success of private organizations with a simple structure, created pressure to change for state organizations and for the state management systems. In addition, about half of all state-owned enterprises have been shown to marginal loss. Since 1992, the Government of Vietnam has been equitizing SOEs as a way to improve their productivity and efficiency. The Government is determined to promote the full equitization of SOEs by not holding a controlling share or selling all state capital in previously equitized enterprises. It has created more radical and stronger changes in equitized enterprises.

On the positive side, after equitization, enterprises have been more powerful in the mechanism of payment for employees. Along with upper scale and expansion of production, it will be the conditions to encourage employee to work

On the other side, in SOEs equitization, the higher professional standards will be applied, the new modern monitoring and the performance assessing will be implemented, too. All of these changes will create significant pressure on workers, especially for individuals who have enjoyed many benefits in the old structure. In some organizations, there is resistance to change or to quit a job (Morrell, 2004).

Thus, study of the readiness for change in equitized SOEs is an important field that needs to be explored more clear understanding.

The research questions are:

- *What is Impact of Equitization SOEs to employees?*
- *How is the status of individual readiness for change in SOE equitization in Vietnam?*
- *What is impact of individual readiness for change to support change behavior and intention to turnover?*

## **2. Method**

This research took place in State of Enterprises equitization in Vietnam that aims primarily. It contains some fields like as human resource, assessment process, development strategy,... So, this is a large-scale change that affects organizational processes.

This study used three methodologies: a desk study of literature review in this topic, a pilot survey of 89- sample to explore and adjust the scale of readiness for change, the scale of change support behavior and scale of intention of turnover. The last survey was implemented on a sample with 222 responses. Almost company employees received a hard copy of the questionnaire, some others replied questionnaire by email, zalo and messenger apps. Before inferring results, data were cleaned, coded and entered onto Statistical Package for Social Sciences (SPSS) version 20.0 for Windows.

### 3. Results

#### 3.1. Impact of SOE Equitization to employees in Vietnam

The equitized process in Vietnamese SOEs occur quite slow for a 25-year period, from 1992 by now. The equitization process of SOEs in Vietnam occur quite slow for a 25-year period, from 1992 by now. There are 260 SOEs completed equitization from 2011 to 2014, just achieved about 60% planned objects. In sum, by the end of 2015, there were 5950 equitized SOEs. In 2016, 55 equitized SOEs were added and the remaining 780 SOEs did not complete the equitization as planned objects (Report on Steering Committee for Enterprise Innovation and Development, 2016)

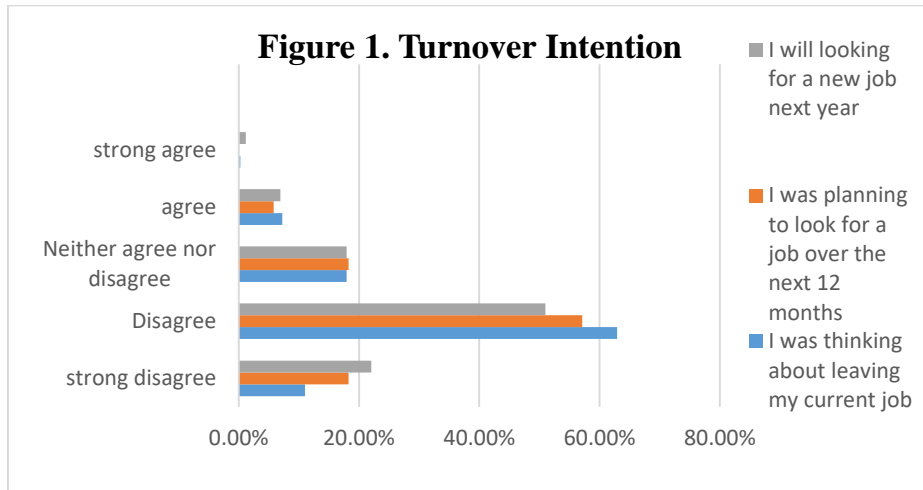
In recent years, especial in 2018, among 136 enterprises and corporations must be equitized, only 22 enterprises completed on schedule, and the remaining 111 enterprises did not perform on schedule. In addition, most of this remaining firms is only in the first stage of equitized process, include make and approve project.

**Table 1. Number of SOE equitization in Vietnam**

<b>Time of periods</b>	<b>Number of equitized SOEs</b>
<b>From 1998 to before periods</b>	<b>123</b>
<b>From middle of 1998 to 2011</b>	<b>3.858</b>
1999-2002	834
2003 - 2006	2.649
2007 - 2010	356
2011	19
<b>Reform period (from 2012 to 2016)</b>	<b>535</b>
2012	20
2013	77
2014	144
2015	239
2016	55
<b>Total</b>	<b>4.516</b>

*Source: Report (2016)*

The results show that rate of employees left to job when equitizing is about 5%, this rate is about 10% - 15% higher in enterprises that sell the full of state capital. The research also shown that when an organization changes, employees may have positive behaviors (e.g... support change) or resist change or, moreover, have intention to quit. About 8.1% of the surveyed employees said they thought about leaving their current job; 8.7% said in next year they would be looking for another job outside their company (**Figure 1**)

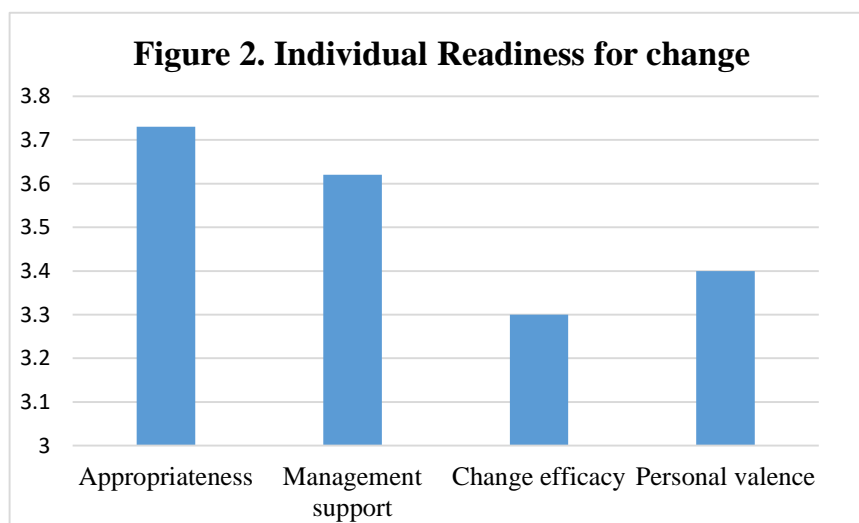


(Source: The survey results in 2019)

### 3.2. The readiness for change of employees in equitized SOEs

The study collected data on individual readiness for organizational change in equitized SOEs. The second research question explores the components of individual readiness for change. The readiness for change is expressed by four factors: Appropriateness, Management support, Change efficacy, Personal valence. Figure 2 present descriptive statistics of readiness variables under study. Employees in equitized SOEs are quite high level of willingness to change. Mean scores address their cognitive of the various 4 aspects of readiness change are all higher than average (> 3.0).

Among 4 components of readiness, mean value of appropriateness is highest. This mean almost responses aware of about need of organizational change (Mean = 3.73). In the surveyed enterprises, senior managers also clearly showed their commitment to change (Mean = 3.62). Some individuals are anxiety about whether they are able to implement changes. Average score of this cognitive change factor has the lowest value (Mean = 3.3). A number of employees are also concerned about equitization may change their current benefits or it is making their future of work impaired (Mean = 3.4).



(Source: The survey results in 2019)

In equitized SOEs, there may be organizations or individuals that own large numbers of shares, which leads to changes in management style, including monitoring and evaluation of work performance. The state management mechanism in SOEs was previously understood as a centralized management method, limiting the power of subordinates but assessing the performance of individuals is the same level. This method of evaluation leads to a state of inertia or working without full employee's capacity.

In addition, workers often think of this equitization as privatization, which may lead to stricter requirements for work results, quality of work, and occupational skills. Thus, their readiness that is reflected by change efficacy factor, is lowest. However, all the average scores greater than 3, so the readiness for change of employees in equitized SOEs is quite good.

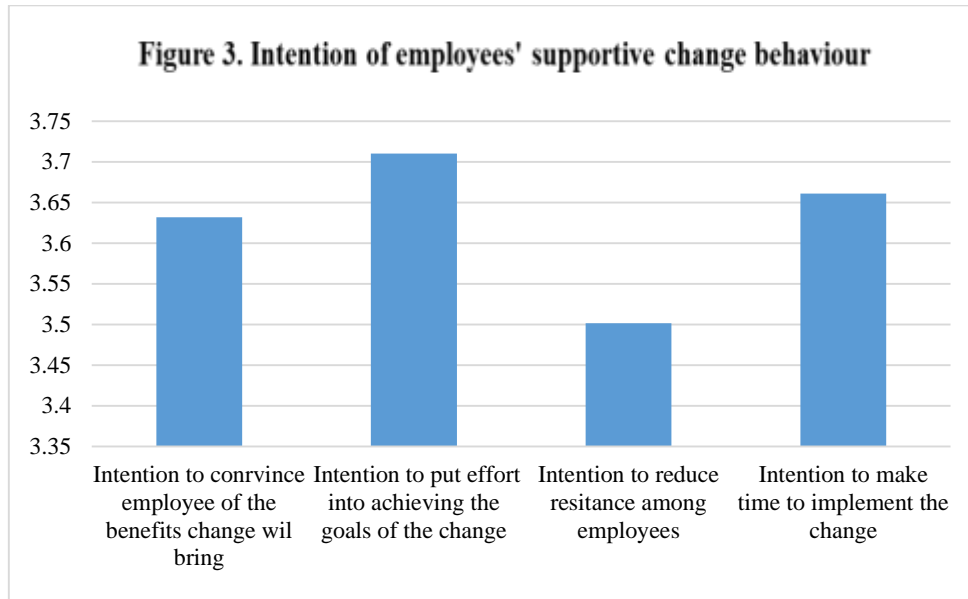
### ***3.3. The role of individual readiness for organizational change in equitized SOEs***

Creating the readiness for change of organizational members has been confirmed as an effective way to achieve successful change (Self, 2007, 2009). In previous studies, the readiness for change was argued one of the most important factors regarding the members' initial support for organizational change initiatives ((Armenakis et al., 1993, 1999). At the organizational level, Week (2004) has demonstrated a relationship between readiness for change and the performance of sales managers. The individual (e.g... the sales manager) with higher readiness change had better performance compared to other colleagues at the same management level. Besides, according to Kwahk and Lee (2015), while reviewing the companies that have just implemented ERP, they also confirmed the positive impact of the willingness to change on the awareness of useful and easy to use ERP system. So, it indirectly affects the intention to use the system. All of these studies have shown the positive impact of readiness for change on various organizational issues (especial with employee).

In the context of equitization, this study examined employee commitment to the organization by turnover intention. Although some people intend to leave job, but this rate is quite low (about 10%). This status concerned a high level of readiness for change may have a positive effect on reducing proportion of employees who intend to quit job in the context of equitization (Figure 1).

In addition, the survey results of employees' intention to support change also achieved good rates.

To find a more reliable answer to the third research question, this study measured relationships through the correlation matrix between factors. The result is presented in **Table 2**. Individual readiness for change is strongly correlated with their support for change and intention to quit job. The sign of the correlation coefficients (+ or -) indicates the positive effect of readiness for change to supportive change behaviors and the reduction (negative) effect on intention to leave organization of the employee. These findings still require more in-depth and detailed analysis to confirm the relationship between workers' readiness for change and their support for organizational change. However, this result reflected the close correlation of these factors.



(Source: The survey results in 2019)

Results of this study are quite relevant with previous studies in the world. Holt (2007) argued the relationship between readiness for change and job satisfies and intention of turnover. There are separate influences between the components of readiness change, in which, *Appropriateness* and *Change efficacy* have strong effect in employees' job satisfies, affective commitment and turnover. The research by Kim et al (2011) also provides results for organizational support behavior as an outcome of readiness for change.

**Table 2. Correlation coefficients matrix among 4 components of readiness change and Change support behavior and Turnover**

		CAP	CMS	CEF	CVA	BIR	IJL
<b>CAP</b>	Appropriateness	1	.469**	.423**	.293**	.619**	-.411**
<b>CMS</b>	Management support	.469**	1	.334**	.280**	.554**	-.348**
<b>CEF</b>	Change efficacy	.423**	.334**	1	.213**	.460**	-.117*
<b>CVA</b>	Personal valence	.293**	.280**	.213**	1	.474**	-.509**
<b>BIR</b>	Change Support Behavior	.619**	.554**	.460**	.474**	1	-.488**
<b>IJL</b>	Turnover	-.411**	-.348**	-.117*	-.509**	-.488**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

(Source: The survey results in 2019)

#### 4. Discussion and Conclusion

Organizational change is of course in organizational development. Organizational change as equitization in state-owned enterprises is a good policy of the government in Vietnam. The type of this change will be increasingly strengthened and implemented



thoroughly in the next years. By establishing the correlation between an individual's readiness for change and both supportive change behavior and intention to leave job, this study confirms the important role of readiness to change. Leaders of state-owned enterprises need to encourage employees to develop a positive attitude as readiness for change. This readiness will help enterprises overcome initial difficulties and quickly achieve changing goals. From the perspective of employees, creating readiness for change is the easiest way for them to have the right knowledge and behavior, increasing engagement with organization and avoiding unnecessary worries for themselves.

Moreover, previous studies have identified a number of factors that can increase readiness for organizational change, like as the capacity of the manager, the organizational communication (Holt, 2007), organizational culture (Mohamed Haffar, 2014) or organizational justice (Shah, 2011), etc... In addition, Holt's work (2007) also have shown contribution of personal traits in readiness for change. People with openness for change and extroverted personality are also higher level of readiness change. Therefore, the leader of equitized SOE may consider some solutions to increase employee's readiness for change.

*Firstly*, improve the communication climate. Through the organizational communication, change leaders can clearly explain to stakeholders what is going on in the organization, thereby giving employees information fully about this change ... Information about changes must also be provided from the senior managers in organization. Creating a multi-dimensional communication environment among all members of organization is also a good way to spread information about change faster.

*Secondly*, strengthen the capacity of leaders, especially those who are leading this change. The capability of management (including the expertise, management ability, and historic experience of leaders) will create employees' beliefs about their ability to implement change successfully. This belief will help them to be more readiness for the changes that initiated by these leaders, too.

*Finally*, change leaders should select people who have appropriate personal characteristics, to participate in the first change stage in order to create initial achievements, then encouraging all employees to get the planned changing subject.

However, the above solutions need to be further verified in the context of SOEs equitization in Vietnam. Therefore, this study also opens the trend to explore factors that can increase the individual's readiness for organizational change in Vietnamese SOEs. The results of future research can be of great significance to organizational administrators in today's changing context.

## 5. References

1. Achilles A. Armenakis, Harris, Stanley G, Mossholder, Kevin W, *Creating readiness for organizational change, Human Relations*. New York: Jun 1993. Vol. 46, Iss. 6; pg. 681, 23 pgs.
2. Alannah E. Rafferty, Nerina L. Jimmieson, Achilles A. Armenakis, *Change Readiness: A Multilevel Review*, *Journal of Management*, Vol. 39 No. 1, January 2013 110-135

3. Dennis R. Self and Mike Schraeder, 2009, *Enhancing the success of organizational change: Matching readiness strategies with sources of resistance*, Leadership & Organization Development Journal, Vol. 30 No. 2, pp. 167-182
4. Dennis R. Self, 2007, *Organizational change - overcoming resistance by creating readiness*, Development and learning in organization, Vol 21, no 5, pp 11-13
5. Holt, D.T., Armenakis, A.A., Field, H.S. and Harris, S.G. (2007), "Readiness for organizational change", Journal of Applied Behavioral Science, Vol. 43 No. 2, pp. 232-255.
6. Kee-Young Kwahk, Jae-Nam Lee, (2008), *The role of readiness for change in ERP implementation: Theoretical bases and empirical validation*, Information & Management 45 (2008) 474-481
7. Kim, T. G., Hornung, S., & Rousseau, D. M. (2011). *Change-supportive employee behavior: Antecedents and the moderating role of time*. Journal of Management, 37(6), 1664-1693.
8. Lewin, K. 1947. *Frontiers in group dynamics*. Human Relations, 1: 5-41.
9. Maria Vakola, Ioannis Tsaousis, Ioannis Nikolaou, (2004) "The role of emotional intelligence and personality variables on attitudes toward organisational change", Journal of Managerial Psychology, Vol. 19 Issue: 2, pp.88-110,
10. Miller, V. D., Johnson, J. R., & Grau, J. (1994). *Antecedents to willingness to participate in planned organizational change*. Journal of Applied Communications Research, 22, 59-60
11. Mohamed Haffar, Wafi Al-Karaghoul and Ahmad Ghoneim, (2014) *An empirical investigation of the influence of organizational culture on individual readiness for change in Syrian manufacturing organizations*, Journal of Organizational
12. Naimatullah Shah, (2011), "A study of the relationship between organisational justice and employee readiness for change", Journal of Enterprise Information Management, Vol. 24 Iss 3 pp. 224 - 236.
13. [Renaë A. Jones](#), [Nerina L. Jimmieson](#), [Andrew Griffiths](#), (2005), *The Impact of Organizational Culture and Reshaping Capabilities on Change Implementation Success: The Mediating Role of Readiness for Change*, Journal of management studies [Volume42](#), [Issue2](#), pp 361-386.
14. Steering Committee for Enterprise Innovation and Development, *Report in 2016*
15. [William A. Weeks](#), [James Roberts](#), [Lawrence B. Chonko](#) & [Eli Jones](#), (2004), *Organizational Readiness for Change, Individual Fear of Change, and Sales Manager Performance: An Empirical Investigation*, [Journal of Personal Selling & Sales Management](#), Volume 24, 2004 - [Issue 1](#), pp 7 -17.

# APPLICATION OF SERVQUAL MODEL FOR EVALUATING DEPOSIT SERVICE QUALITY OF JOINT STOCK COMMERCIAL BANK FOR INVESTMENT AND DEVELOPMENT OF VIETNAM - HAI BA TRUNG BRANCH

**MA. Do Thuy Chi**

*thuychido90@gmail.com*

*Joint Stock Commercial Bank for Investment and Development of Vietnam -*

*Hai Ba Trung Branch, Hanoi, Vietnam*

**Assoc. Prof. Dr. Le Thanh Tam**

*tamlt@neu.edu.vn*

*Commercial Banking Department, School of Banking and Finance,*

*National Economics University, Hanoi, Vietnam*

**M.Sc. Le Duc Hoang**

*hoangld@neu.edu.vn*

*Faculty of Economic Mathematics, National Economics University, Hanoi, Vietnam*

## **Abstract**

*This paper is aimed at analyzing the customers' expectations and perceptions of deposit service quality at a specific bank branch in Vietnam, as service quality has been considered as an essential factor for success and acknowledgement in the banking field. The data are combined between secondary data of the bank branch and desk review data, and primary data collected from 200 clients in 4 months in 2019, with 25 questions developed from SERVQUAL model, justified for banking sector. The SERVQUAL research model is applied. The main findings are: all measurements of SERVQUAL including Reliability, Tangible, Assurance, Responsiveness, and Empathy have significant impacts on customer satisfaction. While Responsiveness is the factor that impact on customers' satisfaction the greatest, Assurance is acknowledged as the dimension which impact on customers' satisfaction the least. This study shows a support to the overall understanding about service quality in the banking field. Besides, it gives useful information to assist commercial banks in management, such as focusing on service quality and improving the customers' satisfaction.*

**Keywords:** *Assurance, Customers' satisfactions, Deposit Service Quality, Responsiveness, SERVQUAL*

## **1. Introduction**

There are many researches which point out the role of services quality for the survival of the commercial banks. Better quality of services provided by the bank has a positive influence on satisfaction of its customers and it directly contributes to profitability of banking

industry (Ladhari et al., 2011). In modern banking system maintaining and developing long term customer relationships is essential for competitive business (Camarero, 2007).

SERVQUAL is a famous research instrument to assess the service quality in any service field. SERVQUAL completely covers aspects that customers take into account when evaluating the quality of service in a bank. For that reason, SERVQUAL model and its application becomes popular tool to measure the quality of banking services up to now.

There are variety of researches which have used SERVQUAL and inherited SERVQUAL model for assessing service quality in the banking zone worldwide (“Avkiran, 1994; Bahia and Nantel, 2000; Aldlaigan and Buttle, 2002; Vanparia and Tsouskato, 2013; Sulieman, 2013; Lau, Cheung, Lam and Chu, 2013). The application of SERVQUAL model in assessing clients’ satisfactions have been carried out in some banks or in one specific bank of Vietnam. (Nguyen Hong Quan, 2018; Phan Chi Anh, N.T.Ha, N.H.Minh, 2013). These researches both revealed that customer fulfilments were rested on the quality of the service, and some factors such as responsiveness, assurance, tangibility had the strongest effects on the customers’ satisfactions. These researches focused on the all banking services for the whole banking sector, or one bank. However, the bank services are various, and very different. Among them, deposit is one of the most essential but difficult to attract clients the most as clients have active roles in deciding which banks to go, which deposit values/durations/withdrawal time (Rose et al, 2012; Casu et al, 2015).

Therefore, it is meaningful that this current study investigates the customer satisfaction towards deposit services through the application of SERVQUAL model.

Bank for Investment and Development of Viet Nam JSC., (BIDV) is one of the leading banks in Vietnam, which has been rewarded “The Best Vietnamese Bank in Retail Activities” for 4 continuing years (from 2015 to 2018) by The Asian Banker (Annual Asian Banker Vietnam Awards formal website, 2015, 2016, 2017, 2018).

BIDV - Hai Ba Trung Branch (HBT Branch) was established on 19th September 2008 in Hanoi with retail segment orientation. In general, the situation of BIDV - HBT Branch’s previous fund mobilization volume was pretty good, with growth rate of 15% per annum. However, the problem of the branch was the unbalance of the deposit’s structure, with most of the deposit came from economic organizations and financial institutions. Individual deposit accounted for a small proportion of 23.79% in 2016, 22.93% in 2017 and 22.77% in 2018 respectively (BIDV-HBT Branch, 2016-2018). This situation of deposit service at BIDV - HBT Branch indicates that not only the quality but also the efficiency of deposit service is lower than the expectations from the managers and customers.

This study is carried out to (i) Identify, analyze and evaluate deposit services quality in BIDV HBT Branch via assessing its customer satisfaction by 5 components of SERVQUAL model, including Reliability, Assurance, Tangibles, Empathy, and Responsiveness; (ii) Propose some recommendations for improving the deposit service quality at BIDV - HBT Branch, especially in the oriented market segment: individual customers.

## 2. Literature Review

### *Deposit services of commercial banks*

Commercial banking sector is one of the most crucial subjects of financial institutions system in every economy. Commercial banks primarily raise funds from other objects in the economy who has surplus money for short and medium term. Obviously, lately the commercial banks spend this source of fund for long-term investment or lending, which make higher profit than savings. In these activities, the banks pay interest for the depositors as a cost for raising fund. In contrast, they make profit by interest collected from borrowers or investment profit. The customers' deposit plays a role as the major financial resource, which is premise for lending activities.

“To maximize the profit, banks have to reduce the costs via raising cheap funds (Sylveter, 2010). So that the optimization of fund structures with cheap deposit, such as savings account and current account is crucial to the commercial banks.

### *Service quality*

Over decades, both academicians and practitioners break out argument about definition of service quality. As confirmed by Gronroos (1984), service quality was the outcome of the comparison between customers' expectations and their perceptions. According to Parasuraman, Zeithaml and Berry (1985), service quality is the difference between customers' expectations and perceptions of a certain service.”

The quality of services has been regarded as the substantial concern in the banking field in the study of Stafford (1996). Recently, the quality of service concept has been reviewed with customer's perception about the services. The theories focus on the correlation between expectations of customers and their perceptions toward provided services.

To assess the quality of the service, customer expectations aid as a basis for estimating the quality of the service. Once the practices meet the expectations of the customers, that means the service quality is acceptable.

### *SERVQUAL model*

There have been several models which have been settled to measure the determining factors of service quality. However, SERVQUAL model is the most well-known model to measure any service quality. It was first introduced by Parasuraman et al. in 1985 and developed after that. At first, the model comprised 10 service quality factors, which were then minimized to 5 factors that customers used to assess the quality of the services.

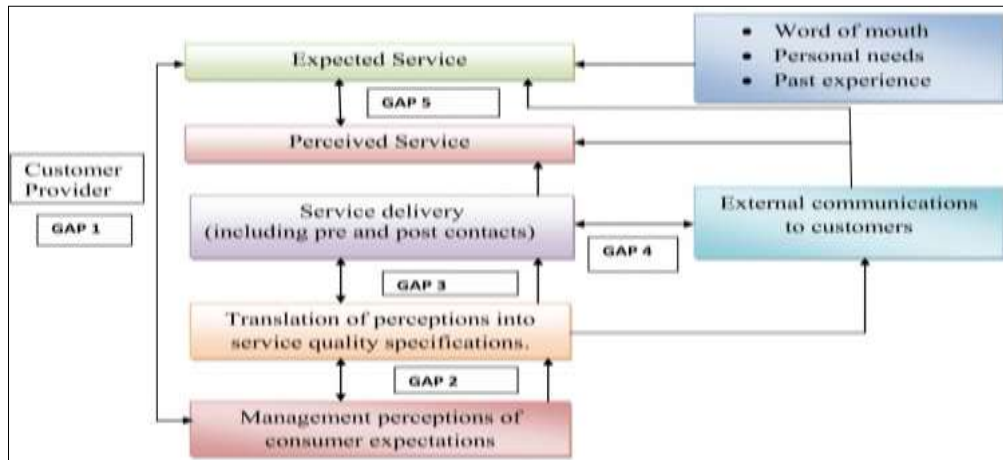
SERVQUAL includes 22 items with five above dimensions. Each item in SERVQUAL model is measured in two aspects. One aspect is assessing customers' expectations about a specified service and the other dealings with perceptions particularly of customers.”

“The dependent variable “Quality gap” (Q) is defined hereinafter:”

$$\text{Quality Gap (Q)} = \text{Perception (P)} - \text{Expectation (E)} \quad (1)$$

“Parassuraman (1985) created the “Gap model in service quality” hereinafter:

**Figure 1: Gap model of service quality**



(Source: Parasuraman et al (1985))

“In the model, the measurement of service quality depends on the gaps between perception with customer’s expectation. Parassuraman claims that “Gap 5”, which measures quality of the service, bases on 4 preceding Gaps. In another way, SERVQUAL model is constructed in the equation (2) below:”

$$Service\ quality = F(Gap\ 5) = F(Gap\ 1, Gap\ 2, Gap\ 3, Gap\ 4) \quad (2)$$

“Parasuraman identifies that these Gaps depend on 5 factors, including: “Reliability”, “Tangibles”, “Empathy”, “Responsiveness”, “Assurance”.

**SERVPERF Model**

Even though the SERVQUAL model is commonly applied, there is still much criticize on its practical reliability. That is because SERVQUAL model estimate the service quality via judging gaps between customer’s expectations and reality. Cronin and Taylors (1992) proposed SERVPERF model as a one-index-based model. SERVPERF model explains that service quality is expressed as the consumer outlook to the bank’s performance. Their research was further developed and find out that little theoretical or empirical evidence supports the relevance of the E-P= Q as the basis for measuring service quality.

Criticizing against SERVQUAL model, Cronin and Taylors (1992) proposed practical evidences spread all over four sectors including: food and beverage, insects’ control, laundry and banking to support their theories. In the bellow formula, SERVPERF indicators can be illustrated as:

$$SQ_i = \sum_{j=1}^k P_{ij} \quad (3)$$

Thereby:

SQ<sub>i</sub> = perceived service quality of individual ‘i’

K = Number of attributes/items

P = Perception of individual 'i' with respect to performance of a service firm on attribute 'j'

### ***Application of SERVQUAL Model***

The Servqual model has been applied in several studies. Avkiran (1994) implemented SERVQUAL and established the "BANKSERV model" to estimate service quality in private banking sectors via four dimensions: "staff conduct, credibility, communication, and access to teller service". Bahia and Nantel (2000) proposed an application of SERVQUAL model, which named "Banking service quality (BSQ)", comprised 31 items and six dimensions, including: "effectiveness and assurance, access, price, tangibles, services portfolio and reliability". Aldlaigan, A. H. and Buttle (2002) introduced a new 21-item scale model, named SYSTRASQ, with four factors: "service system quality, behavioral service quality, service transactional accuracy, and machine service quality". "Lately, Vanparia and Tsouskato (2013) examined "SERVQUAL, SERVPERF, BSQ and BANKQUAL" for estimating the service quality in the Indian banks in both regions: public and private region. They found out that the "BANKQUAL scale" has the greatest trustworthiness compared to others in their work. A. Sulieman (2013) has carried out a research on the customer fulfilment at Jordan banks. In the same year, M. M. Lau, R. Cheung, Aris Y. C. Lam and Yuen T. Chu (2013) have examined the impact of banking service quality on customer satisfaction in Hong Kong.

### **3. Analysis Of Deposit Service Quality At Bidv - Hbt Branch**

#### ***Overview of Deposit services at BIDV - HBT Branch***

BIDV - Hai Ba Trung Branch provides individual customers with a wide range of deposit services, including: Current Account, Fixed Deposit Account, Certificate of Deposit, Accumulating deposit account. Individual customers are enabled to easily handle transactions such as depositing, withdrawing, transferring and checking the balance via traditional over counter method, ATM or e-banking services.

Over the period of 2016-2018, the total deposit had increased moderately in the scale, with the volume of VND 4,657 billion in 2016, VND 5,722 billion in 2017 and VND 7,208 billion in 2018. It seems a brilliant sign for the Branch unless the research takes a look into the structure of the deposit at the Branch. The majority of the deposit comes from financial institutions (58.14% in 2016, 58.70% in 2017, and 57.2% in 2018). Meanwhile individuals' deposits, which are contributed by approximate 10.000 prevailing individual customers during period of research, only make up for a relatively small proportion (23.79% in 2016, 22.93% in 2017, and 22.77% in 2018). Excessive dependence on giants such as financial institutions bears the risk of liquidity for the Branch even when only one financial institution withdraws and the Branch faces the seriously decline in the deposit scale as a sequence. For that reason, improve the individual segment in both quality and quantity is emerging requirement for the branch to diversify the risks.

## ***Analysing deposit service quality at BIDV - HBT Branch***

### ***Data and methodology***

“In this research, the secondary data is sourced from the academic literatures, articles, and the Internet about banking services, deposit services and BIDV HBT Branch’s annual report. The primary data is collected from the 25-item-questionnaire-survey which were administered by the researchers to 200 customers of deposit services of BIDV HBT Branch. The sample size is accepted because the number of samples are more than 5 times compared to the number of items in Likert Scale, which is a condition required by quantitative analysis model. Period of conducting the survey is from April to August, 2019.

### ***Research method***

The SERVQUAL five dimensions (Parasuraman, 1988) are inherited in this study. The variables are “Assurance, Empathy, Reliability, Responsiveness and Tangibility” (Parasuraman, 1994).

“A descriptive research design has been used in this study. This study has been undertaken using correlation, regression, reliability analysis and factor analysis. The reliability analysis is pre-requisite for conducting factor analysis. Correlation is used as a prerequisite for conducting regression analysis. Further, the factor analysis is performed to draw factor from the variables and on that factor the regression is done to calculate how much the quality of the services influences on customer satisfaction. The research method is described particularly hereinafter:

1) Step 1: Test the reliability of the evaluating instrument. 30 customers were chosen by accident to be surveyed. The data analyse shows that Cronbach's Alpha index (for Total) is 0.93, which means that the reliability is highly acceptable.

2) Step 2: Testing the coefficient of measurement by Cronbach’s Alpha. The Cronbach’s Alpha is an indicator used for eliminating items which have a little influence on the scale. Items with Corrected item - Total Correlation less than 0.3 will be eliminated. The scale is chosen if Cronbach’s Alpha is higher than 0.6.”

3) “Step 3: Using the analysis EFA factor to shorten data and determine key factors impacting on service quality. Items with the Extraction less than 0.5 are deleted. The scale is accepted if its Total Variance more than 0.5.”

4) “Step 4: From results of EFA factor analysis, using the multiple regression assess the factors have impact on service quality.”

When the primary data is fully collected, it is handled and processed via using the software Stata, Ver. 14.

### ***Research model***

“From theoretic model of relationship between dimensions of the deposit service quality and Customer’s satisfaction, after adjusting the Likert Scale, customer’s satisfaction is effected by five factors as model below:”

$$CS\_Y = \beta_0 + \beta_1*REL\_X1 + \beta_2*TAN\_X2 + \beta_3*ASS\_X3 + \beta_4*RES\_X4 + \beta_5*EMP\_X5 \quad (3)$$



Thereby:

- “Regression coefficient:  $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ ”

- “Dependent variable: CS\_Y is Customer’s Satisfaction”

- “Independent variables: REL\_X1; TAN\_X2; ASS\_X3; RES\_X4; EMP\_X5”

The questionnaire was developed depending on the questionnaire with 22 items inherited in the studies by Sulieman (2013), Ilyas et al. (2013), Lau et al. (2013), and Panda, and Kondasani (2014) which used the model of SERVQUAL to measure the customer satisfaction towards bank services. Basing on practical, the writer attaches 3 more questions to measure the Overall satisfaction of the Customer as below.

**Figure 2: 25 items used in the questionnaires survey**

Factors	Items
Tangibles	1. Bank’s equipment is modern - Tan1
	2. Bank’s physical facilities arranged attractively - Tan2
	3. Bank’s staff with uniform looks courtesy and elegant - Tan3
	4. Documents (as leaflets) about service of bank make customers to have attention - Tan4
Reliability	5. Always do right commitments when providing service to customer in a specific time - Rel5
	6. Information is always provided exactly and completely - Rel6
	7. Supplying service is accurate in the first time - Rel7
	8. Providing service on time as commitment - Rel8
	9. If customer gets difficulty, bank always cares about and find out solution for them - Rel9
Responsive ness	10. Staff always answers accurately until customer’s requirement is met - Res10
	11. Service is always provided quickly - Res11
	12. Staff is willing to help customer - Res12
	13. Service is various to meet customer’s needs - Res13
Empathy	14. Bank provide customer with individualized attention - Emp14
	15. Bank’s staff provide customer with individualized attention - Em15
	16. Transaction time is convenient for customer - Emp16
	17. Bank’s staff understand customer’s needs - Emp17
	18. Bank’s staff have the best interests of the customer in mind - Emp18
Assurance	19. The manner of staff make customer credible - Ass19
	20. Customer feels safe when dealing with the bank - Ass20
	21. Staff is always polite and friendly with customer - Ass21
	22. Staff is educated well with knowledge to give out reasonable explanation to customers - Ass22
Customer satisfaction	23. Do you satisfy with the deposit service quality of BIDV? - CS23
	24. Do you want to choose deposit services of BIDV if you need the next time? - CS24
	25. Do you want to introduce BIDV’s deposit services to other people? - CS25

*Source: Authors’ compilation from literature review and revision*

The 25 above items are involved in a five - point Likert Scale, categorized from 1 to 5. Point 1 is “Strongly disagree” while point 5 is “Strongly agree”. The Likert Scale is inserted into a questionnaire in the survey.”

### ***Hypothesis formulation***

“Assume that factors: “Reliability - REL\_X1”, “Tangible - TAN\_X2”, “Assurance - ASS\_X3”, “Responsiveness - RES\_X4”, “Empathy - EMP\_X5” have a positive impact on “Customer’s satisfaction - CS\_Y” for the deposit service quality in BIDV - HBT Branch. This study’s mission is to test couples of assumptions as below:

- “Assumption 1:”
  - “H<sub>0</sub>: Reliability has no positive impact on customer’s satisfaction”
  - “H<sub>1</sub>: Reliability has a positive impact on customer’s satisfaction”
- “Assumption 2:”
  - “H<sub>0</sub>: Tangible has no positive impact on customer’s satisfaction”
  - “H<sub>1</sub>: Tangible has a positive impact on customer’s satisfaction”
- “Assumption 3:”
  - “H<sub>0</sub>: Assurance has no positive impact on customer’s satisfaction”
  - “H<sub>1</sub>: Assurance has a positive impact on customer’s satisfaction”
- “Assumption 4:”
  - “H<sub>0</sub>: Responsiveness has no positive impact on customer’s satisfaction”
  - “H<sub>1</sub>: Responsiveness has a positive impact on customer’s satisfaction”
- “Assumption 5:”
  - “H<sub>0</sub>: Empathy has no positive impact on customer’s satisfaction”
  - “H<sub>1</sub>: Empathy has a positive impact on customer’s satisfaction”

## **4. Results And Discussions**

### ***Descriptive statistics***

Via using software Stata ver.14, the results of Cronbach’s Alpha analysis for the first time and the second time are shown in the Figure 3 and Figure 4 below:

**Figure 3: Cronbach's Alpha results for Tangibles, Reliability, Responsiveness, Empathy, Assurance**

No	FACTORS		1 <sup>st</sup> CRONBACH'S ALPHA		2 <sup>nd</sup> CRONBACH'S ALPHA		DELETED FACTORS
			ITEM-REST CORRELATION	ALPHA TEST SCALE	ITEM-REST CORRELATION	ALPHA TEST SCALE	
1	TANGIBLES	tan1	0.5821	0.7166	0.5853	0.7973	
2		tan2	0.6454		0.7179		
3		tan3	0.5654		0.6251		
4		tan4	0.2769		-		DELETED
5	RELIABILITY	rel5	0.6691	0.7723	0.7425	0.8429	
6		rel6	0.7119		0.7913		
7		rel7	0.2274		-		DELETED
8		rel8	0.6471		0.7152		
9		rel9	0.5665		0.5039		
10	RESPONSIVENESS	res10	0.2624	0.6396	-	0.6811	DELETED
11		res11	0.4661		0.4419		
12		res12	0.4929		0.4992		
13		res13	0.4886		0.5626		
14	EMPATHY	emp14	0.5509	0.6107	0.5949	0.6681	
15		emp15	0.3096		0.3586		
16		emp16	0.4403		0.4250		
17		emp17	0.4387		0.4379		
18		emp18	0.1278		-		DELETED
19	ASSURANCE	ass19	0.1563	0.6441	-	0.7516	DELETED
20		ass20	0.5827		0.6340		
21		ass21	0.5093		0.5769		
22		ass22	0.5136		0.5535		

*Source: Authors' compilation from the surveyed data*

It is revealed in the Figure 3 that there are five variables which have Total Correlation less than 0.3 must be deleted from the scale after Cronbach's Alpha for the first time: **tan4,**

**rel7, res10, emp18, ass19.** After Cronbach’s Alpha for the second time, all 17 variables left is accepted with Total Correlation more than 0.3. Moreover, all the Alpha Test Scale is higher than 0.6, so the scale is accepted.

**Figure 4: Cronbach’s Alpha results for Customer satisfaction**

No	FACTORS		CRONBACH'S ALPHA		DELETED FACTORS
			ITEM-REST CORRELATION	ALPHA TEST SCALE	
1	CUSTOMER SATISFACTION	cs23	0.6847	0.8046	
2		cs24	0.6566		
3		cs25	0.6149		

*Source: Authors’ compilation from the surveyed data*

It is depicted in the Figure 4 that all three variables are accepted with Total Correlation more than 0.3. The Alpha Test Scale is higher than 0.6, so the scale is considered reliable to be analysed by EFA later.

***Factor analysis***

- Analyzing EFA for the first time:

The result shows that only item “emp15” has factor loading lower than 0.5, so the item emp15 is deleted out of the scale. The EFA analysis extracts to 16 items from initial 17 items.

After using factor test, Testing with KMO and Bartlett is used to test whether items are correlated. It assumes that:

- + H<sub>0</sub>: items are not intercorrelated with each other.
- + H<sub>1</sub>: items are intercorrelated with each other.

The result illustrates that p-value is 0.000 less than 0.05. So H<sub>0</sub> is rejected and H<sub>1</sub> is accepted. Besides, KMO is 0.759 more than 0.5, so data is reasonable for analyzing.

- Analyzing EFA for the second time:

“The result show that no item will be deleted from the scale because all the factor loadings are >0.5. The result illustrates that p-value is 0.000 less than 0.05. So H<sub>0</sub> is rejected and H<sub>1</sub> is accepted. Besides, KMO is 0.753 >0.5, so data is reasonable for analyzing.”

***Regression analysis***

**6. The regression analysis is also applied in this current research to develop the research model:**

. reg CS_Y REL_X1 TAN_X2 ASS_X3 RES_X4 EMP_X5					
Source	SS	df	MS		
Model	28.9006855	5	5.78013709	Number of obs =	200
Residual	26.0682034	194	.134372183	F( 5, 194) =	43.02
				Prob > F =	0.0000
				R-squared =	0.5258
				Adj R-squared =	0.5135
Total	54.9688889	199	.276225572	Root MSE =	.36657

CS_Y	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
REL_X1	.2280698	.0398586	5.72	0.000	.149458	.3066816
TAN_X2	.2171548	.0394071	5.51	0.000	.1394335	.2948761
ASS_X3	.1017409	.0383731	2.65	0.009	.0260588	.177423
RES_X4	.1574378	.0351541	4.48	0.000	.0881045	.226771
EMP_X5	.1824604	.0418452	4.36	0.000	.0999304	.2649904
_cons	.4558667	.2315081	1.97	0.050	-.0007292	.9124626

**Figure 5: The regression analysis coefficients**

STT	Variables	Coefficients
1	ASS_X3	0.1017409
2	RES_X4	0.1574378
3	EMP_X5	0.1824604
4	TAN_X2	0.2171548
5	REL_X1	0.2280698
6	CS_Y	0.4558667

*Source: Authors' compilation from the surveyed data*

“In Figure 5, it is demonstrated that Coefficients  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  are positive and all the Probability of  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  are less than 0.05. So these coefficients have meaning of statistic.  $H_1$  in all five assumptions are accepted. That means all five factors: Reliability - REL\_X1, Tangible - TAN\_X2, Assurance - ASS\_X3, Responsiveness - RES\_X4, Empathy - EMP\_X5 have a positive impact on Customer’s satisfaction.”

“The coefficients show that Reliability - REL\_X1 have greatest impact on Customer Satisfaction - CS\_Y with coefficient of 0.228, while Assurance - ASS\_X3 have least impact on Customer Satisfaction - CS\_Y with coefficient of 0.102.

The regression shows that  $F(5,194)$  equal to 43.02 with Probability 0.0000 less than 0.05. Besides, R - square equal to 0.5258 is rather high. It means that five factors: Reliability

- REL\_X1, Tangible - TAN\_X2, Assurance - ASS\_X3, Responsiveness - RES\_X4, Empathy - EMP\_X5 explained up to 52.58% changes of factors to the deposit service quality in BIDV - HBT Branch.”

“So, the regression model is completely accordant with research object.”

**Testing the defects of model**

- **Matrix of correlation:** In order to ensure the accuracy and compatibility of model, the defects of model were also examined through the matrix of correlation. The matrix of correlation shows that all the significant indicators between independent variables (Reliability - REL\_X1, Tangible - TAN\_X2, Assurance - ASS\_X3, Responsiveness - RES\_X4, Empathy - EMP\_X5) and dependent variable CS\_Y is less than 5%. That means all five independent variables are accepted in regression. It is also revealed that there are some correlations among independent variables because their significant indicators are less than 5%. So the study will test the multicollinearity of the model.

- **Multicollinearity test:** Multicollinearity test presents that Indicator VIF of all coefficients: Reliability - REL\_X1, Tangible - TAN\_X2, Assurance - ASS\_X3, Responsiveness - RES\_X4, Empathy - EMP\_X5 are all less than 10. So the research model doesn’t get multicollinearity.

In conclusion, the model proposed is accordant with economics theory and have no defects. Hence, the proposed model has a high confidence to measure customer’s satisfaction.

**Result**

**Figure 6: Hypothesis testing results**

Hypothesis	Description	Result
H <sub>1</sub>	Tangibility has a positive effect on customer satisfaction	Accepted
H <sub>2</sub>	Assurance has a positive effect on customer satisfaction	Accepted
H <sub>3</sub>	Responsiveness has a positive effect on customer satisfaction	Accepted
H <sub>4</sub>	Reliability has a positive effect on customer satisfaction	Accepted
H <sub>5</sub>	Empathy has a positive effect on customer satisfaction	Accepted

*Source: Authors’ compilation from the surveyed data*

The study is done to determine the customer’s satisfaction from the quality of deposit services of BIDV - Hai Ba Trung Branch on the basis of different constituent factors. The study is carried out using the reliability analysis, factor analysis, correlation analysis and regression analysis. The result of reliability analysis reveals data to be “acceptable” for analysis. The factor analysis is carried out and revealed the customer satisfaction from the Service quality. The result of correlation analysis depicted the positive correlation among the customer satisfaction and each selected variable. The regression analysis has drawn a

result showing positive and significant impact of service quality of customer satisfaction. Among all the factors, the customer satisfaction was highly depending on Reliability and least depends on the Assurance. Moreover, all the five aspects are accepted which reveals the significant impact of service quality on the customer satisfaction.

## **7. Major Findings And Recommendations**

### ***Major findings***

This study is done to evaluate the correlations among the five factors in the SERVQUAL model and the satisfaction of the customers on deposit services in BIDV - HBT Branch.

The following findings are drawn from the analysis of gathered data:

(i) Despite some problems in the service quality of deposit services at BIDV - HBT Branch, there is an increase in the value of deposit account during 2015-2017 (from VND 4,657 in 2015 to VND 5,722 billion and VND 7,208 billion in 2016 and 2017);

(ii) The majority of customers of deposit services at BIDV - HBT Branch are individual customers

(iii) The research model is developed as follows:

$$Y = 0.4558 + 0.2280*REL\_X1 + 0.2171*TAN\_X2 + 0.1017*ASS\_X3 + 0.1574*RES\_X4 + 0.1824*EMP\_X5$$

(iv) There is a positive relationship between 5 components of SERVQUAL model which impact is ranked as following order: Reliability > Tangibles > Empathy > Responsiveness > Assurance

Reliability has the highest effects, telling that, to attract resources, banks absolutely depend on customers' trust. The correctness of this trust relies on the excellence of obtained data for the bank. Tangibles categorized second illustrates that facilities and infrastructure as well affected to commercial banks' operations, which means that banks with out-of-date equipment are seemed to be less attractive to customers. Empathy categorized third, signifies that, to attract to clients, banks ought to develop the services quality as well as make better use of the relationship between bank staffs and customers. Responsiveness categorized fourth. The reason is that clients progressively pay attention associated to the variety of services and the suitability of finances. Assurance is the last factor in the ranking. It is the result of the State Bank of Vietnam (SBV)'s requirement for financial institutions to reinforce the strength and keep security on the information technology systems.

The findings also indicate that five factors of SERVQUAL model "Reliability - REL\_X1", "Tangible - TAN\_X2", "Assurance - ASS\_X3", "Responsiveness - RES\_X4", "Empathy - EMP\_X5" explained up to 52.58% changes of factors to the deposit service quality in BIDV - HBT Branch.

### ***Recommendation***

Depending on the analysis of the impacts of five different categories of service quality of deposit services at BIDV - HBT Branch, it is concluded that the Branch ought to focus on improving the Reliability and Tangibles aspects of quality to satisfy their customers because of their greatest impacts on customer satisfaction.

In terms of Tangibles, the research findings indicate that such elements as equipment modernity, attractive physical facilities, and courtesy and elegant looking of bank counters of BIDV - HBT Branch has the greatest impacts on depositors' satisfaction. Therefore, it is critical that BIDV - HBT develops the initiatives to strengthen their service quality.

To enhance the equipment modernity and attractive physical facilities, BIDV should invest in upgrading their facilities to improve the customers' satisfaction towards the quality. The checking system should be automated to eliminate the postpones caused by queuing. Besides, Information technology is also a measure to improve the responsiveness. The implementation of information technology in services also enhances the equipment modernity of the bank. BIDV need a stronger and synchronized core banking system. Good information technology basis assists over-the counter transactions to be more quickly and less operating errors. Moreover, high security of internet banking systems not only protects customers but also protects the banks from risks.

To improve staff performance, since the establishment, BIDV has not yet designed an adequate standardized and good-looking uniform for all staff. The inconsistency among branches makes the customers feel unprofessional about bank staffs' appearance. As mentioned before, the uniform is one of the factors that have a strongest impact on customer satisfaction. Hence, BIDV - HBT Branch need a new uniform design, which is elegant and compatible with the Brand's Point of Sales Material, to make an extraordinary impression for customers and fascinate the customers to enter the transaction department.

In terms of reliability, BIDV should focus on commitment to the highest service quality, accuracy at the first time, and customer cares towards problem solving. The branch should attempt to achieve synchronized and accurate routine of transaction, including: record, quote, billing, and commissions' calculation which seems to be a promise for the service quality to the customer. Customers' loyalty is the vital factor which have influence on the variety of services in deposit categories. So that the security of the deposit has been regarded as one of the chief aspects for BIDV - HBT Branch.

### ***Concluding remarks***

The Vietnamese banking industry is one of the most competitive industries. In order to survive and grow in the competitive market, it is crucial for banks, particularly BIDV - HBT Branch, to deliver premium services to their clients.

The customer satisfaction means fulfilling the expectation of a customer. If the product or service able to meet with that expectation, it leads to customer satisfaction. Customer satisfaction is one of the key success factors for the banking industry.



SERVQUAL is regarded as a familiar model to assess the quality of the service on five different dimensions, including: reliability, assurance, tangible, empathy and responsiveness (Parasuraman et al., 1988). In the early 1990s, the economists studied about the correlation between service quality and customer fulfilment then revealed a positive relationship (Taylor, 1992). In 2000s, researchers have studied the bank service quality using the SERVQUAL model and found significant impact of all five factors on the customer satisfaction (Bahia & Nantel, 2000).

There have been many works of research on customer satisfaction nationwide, particularly in the service segment, but there are a few studies have conducted in developing countries as Vietnam. Therefore, this study has attempted to address the problem of which major elements in the SERVQUAL model impact on the satisfaction of the customers in the scale of deposit services in BIDV - HBT Branch. The research uses an application of SERVQUAL model to propose a questionnaire survey, which comprises 25 items. The existing and former depositors in BIDV - HBT Branch is the population of the research. The study findings indicate that there is a progressive and intensive relationship between depositors' satisfaction of services at BIDV - HBT Branch with five dimensions of SERVQUAL, including Tangibles, Reliability, Responsiveness, Assurance, and Empathy.

This research consolidated to the literature by applying a model to examine the quality of deposit services in the retail banking zone. The research indicates support for the hypotheses, which defined that the five factor SERVQUAL model have the empirical reliability. In the context of Vietnam, almost customers have little or inadequate understanding about the complex matrix of financial products and services. That is an advantage for the enormous financial institution, whose brand names are as the guarantees for service quality. Customers choose a bank's services basing on the brand names of the bank, which is obviously, in turn, contributes to fame of bank.

The improvement of deposit service quality will enhance customer satisfaction, customer loyalty, and positive rumours of customers. Moreover, BIDV should reinforced and developed their service quality to boost the competing ability, which are urgent requirement in integration and globalization nowadays. By that way, BIDV is sustainable on development target in the long term. Additional, BIDV should conduct the bank's own particular researches that is absolutely cross-transparent to give suitable strategies to improve the service quality in long term.

## 8. References

1. "Aldlaigan, A. H. and Buttle, F. A. (2002), *SYSTRA-SQ: a new measure of bank service quality*, International Journal of Service Industry Management, vol. 13, no. 4, p. 362-381"
2. "Avkiran, N. K. (1994), *Developing an instrument to measure customer service quality in branch banking*, International Journal of Bank Marketing, vol. 12, no. 6, p. 10-18

3. “Bahia, K. and Nantel, J. (2000), *A reliable and valid measurement scale for the perceived service quality of banks*, International Journal of Bank Marketing, vol. 18, no.2, p. 84-91
4. “Bank for Investment and Development of Vietnam JSC., (2015, 2016, 2017). *Annual Report*, BIDV Hai Ba Trung Branch
5. “Bank for Investment and Development of Vietnam JSC., (2015, 2016, 2017). *Financial statements*, BIDV Hai Ba Trung Branch
6. “Cronin, J. Joseph and Taylor, Steven A. (1992), *Measuring service quality: A re-examination and extension*, Journal of Marketing, vol. 56, no.3, p. 55-68
7. “Ilyas, A. (2013). *Assessing the service quality of bank using SERVQUAL model*. Interdisciplinary Journal of Contemporary Research in Business, vol. 3, no. 11, p. 390-400
8. “Parasuraman. A., Zeithaml, V. A. and Berry, L. L. (1985), *A conceptual model of service quality and its implication for future research*, Journal of Marketing, vol. 5, no.3
9. “Parasuraman. A., Zeithaml, V. A. and Berry, L. L. (1988), *SERVQUAL: a multiple - Item scale for measuring customer perception of service quality*, Journal of Retailing, vol. 64, no. 1
10. “Parasuraman. A., Zeithaml, V. A. and Berry, L. L. (1991), *Perceived Service Quality as a customer focused performance measure: An empirical examination of organizational banners using and extended service quality model*, Human Resource Management, vol. 30, no. 3, p. 335-364
11. “Vanparia, B. and Tsoukatos, E. (2013), *Comparison of SERVQUAL, SERVPERF, BSQ and BANKQUAL scale in banking sector*, Annual Conference of the EuroMed Academy of Business: vol. 6, p. 2367-2392
12. Annual Asian Banker Vietnam Awards formal website, <http://awards.asianbankerforums.com/vietnam-awards/winners>
13. Aymn Sulieman (2013), *Basic Dimensions of the SERVQUAL model and its impact on the level of customer satisfaction: An empirical study of the housing bank in Karak, Jordan*, European Scientific Journal, vol. 9, no. 1
14. C. Camarero, (1/2007), *Relationship Orientation or Service Quality? What Is the Trigger of Performance in Financial and Insurance Services?*, International Journal of Bank Marketing, vol. 25, no. 6, p. 406-426
15. Casu, B., Girardone, C., and Molyneux, P. (2015), *Introduction to banking*, Pearson Education, vol. 10.
16. Gronroos, C (1984), *A Service Quality Model and its Marketing Implications*, European Journal of Marketing, vol. 18, no. 4. p. 36-44

17. Ladhari R., Ladhari I. and Morales, M. (2011), *Bank service quality: comparing Canadian and Tunisian customer perceptions*, International Journal of Bank Marketing, vol. 29, no. 3, p. 224-246
18. M. M. Lau, R. Cheung, Aris Y. C. Lam and Yuen T. Chu (2013), *Measuring Service Quality in the Banking Industry: A Hong Kong Based Study*, Contemporary Management Research, vol. 9, no. 3, p. 263-282
19. Nguyen Hong Quan (2018), *Factors affecting the quality of e-banking services: Research at Tien Phong Commercial Bank*, Journal of Management and International Economics, vol. 125, 130
20. Panda, R. K. and Kondasani, R. K. R. (2014), *Assessing customers' perceived service quality in private sector banks in India*, Serbian Journal of Management, vol. 9, no. 1, p. 91-103”
21. Phan Chi Anh, Nguyen Thu Ha, Nguyen Hue Minh (2013), *Review of Service Quality Assessment Models*, Journal of VNU University of Economics and Business, vol. 29, no 1, p. 11-22
22. Rose, S., Clark, M., Samouel, P., & Hair, N. (2012), *Online Customer Experience in e-Retailing: An empirical model of Antecedents and Outcomes*, Journal of Retailing, vol. 88, p. 308-322
23. Stafford, M.R. (1996) *Demographic Discriminators of Service Quality in the Banking Industry*, Journal of Services Marketing, vol. 10, p. 6-22
24. Sylvester Opoku, (2010), *Mobilizing Deposits: The Role of Commercial Banks*, Ghana, Research paper

# ACCESS TO BANKING CAPITAL OF MICRO-ENTERPRISES AND HOUSEHOLDS

*MSc. Khuc The Anh*

*anhkt@neu.edu.vn*

*MSc. Le Hoang Anh*

*anhlh@neu.edu.vn*

*Pham Thi Nhat Linh*

*phamthinhatlinh1201@gmail.com*

*School of Banking and Finance, National Economics University, Hanoi, Vietnam*

## **Abstract**

*Since banking services were created, micro-enterprises and households (MEs & Hs) are two main subjects that find difficult to access to banking capital. Especially in the rural areas, the conditions to meet the banking services seem to be challenging for MEs & Hs. In the Fourth Industrial Revolution era, accessing to banking capital should not only be basic but also more convenient and easier to use. This paper analyzed factors influencing the decision of accessing to banking services. The research method is in-depth interview with experts. From the research result, the authors suggested some policy implications in order to make this process become easier to MEs & Hs. The authors believe that the improvement of the access to banking capital will strengthen the operations of MEs & Hs, thus, enhancing sustainable economic development.*

**Key words:** *Micro-enterprises and households, banking capital, rural areas.*

## **1. Introduction**

Micro-enterprises and households (MEs & Hs) are an essential part of the national economy with diversified business and production activities in many fields. Micro-enterprises in Vietnam, which are different from the viewpoint of enterprises in the world, are often associated with individual business households (Le, 2013). The Government (2018) stipulates: "Micro-enterprises in agriculture, forestry, fisheries, industry and construction sectors have an average number of employees participating in social insurance of no more than 10 people per year and total revenue of the year shall not exceed 3 billion VND or the total capital source shall not exceed 3 billion VND. Micro-enterprises in the field of commerce and services have an average number of employees participating in social insurance of no more than 10 people per year and total annual revenue of not more than 10 billion VND or total capital of not more than 3 billion VND". According to the Government's view (2018), a business household is understood as an individual or a group of people registering a specific business with a small scale, simple registration process and only one a definite business location. Therefore, the business operation of MEs & Hs may have many advantages from the

procedure of establishing a business unit to reforming tax administration in the form of presumptive tax - declare and pay the lump sum tax annually, no need to record in accounting books, etc. Whereas, it is this simple management that may be the reason why these subjects are difficult to meet the lending conditions of commercial banks.

According to Ann (2017), MEs & Hs can mobilize capital from different channels, depending on the development of each country's financial products and capital markets in the formal financial sector, semi-formal and informal to expand production. This article focuses on the formal financing channel of commercial banks because the potential of capital as well as the differentiation in the financial products of commercial banks can meet different needs of many customers.

The scope of the study is in rural areas of Vietnam because this area has bustle of activities of MEs & Hs. However, it is difficult for them to access capital from commercial banks: only about 28% of total MEs & Hs have ability to obtain bank loan (GSO, 2019). Therefore, in order to carry out the government's orientation to develop the economic types equally, the access to bank capital of MEs & Hs is becoming an essential issue. In order to promote business development of MEs & Hs, in addition to the innovation in their own production and business activities, the effective support from commercial banks such as official capital supply channel is very important.

## **2. Theoretical basis and research hypotheses**

### ***3.1. Perspectives on accessing bank capital***

There are many views on capital access. Rose (2015) and Casu (2013) believed that access to bank capital is the ability of customers to use the bank's capital based on meeting financial obligations, which emphasizes the ability to repay both principal and interest. Nguyen (2014) and Ha et al. (2015) also approved this perspective, which is: Access to bank capital is the knowledge and ability of people, households, and business households to obtain loans from credit institutions. In other words, this is the form of transactions involving assets between one party are banks called lenders and the other are individuals and enterprises called borrowers. The lender will transfer the property to the borrower for a specified period of time, and the borrower will be responsible for unconditional repayment to the lender of both capital and interest when payment due as agreed comes.

However, approaching from a microfinance perspective, according to Consultative Group to Assist the Poor (2017), this is the bank's provision of capital to those who are difficult to access capital at affordable prices. Ledgerwood et al. (2013) continued to argue that access to bank capital includes not only obtaining bank loans but also the need to use other banking services - in order to perform different goals in access financial services and in poverty reduction. Therefore, this view argues that access to bank capital is not only a matter of customers borrowing from banks but also using other financial services.

Within the scope of this research, the concept of access to bank capital is understood by the ideas of Nguyen (2014) and Ha et al. (2015), which means that microenterprises and households have intentions and can borrow from banks.

### ***3.2. Factors affecting the access to bank capital of MEs & Hs in rural areas:***

The impact on access to bank capital by large, small and medium-sized enterprises has been studied quite a lot in Vietnam and around the world, for instance, Le's research team (2013); Nguyen (2014) and Ha et al. (2015), Nguyen (2018), etc. However, there is no quantitative research on MEs & Hs groups in rural areas. Meanwhile, the fact that MEs & Hs have difficulty accessing bank capital comes is from their inability to manage finance, business experience, and loans in rural areas often do not have collaterals or collaterals are hard to trade, etc (VCCI, 2016). Therefore, based on the research overview and the results of in-depth interviews with experts, this research focuses on analyzing the typical factors affecting the access to bank capital of MEs & Hs in rural areas in Vietnam as follows.

#### ***3.2.1. Collateral***

Collateral is a sum of assets to demonstrate the future repayment of debt obligations of bank borrowers (Rose, 2015; Casu, 2013) - in this case, the MEs & Hs. The collateral acts as a means to minimize the risks of asymmetric information and moral hazard when asset-based lending is made (Nguyen, 2018). The lack of collaterals is one of the major barriers to bank access, especially in rural areas (Ha et al, 2015). Empirical studies have demonstrated that collaterals increase access to capital from financial institutions (Catherine, 2014; Claessens et al, 2000), long-term financing (Gideon, 2013), and access to credit in general (Peria, 2018). Thus, it can be hypothesized that:

*H1: Mortgages have a positive effect on the access to bank capital of MEs & Hs in rural Vietnam.*

#### ***3.2.2. Loan interest rate***

The interest rate is considered to be the price of the loan in the financial cost, which has a significant influence on the financial plans of the MEs & Hs. Interest rates not only affect the payment obligations to lenders and affect the capital of business households, but also demonstrate the ability to trust the borrowers (Doan, 2015; Le Thanh Tam, 2015). Therefore, the authors hypothesized:

*H2: Interest rates have the opposite effect on the access to bank capital of MEs & Hs in rural Vietnam.*

#### ***3.2.3. Geographical distance:***

Nguyen (2016) argued that the geographical distance of borrowers to bank branches has a negative relationship with access to capital. Doan's empirical results (2015) showed that the reason is that in rural areas, access to formal financial institutions such as commercial banks is still difficult due to inconvenience of transactions and the lack of ability to capture sufficient information. Therefore, it can be said that:

*H3: Geographic distance has the opposite effect on the access to bank capital of micro enterprises and households in rural Vietnam.*

#### 3.2.4. Loan procedures:

Loan procedure is also a factor affecting the decision to borrow money from MEs & Hs (Hafeez, 2008). Nguyen Phuc Chanh (2016) also pointed out the same problem in Vietnam. That is most business households (and even micro-enterprises) in rural areas are small to very small in scale. Additionally, their skills in business management and business planning are limited, mostly empirical, simplified on the books without thorough accounting, sufficient documents, as well as inadequate understanding of credit access conditions. This makes it difficult for them to meet the lending procedures required by credit institutions. Therefore, the authors hypothesized:

*H4: The complexity of the loan procedure has an adverse effect on the access to bank capital by microenterprises and households in rural Vietnam.*

#### 3.2.5. Digital banking services:

According to Gaurav (2017), Digital Banking is a form of bank which digitizes all traditional banking activities and services. Digital banking services, including online lending, will reduce travel costs and waiting time for processing documents, reducing the impact of geographical distance on credit access of MEs & Hs. Results of in-depth interviews with experts in the Finance & Banking field showed that: nowadays, digital banking service is considered as an indispensable trend in the era of the Fourth Industrial Revolution. It is a “new” and modern service, considered as typical and it also increase accessibility for MEs & Hs anytime, anywhere. However, digital banking utilities are currently being provided primarily to individual customers and to corporate customers who have only stopped at the basic step such as online payment, mainly via internet banking. In the coming time, digital banking is one of the positive factors affecting the accessibility of bank capital of MEs & Hs in rural areas. This indicator was further developed based on the implications of experts in the in-depth interview, thus, the authors proposed the hypothesis:

*H5: Digital banking services have a positive influence on the access to bank capital of MEs & Hs in rural Vietnam.*

#### 3.2.6. Business experience of MEs & Hs:

The business experience in this study is simply calculated as the period of time from when the MEs & Hs commences its operations to the present. Hafeez (2008), Doan (2015), Nguyen (2018) believed that the more experienced they are, the easier it is for MEs & Hs in rural areas to access bank capital. Therefore, the authors made hypotheses:

*H6: Years of experience have had a positive effect on the access to bank capital of MEs & Hs in rural Vietnam.*

#### 3.2.7. Income:

This indicator is understood as revenue for microenterprises and income for households. Studies of Nguyen (2018), and Doan (2015), Peria (2018) have pointed out that one of the conditions for borrowing from formal credit institutions is the borrower's ability to repay debts. Therefore, the authors hypothesized:

*H7: Income has a negative effect on the access to bank capital of MEs & Hs businesses in rural Vietnam.*

#### *3.2.8. Experience of the bank:*

Research by Le (2013), Tibaingana & Mutenyi (2018) and Peria (2018) shows that the more experienced banks are in providing capital to specific subjects (such as rural areas), the easier it is to develop this service. Especially in Vietnam, credit institutions were established early with a long time of operation, which is considered to be more advantageous in establishing prestige as well as specialized financial services. Therefore, the authors hypothesized:

*H8: The bank's experience influences the access to bank capital of MEs & Hs in rural Vietnam.*

## **4. Methods**

The paper focuses on the study of factors affecting the access to bank capital of MEs & Hs in rural Vietnam. Especially after circular 39/2016/TT-NHNN dated December 30, 2016, there was a change in the status of the borrower. Along with that, the strong development of credit services such as digital banking activities is said to contribute to promote financial access to MEs & Hs more easily in Vietnam.

### ***4.1. Preliminary research and official research:***

**Preliminary research:** After building the model and preliminary scale, the authors conducted in-depth interviews with 07 experts (including 3 experts in economics and banking, 3 people working in the banking industry and 3 people are the three representatives of the MEs & Hs). The interview was about the factors affecting the access to banking capital of MEs & Hs, from which completed the survey questionnaire. The interviews are conducted directly in the office, at home or so to ensure the comfort of sharing of the interviewees. Each interview lasts from 25-40 minutes. Once completed, the questionnaire was used for preliminary interviews with 70 MEs & Hs to detect related issues before conducting formal research.

**Official research:** After overcoming problems related to the questionnaire through preliminary interviews, official research is conducted first by re-interviewing theoretical experts to adjust the questionnaires. After that, the questionnaires were surveyed and collected.

### ***4.2. Survey, collect and process data:***

All scales are inherited from previous studies and adapted accordingly based on suggestions of qualitative research. The scales use the 5-level Likert format, where level 1 is strongly disagree and level 5 is strongly agree. The scales are inherited from Ann's scale (2017). Specifically, the scale of collaterals (C) - 03 indicators; income scale (I) - 03 indicators; household experience scale (HE) - 03 indicators; distance measuring scale (D) - 03 indicators; interest rate scale (IR) - 03 indicators; loan procedure scale (LP) - 03 indicators; banking experience scale (BE) - 03 indicators; digital bank (DB) scale - 05 indicators and scale of accessibility to commercial bank credit of MEs & Hs - 04 indicators. Survey tools are built based on observed variables that measure concepts in the model. In addition, the questionnaire also includes demographic questions such as gender, age,



education level, income. The questions on the questionnaire were reconciled by the authors to examine the semantics between the English original and the Vietnamese translation.

Investigation method: The questionnaire is sent directly to the representatives of MEs & Hs. The total number of votes issued was 500, but only 352 answered. Among them, 86 were either eliminated by hitting the same answer or not answering the entire questionnaire.

Data processing: After collecting and synthesizing the survey samples, the results collected from the questionnaire are cleaned, entered into the database and encrypted based on Excel 2016. The answer sheets which are incomplete or contain errors will be removed to ensure high reliability of data. The research team then analyzed the linear regression model and analyzed the capital accessibility of household through the reliability coefficients using Cronbach's Alpha method and the results of the Exploratory Factor Analysis (EFA).

## 5. Results

### 5.1. Descriptive statistics

At the end of the survey, the total number of analyzed observations was 266, including 93 males (35%) and 173 females (65%). The age of the surveyed people is mainly between 22 and 40 (49.6%), in which the most capital access is in the age group of 22-30. The income factor accounts for the highest rate at 10-20 million VND/month (44.7%). The two age groups from 22 to 40 years account for 69.6% of the sample. It can be said that these are the two main age groups, the main labor force in the study group and are usually responsible for production and business activities. Therefore, they are the regular object of bank loans to support their activities. Meanwhile, age from 18 to 22 years old accounts for only 14.7%.

The survey results also showed that up to 87.2% of the respondents graduated from college and university or higher (162 people); only 1.5% of respondents graduated from lower secondary schools (4 people) and 8.6% graduated from high schools (23 people); the remaining are in vocational training and professional secondary (7 people).

### 5.2. Model results

#### 5.2.1. Reliability analysis

**Table 1: Results of reliability analysis**

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.761
Bartlett's Test of Sphericity	Approx. Chi-Square	1602.739
	df	231
	Sig.	0.000

The scale of the independent variable has the qualified weight of factors, the ability to converge and the good performance of observed variables. The dependent variables scale measuring the ability to access capital (4 observed variables) converged and performed well of the scales. The results of factor analysis according to the proposed research model for KMO coefficient = 0.761 > 0.5; factor analysis is appropriate. Total variance explained

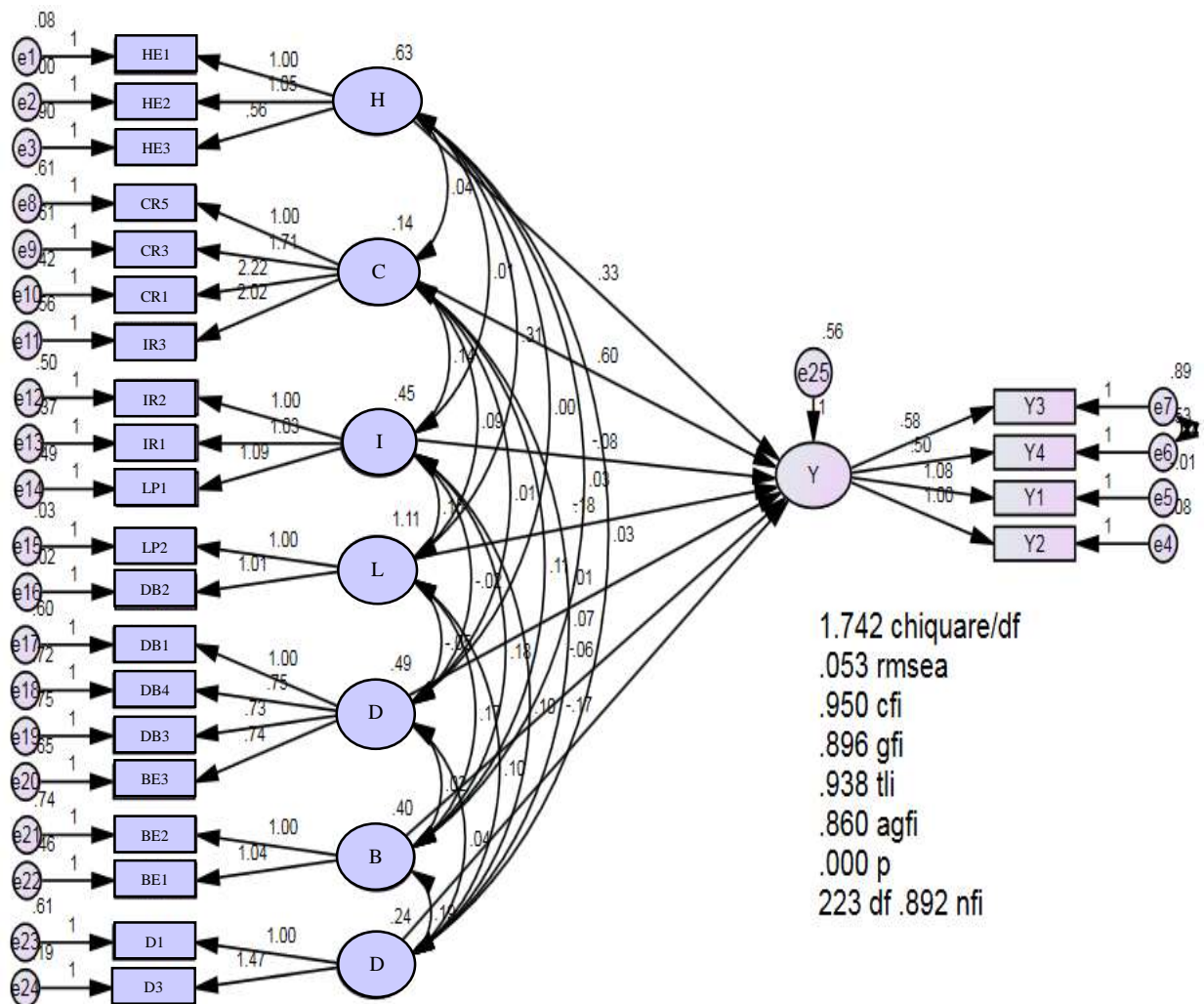
reaches 70.79%, which leads to the conclusion that 70.79% of the variation of component variables (of factors) is explained by observed variables (indicators).

The results of measurement reliability of scales, Exploratory Factor Analysis (EFA) and Confirmatory factor analysis (CFA) with the criteria for measuring the hypotheses, all remain.

### 5.2.2. Testing hypotheses:

After running the EFA test, the authors found a very strong correlation between the variables in collaterals and income. Thus the authors combined these two factors into a new one, which is Characteristics of the representative (CR). If the test results showed a positive effect of the representative variable with the dependent variable, both assumptions H1 and H2 would be guaranteed. The coefficients in the model match actual data, the performance results have a Chi-square/df coefficient = 1.742 (<3); GFI = 0.896; TLI = 0.938 (> 0.9); CFI = 0.950 (> 0.9); RMSEA = 0.053 (<0.08). The model shows the influence of factors affecting the access to formal credit including 8 factors mentioned by the authors.

**Figure 1- Results of structural model analysis**



Source: Analysis based on AMOS 20

The results confirmed that the independent variables have an impact on the capital access of MEs & Hs in rural areas of Vietnam as hypothesized, particularly the factor "experience of banks". show the opposite effect.

## **6. Discussion and Conclusion**

### **Discuss model results**

The survey results show that the hypotheses from 1 to 7 are accepted and have analytical results consistent with theoretical research as well as the original assumptions of the authors. Specifically, the variables "Characteristics of the representatives" affect 0.60 percentiles, "Experience of representatives" affect 0.33 percentiles; while "Geographical distance" impacts 0.17, "Interest rates" affect 0.08 and "Loan procedures" affect 0.18 percentiles. The sign of this result is consistent with the real situation of Vietnam economy, where the survey subjects spread from the ages of 18 to over 40 with diverse business lines.

Research results indicate that some regulations on collateral (in the characteristics of the representatives), loan procedures and so on have been preventing the access of bank capital. In addition, commercial banks also face many difficulties in appraising loan applications of MEs & Hs in rural areas since they have not met the bank's loan requirements. Geographical distance as well as the asynchronous development of digital banking are also obstacles in accessing loans.

Notably, the "Experience of the bank" variable after the survey and analysis did not bring the same results compared to the previous study of Doan (2015); Nguyen Phuc Chanh (2016); Le (2013); Ann (2017) and Gideon (2013) as they argued that the greater the "Experience of the bank", the greater the ability of the research group to access loans. This result can be explained as follows: Banks which have long-time operation and state-owned capital such as BIDV, Vietcombank, Agribank, etc. have large capital scale, a large number of staff and extensive network of customers and partners accumulated over years of operation. However, due to competition in the market, besides large scale and large number of employees, the quality of service is also a factor that MEs & Hs care. Moreover, the more experienced a commercial bank is, the higher its ability to appraise the project, the tighter the process, the lower the level of risk tolerance, so the easier it is for small loans from this object to be denied. It can be said that compared to other commercial banks, large state-owned banks are often less flexible in implementing the loan procedure with many unmet requirements, the cost and interest rates are often larger, making it very difficult for MEs & Hs, especially in rural areas to have access. In addition, in order to compete with huge banks in lending activities, small banks often have more preferential and flexible credit policies.

Among the variables of the model, digital banking has a positive impact on the access to bank capital of MEs & Hs. This is shown by the fact that in borrowing and using other services of the bank recently, the boundary between borrowing for production and business, and borrowing for consumption is gradually blurring. Therefore, the policy implications of separating this activity need further study to make recommendations for specific purposes.

## **Policy implications**

From the research results, to enhance the accessibility of bank capital of MEs & Hs in rural areas of Vietnam, some policy implications can be drawn as follows:

### **The group of policy implications for commercial banks to increase access to MEs & Hs.**

#### ***Firstly, developing digital banking services to promote access to bank capital MEs & Hs.***

In order to promote access to bank capital, it is necessary to have an appropriate digital banking platform, to either find a new segment or address the limitations that come from inconvenience due to geographical distance and loan procedures. Specifically:

*About the legal environment:* State bank needs to speed up the process of completing the legal framework for digital banks, creating an equal playing field and a bridge for commercial banks and Fintech/Bigtech. From this, they would also create a legal corridor for the application of modern technology in the Finance and Banking sector and have policies to support commercial banks in this transition process. At the same time, it would promote digital transformation businesses, raise awareness of using digital banking services, e-commerce and non-cash payment.

*About targeted products and services:* Research to enhance the superior features of digital banking products and services, issue to the market many products that apply technology, simple but with many utilities, best serving the needs of customers. It is needed to focus on developing online micro loans, increasing cross-selling of products and services to increase benefits for customers as well as banks. Otherwise, conducting customer reviews based on their behavior reviews from the use of other banking services is also essential.

*About building ecosystems:* The ability to attract customers and exploit large databases is thanks to the high level of service integration in the financial ecosystem. A comprehensive financial ecosystem includes online payment interface, online banking, online asset management, consumer finance, insurance, credit scoring, fund raising. Thus, it is possible to exploit a huge user base in the ecosystem, so that the study of consumer behavior of customers and the ability to exploit appropriate databases can be done easily. The ecosystem includes many areas, which are increasing the number of payment acceptance points, overcoming technology limitations and improving security solutions for users.

#### ***Secondly, diversify products with flexible collateral form.***

Collateral is one of the problems that limit the ability to borrow capital as well as access to banking services of MEs & Hs in rural Vietnam. Therefore, the authors give the implications for the study of lending policies as follow: Expand the types of collaterals, ask customers to buy insurance with this type of property at the business that the branch designates, with the beneficiary request belonging to the bank. In the case of non-collateral loans, commercial banks will study and develop specific products by industry groups, and apply one of the following risk management measures:

- i. Granting a small credit limit (within the bank's allowable risk limit after balancing input and output costs) or granting an additional non-collaterals limit for MEs & Hs who had loans with collaterals;

- ii. Customers prove that their revenue can be guaranteed with debt repayment (transfer revenue to accounts opened at the funding bank); evaluate enterprises based on non-financial information (owner, business experience, location, industry, guarantee from social organizations, associations where customers are members);
- iii. Using cross-selling products to increase profits: Borrowed MEs & Hs must agree to use at least 3 (or optional) accompanying non-credit services;
- iv. To minimize risks: Use risk calculation tools to add on the prices of products.

***Thirdly, having appropriate policies to increase customer accessibility and ensure the sustainable development of the bank.***

At the present time, although rural and domestic MEs & Hs are accepting higher interest rates, banks should have certain strategies in applying appropriate interest rates to increase the ability to access for customers. In addition, in order to ensure the bank's targeted profit while aiming at this potential segment, reducing operating expenses is also a necessary requirement. There are some proposed solutions to reduce costs: (1) Apply technology to credit granting (receiving online applications, building an automated scoring system to minimize human resources for credit appraisal); (2) Increase labor productivity and improve service quality of staff dealing directly with customers through improving working manner, enhancing communication skills and customer care.

Moreover, in order to increase the effectiveness of the lending policy to priority subjects as MEs & Hs, for the purpose of economic development in general, the State Bank need to research some solutions such as refinancing, interest rate subsidy, having a mechanism to determine the debt group and a mechanism of provision and handling risks, etc.

***Fourthly, strengthen management capacity and digital transformation in MEs & Hs.***

The MEs & Hs need to improve transparency in business and administration. It is necessary to apply internal management systems to meet the requirements of the lending conditions: (i) It is mandatory to develop a complete, sufficient or accurate financial reporting system. At first, it is to facilitate MEs & Hs to manages revenue or income. Then, it is to be convenient for the bank to verify the information. (ii) Improve business management capacity so that the bank can see transparently the cash flow when appraising debt payment sources is made.

Particularly, it is because the 4th industrial revolution will create a comprehensive change in all areas of awareness, institutions, technology, executive management, research, production, trade and services. Therefore, MEs & Hs should also seize the opportunity to innovate, create, apply high technology to digital transformation, which is a necessity and urgency to quickly develop strongly, safely, effectively and lasting.

**Some policy implications for the concerned authorities.**

Assisting in providing tax declaration information, income information of business owners and heads of micro businesses is to help the bank easily control the information of credit applications.

Concerned authorities can also organize sharing sessions, experience sharing programs among people in the same industry, encourage business cooperation, and progress together.

Advance the promotion and communication on banking services including credit in remote and rural areas through local organizations. For examples, there are Farmers' Union, Youth Union, Women's Union and the mass media to raise awareness and quickly meet the needs of MEs & Hs when they want to access bank capital.

## 7. References

1. Ann Gathoni Thuku (2017), *Factors affecting access to credit by small and medium enterprises in Kenya: A case study of agriculture sector in Nyeri county*, retrieved at <http://erepo.usiu.ac.ke/bitstream/handle/11732/3508/ANN%20GATHONI%20THUKU%20MBA%202017.pdf?sequence=1&isAllowed=y>
2. Catherine Wanjiku Ndungu (2014), *Factors Affecting credit access among small and medium enterprises in Muarang' a county*, retrieved at <http://erepository.uonbi.ac.ke/handle/11295/98555>
3. Casu, B., Girardone, C & Molyneux, P. (2013), *Introduction to Banking*, Harlow: Pearson
4. Claessens et al, 2000, 'The separation of ownership and control in East Asian Corporations', *Journal of Financial Economics*, Volume 58, Issues 1-2, 2000, Pages 81-112.
5. Consultative Group to Assist the Poor (2017), *Microfinance Week*, retrieved at <http://www.e-mfp.eu/users/consultative-group-assist-poor-cgap>
6. Doan Thanh Ha (2015), 'Determinants of Access to Bank Credit for Agricultural Households in Vietnam', *Journal of Economics and Development*, T. 17, S. 3 (2015).
7. Gaurav Sarma (2017), *What is digital banking*, last accessed October 15, 2018 at <http://www.ventureskies.com/blog/digital-banking>.
8. Gideon Kosgei Korir (2013), *Factors affecting access to credit by the small business producer groups in Trans-nzoia county*, retrieved at [http://erepository.uonbi.ac.ke/bitstream/handle/11295/94673/Korir%20Gideon%20Kosgei\\_Factors%20affecting%20access%20to%20credit%20by%20the%20Small%20business%20producer%20groups%20in%20Transzoia.pdf?sequence=1&isAllowed=y](http://erepository.uonbi.ac.ke/bitstream/handle/11295/94673/Korir%20Gideon%20Kosgei_Factors%20affecting%20access%20to%20credit%20by%20the%20Small%20business%20producer%20groups%20in%20Transzoia.pdf?sequence=1&isAllowed=y)
9. Ha Thi Thieu Dao, Nguyen Thien Kim & Nguyen Thi Mai (2016), 'Poor households' credit accessibility: the case of rural Vietnam', *Afro-Asian J. Finance and Accounting*, Vol. 6, No. 3, p.241 - 257.
10. Hafeez Ur Rehman and Ahmed (2008). 'An Empirical analysis of the determinants of Banks Selection in Pakitstan: A customer view', *Pakitstan Economic and Social Review*, Volume 46, No.2 (Winter 2008), pp. 147-160;
11. Ledgerwood, Joanna. 2013. *The New Microfinance Handbook : A Financial Market System Perspective*, Washington, DC: World Bank.
12. Le Thi Bich Ngoc (2013), 'Banking Relationship and Bank Financing: The Case of Vietnamese Small and Medium-sized Enterprises', *Journal of Economics and Development*, T. 15, S. 1 (2013).

13. Le Thanh Tam (2015), 'The schools of providing microfinance - Theoretical and empirical theory in Vietnam', *Journal of Economics & Development*, No. 218 (II), August 2015, ISSN: 1859-0012, pages 2-10.
14. N. Nguyen, C. Gan and B. Hu (2014), *Credit accessibility and small and medium sized enterprises growth in Vietnam*, Series URL <http://hdl.handle.net/10182/4745>
15. Nguyen Hong Ha (2018), 'The Factors Affecting the Access to Banking Credits of Family Businesses in Tra Vinh Province, Vietnam', *International Journal Of Economics and Financial Issues*, Vol8, No 5 (2018).
16. Nguyen S, (2016), 'Determinants of Successful Access to Bank Loans by Vietnamese SMEs: New Evidence from the Red River Delta', *J Internet Bank Commer* 21: 162. doi:10.4172/1204-5357.1000162
17. Nguyen Phuc Chanh (2016), 'Analyzing factors affecting loan decision of individual customers and business households in Agribank in Vi Thanh City, Hau Giang Province', *Master's Thesis*, Tra Vinh University.
18. Rose, P. S. & Hudgins, S.C. (2013), *Bank Management and Financial Services*, 9th Edition. London: McGraw Hill.
19. Peria (2018), *The Foundations of Financial Inclusion : Understanding Ownership and Use of Formal Accounts*, World bank.
20. The Government (2018), Decree 39/2018/ND-CP detailing a number of articles of the Law on Supporting Small and Medium Enterprises, issued on March 11, 2018.
21. The State Bank of Vietnam (2016), *Circular 39/2016 / TT-NHNN* regulating lending activities of credit institutions and branches of foreign banks to customers issued on December 30, 2016.
22. Tibaingana & Mutenyo, 2018, *Factors Affecting Access to Formal Credit by Micro and Small Enterprises In Uganda* retrieved at [https://www.jku.at/fileadmin/gruppen/108/ICAE\\_Working\\_Papers/wp83.pdf](https://www.jku.at/fileadmin/gruppen/108/ICAE_Working_Papers/wp83.pdf)
23. General Statistics Office (2019), *Characteristics of business environment in Vietnam according to enterprise survey results*, Statistical Publishing House, Hanoi
24. VCCI (2016), *Vietnam Annual Report 2016*, Information and Communication Publishing House.

# **FEMINIST PERSPECTIVES IN ENTREPRENEURSHIP: A STUDY OF INSTITUTIONAL CHANGES OF FEMALE ENTREPRENEURSHIP IN VIETNAM**

*Nguyen Quoc Anh*

*anh\_nq@vnu.edu.vn*

*Vietnam National University, Hanoi, Vietnam*

*Tran Viet Hoang*

*tranhoangneu98@gmail.com*

*Le Thi Thu Trang*

*Thutriangle2709@gmail.com*

*Nguyen Thi Viet Trinh*

*viettrinh13098@gmail.com*

*Faculty of Planning and Development,*

*National Economics University, Hanoi, Vietnam*

## **Abstract**

*This study focuses on examining and evaluating institutional changes from 1975 onwards on the policy of innovation and entrepreneurship for women-owned enterprises. This paper uses the institutional change theory of Streeck and Thelen (2005) as a theoretical framework in research. Based on the policies on innovation and entrepreneurship in Vietnam since 1975, the development, the gaps and limitations of such policies in supporting business women entrepreneurs have been addressed. This paper also proposes the way forward to revising policies on innovation and entrepreneurship in women in Vietnam.*

**Keywords:** *Institutional changes, Innovative and entrepreneurship, Women entrepreneurship*

## **1. Introduction**

Viet Nam has achieved great success in promoting gender equality, largely driven by strong Government's commitment. It is signatory to numerous international instruments addressing gender equality, women's rights, and women's empowerment, including the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), the Beijing Platform for Action, the Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs). Gender equality is enshrined in the Constitution, and Viet Nam has successfully enacted policies and laws for the protection and promotion of women's rights.

Viet Nam has a complex institutional framework where multiple agencies and structures are responsible for ensuring gender equality. In addition, barriers to women's equality and rights still exist and need to be addressed in a comprehensive manner by the government and society. Women have limited power in many areas of life, both private and public including economic, social, civil and political. Women's representation in leadership and management remains low. At the same time, creative start-up activities for business



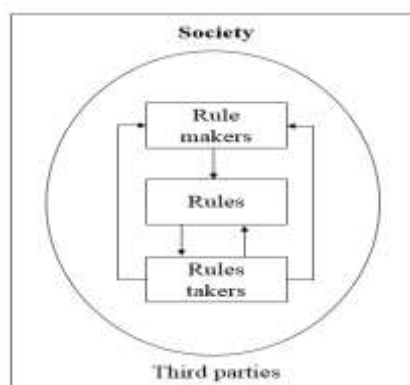
women are limited. Indeed, many of the earlier studies suggested that men-owned businesses outperformed female-owned businesses in economic terms, with women's apparent under-performance directly linked to their distinct lack of entrepreneurial capital at the start-up stage (Johnson and Storey 1993; Schwartz 1976; Watson and Newby 2007). Since then the paper examines how policies on innovation and entrepreneurship in women-owned businesses in Viet Nam have affected women's entrepreneurship.

### *Institutional change*

In the world, definitions of institutions abound, Institution in a variety of different ways that currently in the world institution has not agreed on a general concept. According to Veblen (1914), institutions are the normality of behavior in specific situations, are basically accepted by members of social groups and the acceptance of the rules is self-control or controlled by outside power. Institutions are 'formalised rules that may be enforced by calling upon a third party' (Streeck and Thelen 2005). Therefore, it can be understood that institutions are rules between people and people, binding individual behavior, thereby making human behavior more predictable and facilitating the division of labour work together to create material wealth.

The theory of institutional change was developed by institutional economists such as Campbell (2004), Streeck and Thelen (2005) and Crouch (2005). These authors argue that institutions in advanced capitalist countries have been constant changes not in the form of 'sudden disruption or replacement' but rather 'gradual institutional transformation'. Theories of institutional change may be theories of policy change, when 'policies stipulate rules that assign normatively backed rights and responsibilities to actors and provide for their public, that is third party enforcement' (Streeck and Thelen, 2005).

One of the models proposed by Streeck and Thelen (2005) is the model of 'imperfect reproduction model', considering institutions as regimes, in which rule makers (or institutional designers) and rule taker interact in a social context. The basic principle of this model is that compliance and issuance of rules are far from perfect. There are always future situations that 'rule' makers cannot predict. In addition, when rules are implemented at different locations, under different environmental conditions and at different times, they can be explained in a way that rule makers do not guess before.



**Figure 1. Institutions as regimes**

*Streeck and Thelen (2005)*

In addition, rule makers make rule and society participate in an ongoing interaction process. Society sets the stage for the rule-making and the enactment of laws. At the same time, interest groups try to influence policymakers and society to push for new interpretations of these rules. The process of explaining new rules of discovery, invention, proposal, rejection, or passage of time will redefine the institution without major disruption.

The results of this study contribute to women's entrepreneurship literature and address the following three specific goals: first, by reviewing the literature on institutional change and female entrepreneurship and assessing the impact of those changes led to innovation and entrepreneurship in women-owned businesses; secondly, assess the impact of the policies on innovation and entrepreneurship for women-owned enterprises from 1975 to present; and third, provides solutions to improve the proposed policies.

## **2. Method**

This study employed the following methodology, which has been frequently used in studies in similar contexts in Viet Nam:

### **Literature Review**

The research team, after exploring the research problem, collected domestic and foreign documents related to the issue of changing institutions and innovative policies for women-owned enterprises, then summarize them into a table, then compare and evaluate each document from the published studies. From the sources that the group synthesized, the group filtered and selected concepts and models that were appropriate for the research of the group. From there, build up the theoretical framework and theories related to the research of the group.

### **Data collection methods**

The research paper of the research team used secondary data sources. In which, secondary data drawn from available research papers published in scientific journals, economic journals is examined carefully.

### **Data analysis method**

The paper uses two methods of data analysis: First, the study will describe policies on innovation and entrepreneurship for women-owned business owners in Vietnam from 1975 to present; describe the trends of movement and development by analyzing each stage.

Comparative research over time on institutional changes related to innovative and entrepreneurship policies from 1975 to to the present for women-owned businesses, besides also at the same time also comparing the trend of the impact of Innovative and entrepreneurship policies from 1975 to to the present for women-owned businesses in Vietnam on women's entrepreneurship activities. From that, draw conclusions that are trending, and have accurate conclusions about the actual situation of the research object, which is the basis for reasonable recommendations or choices.

### **3. Results**

#### **The period 1975-1986**

After 1945, Vietnam began to become a socialist country. In the socio-economic development plan from 1976 to 1980, the Government of Vietnam has set some targets which are too large in scale, too high in speed of basic construction and production development. In addition, the bureaucratic administrative management mechanism is maintained, policies innovate slowly, production are constrained and not sensitive to changes in social mobilization. Besides, the highly complicated international situation has a great impact on socio-economic development, increasing the risk of economic crisis. In parallel with that, the Confucian ideology appeared and propagated in Vietnam with a history of 1900 years, so Confucianism influenced many different aspects in both material and spiritual life of Vietnamese people.

In the community organization culture, at the family level, Confucianism combined with Chinese culture to form a patrilineal family system with extreme male rights, which was ingrained in the subconscious of people in this period. With appreciation of the man and husband 's role in the family, the woman considers herself dependent on her husband, accepting inferiority to the husband with the thought of "Tam Tong, Tu Duc".

Therefore, this create the concept of being resilient, passive, dependent on her husband, hindering their development. There is no job sharing in the family. Confucian morality is also a barrier, causing gender inequalities in access and enjoyment of rights in the field of culture and society, also mentioned in the article of author Yutang Jin (2016). With the concept of "Nhat nam viet huu, thap nu viet vo", boys have the right and priority to go to school, while girls have to stay home to do the housework and to prepare for the marriage. This thought causes gender inequality in the field of culture and society. The most obvious manifestation of this situation is that women faced many difficulties in accessing rights and enjoying cultural and social rights.

With the victory of the August Revolution in 1945 and the birth of the 1946 Constitution, the rights to freedom, equality and democracy were recognized together with the mechanism to ensure the implementation of those rights. Equality between men and women are also evident when both the number and quality of female deputies participating in the National Assembly are increasing. The proof is that the number of women deputies of the First National Assembly accounts for 2.5%; Course II: 13.5%; VII course: 18%; IX course: 18.84% and X lock: 26.22% and the current XI is 27.31% (According to the 1946 Constitution).

In 9 years of fighting against the French colonialists, the Women Union for National Salvation and the Vietnam Women's Union have mobilized all classes of women to increase the production of agriculture as well as goods and military weapons. The implementation of the "New Life" movement according to the Ho Chi Minh's thought proves that women have begun to participate in the country's economic activities. After

1954, the Vietnam Women's Union in the North has mobilized all Vietnamese women to participate in economic recovery, political, cultural and technical learning, building good families. In 1965, the Union launched the campaign "Ba dam dang" with the content "hard-working, producing for the family and the protection for the nation", showing the sensitivity to grasp the situation of the Vietnam Women's Union at the request of the country. The Vietnam Women's Liberation Union Association was established and launched the "Nam tot" with the content: 'Unite to fight political, armed, and military well; Good work and production, good savings; Care and nurture good wounded soldiers; Academic culture, politics, good expertise; Practicing good moral character' which contributed to the success of Vietnamese revolution in the two wars of resistance against France and the United States and the nation-building.

Recognizing the importance of women in contributing greatly to economic development, the Government of Vietnam has quickly joined economic organizations to integrate and facilitate more for women not to just have equal rights but also maximize their capacity. In 1977, Vietnam officially became the 149th member of the United Nations. Vietnam's participation in the United Nations has provided significant support to the Government of Vietnam in social development items, focusing on education, health care, mother and child protection, population and family planning. Evidence shows that Vietnam ratified the CEDAW Convention in 1982 and became a member state of this Convention - the Convention eliminating all forms of discrimination against women. It is important to develop policies on women's equality, which is a factor in building a national mechanism and implementing a national strategy for the development of women's rights in Vietnam.

In conclusion, after the country's liberation, Vietnam has made positive changes in the process of improving the economy and institutions of the country. Although Confucian thought still influences the lives of the people, especially the idea of "respect for men and disrespect for women" is still one of the burdens of women, or social norms at that time such as being good at national job, taking care of housework had put great pressure on the women both physically and mentally.

### **The period 1986-2006**

The year 1986 marked an important milestone in institutional change, and Vietnam shifted from a centrally planned economy to a socialist-oriented market economy. The 5th National Congress of Representatives identified "Social policy to promote all human abilities and make serving people the highest purpose." This has led to changes in requirements and social norms on women. In the struggle for national liberation, women have been very actively involved in many activities. In the period of peace and national construction, women hold leadership positions in all fields of economy, culture, science - technology... continue to overcome all prejudices and challenges and contribute positively to social activities, maintain broad influence on its role in many fields. It can be said that

the role of Vietnamese women has been shown more and more deeply and made important contributions to Vietnam's achievements.

The change in policies when our country began to transition to a market economy has created various negative and positive sides. The socialist-oriented market economy is central to promoting economic development, focusing on training and retraining human resources. Take evidence as Directive No. 44/CT-TW, 1984 of the Party Central Committee Secretariat, "Some urgent issues in the work of female cadres"; Resolution No. 04/NQ-TW of 1993 on "Innovating and strengthening the work of mobilizing women in the new situation"; Directive No. 37/CT-TW of 1994 of the Party Central Committee Secretariat on "Some issues of female cadre work in the new situation"; The resolutions of the Seventh, 8th and 9th National Party Congress all mentioned cadre work, including female cadres... With the aim of increasing the percentage of female cadres participating in state management and socio-economic management by training, fostering and improving the capacity of female workers in general and female officials in particular. But it stopped at issuing directives and only officials were allowed to participate.

Along with domestic changes, during this period the decision to normalize diplomatic relations between Vietnam and the United States on July 11, 1995 opened a new era for the economy that contributed to the formation of the main Renewal foreign policy book of Vietnam. The process of changing the way the Government of Vietnam views with ASEAN helps narrow the gap between Vietnam and ASEAN. From the Sixth Congress, especially after the 13th National Resolution VI (1988), Vietnam began to have a new perspective on its neighbours in Southeast Asia, recognizing the trend of peace and cooperation of ASEAN. Vietnam made a series of proposals for peace and cooperation in Southeast Asia at 13 meetings of Foreign Ministers of the three Indochina countries (from 1980 to 1986), such as the proposal to sign the Agreement. invasion between Southeast Asian countries (January 1980). That is also the policy to adjust foreign policy in the Politburo's Resolution 32 (Session V) of July 1986. The resolution marked a change in the Party's views on foreign policy in the post-war period. The fact that Vietnam joined ASEAN in 1995 is considered a milestone for new economic development and it is important to contribute to changes in the way of institutional development and policy changes in Vietnam. The more developed the economy proves the role of women.

There are programs to encourage rural women to develop economically; focusing on socio-economic development in remote areas, creating jobs, opening new occupations, increasing incomes, improving lives, reducing poverty, and joint resolutions 47/2000/NQLT/The Women's Union issued on 25/4/2000 "On supporting rural women to develop production and improve their quality of life" to promulgate conditions for Vietnamese women, especially agricultural women. and rural areas promote potentials and creativity to develop agricultural production and improve the quality of life.

There are programs to encourage rural women to develop economically; focusing on socio-economic development in remote areas, creating jobs, opening new occupations, increasing enhancing, improving lives, reducing poverty, and joint resolutions

47/2000/NQLT/The Women's Union issued on 25/4/2000 "On supporting rural women to develop production and improve their quality of life "to promulgate conditions for Vietnamese women, especially agricultural women. and rural areas Promote potentials and creativity to develop agricultural production and improve the quality of life.

Thus, it can be said that, in the trend of integration and development of the country, Vietnamese women continue to assert and promote their role and position for the development of society. As our economy grows, women have more opportunities, break the conventional gender division of labour and therefore allow women to participate in a market economy and cause men to divide. sharing responsibility for taking care of the family, reducing the burden of housework for women, giving them more free time to participate in other activities; at the same time create more opportunities for women in the labour market. However, these are just good beginning steps. Currently, we still have many limitations that need to be overcome in the issue of gender equality, especially in terms of ideology and views of people in society, including men and women.

### **The period 2006 - 2011**

In 2006, the Tenth National Representative Congress (Đại hội Đại biểu toàn quốc) was successfully held in Hanoi with new policies and ideas of the state. On November 7, 2006, the World Trade Organization (WTO) admitted Vietnam. In addition, the adoption of the Permanent Normal Trade Relations (PNTR) of the US Government with Vietnam was also an equally important event, it has marked the complete normalization of bilateral relations between the two countries in fields, especially economic, trade and investment. With the positive changes from external factors as well as the State's changing way of looking at issues directly affecting gender specific policies rather than the Women's policy. For the first time, the Gender Equality Law (Luật bình đẳng giới) was passed by the 11th National Assembly on November 29, 2006 and took effect from July 1, 2007 through marking a landmark and breakthrough in the cause of gender equality in Vietnam.

The Gender Equality Law in 2006 was enacted, which helped to concretize the State's interests in ensuring women's rights and created a legal corridor to integrate gender and gender issues living. It's specified in Clause 5, Article 11 'Ensuring the proportion of women in the National Assembly and People's Councils in line with the national gender equality goals; Ensuring the appropriate proportion of women in the appointment of position in state agencies in line with the national goal of equal gender (mục tiêu quốc gia về bình đẳng giới), which is the official legal basis for increasing women's rights in state activities.

In the other hand, it creates a basic legal corridor in women's economic activities, which is considered as one of the new points showing the State's interest in women's economic activities such as Article 12: 'Enterprises employing many female employees are given tax and financial incentives according to the provisions of law; Female workers in rural areas are entitled to credit, agricultural, forestry and fishery extension services

in accordance with the law'. It can be seen that the Gender Equality Law in 2006 is the legal basis for mainstreaming gender equality issues in legal documents as well as policies promulgated by the State. The propaganda and dissemination of laws on gender equality have been organized widely with many new forms, especially that has focused on deploying to the subjects at the grassroots level instead of focusing only at central government ministries as before. It is mentioned in Decree 70/2008/ND-CP detailing the implementation of a number of articles of the Gender Equality Law. The decree assigns responsibilities to ministries and agencies from the central to local levels and the responsibility of the 'Vietnam Women's Union has the right to participate in the state management of gender equality and plays an important role in study and absorb social criticisms on policies and laws on gender equality' (Article 16).

During this period, the Party Central Committee has issued Resolution 11-NQ/TW in 2007 on the work of women in the period of stepping up the national industrialization and modernization, in the Resolution, there were specific goals 'By 2020, women will be improved in all aspects ...; More and more participation in social work, equality in all fields, greater and greater contribution to society and family,... 'Also during this period, the mainstreaming of gender equality into national strategies, plans, and National programme was paid more attention by the Government such as: Decision No. 951 / QĐ-BLĐTBXH approving the Action Plan for the Advancement of Women in the Labor, War Invalids and Social Affairs period 2006-2010 issued by the Minister of Labor, War Invalids and Social Affairs issued with specific targets, or the project 'Supporting women in vocational training and job creation for the 2010-2015 period' approved by the Prime Minister in 2010, which is based on the proposal of the President of the Women's Union Specific, with specific goals such as "creating jobs for about 100,000 women annually, of which about 50,000 female workers receive vocational training" (Clause 2, Article 1). Compared to the previous period, it can be seen that the participation of Women in economic activities has been paid more attention and concretized by the State through policies.

Under the favourable conditions in both at home and abroad has created conditions for the development of domestic private enterprises. Although, the Party and State still choose state-owned enterprise as the main driving force in economic development, however, the State did not deny the role of private enterprises. The Government's Decree No. 90/2001/ND-CP of 2001 on 'Supporting the development of small and medium enterprises' that priority should be given to the support program for small and medium enterprises run by female entrepreneurs, thereby helping to improve the management capacity, develop science - technology and human resources, expand links with other types of businesses, increase business efficiency and competitiveness in the market. This continues to be mentioned by the State in Decree 56/2009 / ND-CP on assistance for SME development, with the objective of 'Development assistance for small and medium-sized enterprises, including solutions and funding for implementation, must be included in the annual and five-year plans of ministries, branches, localities and the national economy', in which "priority programs to support small and medium-sized enterprises owned by women and small and medium-sized enterprises using a large number of female workers" (Article 5). It can be seen that the status of women is affirmed not only in the ranks of state

agencies but also in active participation in economic activities when small and medium-sized enterprises are initially much more developed.

Also, during this period, The National Strategy for Gender Equality in the 2011-2020 period was approved by the Prime Minister with a common goal: 'By 2020, basically ensure the substantive equality between men and women in terms of opportunities, participation and enjoyment in the fields of politics, economy, culture and society, contributing to the country's rapid and sustainable development.' The implementation of the strategy will contribute to increasing the participation of women in management and leadership positions in order to gradually reduce the gender gap in politics. Moreover, the Strategy also helps reduce gender gaps in economic, labour, employment sectors, and enhances the access of poor women in rural areas and ethnic minority women to economic resources and labour market. The National Strategy for Gender Equality for the period 2011 - 2020 is a tool to bring the Law on Gender Equality into life and to realize Vietnam's commitments to the international community in the implementation of the CEDAW and The Millennium Development Goals (MDG).

During this period, it is possible to see breakthrough changes in socio-economic issues in general and women's issues in particular. There is a clear shift in gender awareness in the process of research, policy maker and taker based on sectors. The state has ensured the integration of gender equality principles under the Gender Equality Law and the CEDAW Convention into specific programs and projects for each period. The inspection, examination and appropriate handling of discriminatory acts, honorary violations, violations of interests and regulations on occupational safety for female workers have been integrated. Through that, promptly discovered, proposed and urged the competent authorities to implement policies for female workers (According to report 88 /BC-LĐTBXH).

### **From 2011 onwards**

Although policies on women have been gradually reformed, the implementation of laws and policies on gender equality in the previous period is still slow and lacks focus on guidance and guiding documents on the Gender Equality Law. Correction and synchronization limit the ability to implement gender equality. The national strategy for the advancement of women in Vietnam for the period 2001-2010 focused on proposing solutions to protect women's rights, not yet considered in the relationship with ensuring the rights of women. male. Many solutions set out in the Strategy and Action Plan for the advancement of Vietnamese women in different periods have not been implemented by authorities. Especially, people in the Gender Equality Law (2006) still have limited awareness.

The socio-economic situation in Vietnam during this period continued to have positive changes. Successfully organized the 11th National Congress (2011) and the XII (2016). The 11th Congress introduced the Platform for national construction in the transition period to socialism (addition, development in 2011) and the Socio-Economic Development Strategy for the period of 2011-2020, and in the XII has clearly defined: Market plays a major role in mobilizing and effectively allocating resources, is the main driving force to



release production power; State resources are allocated according to strategies, planning and plans suitable to the market mechanism.

In 2014, the National Assembly passed 29 laws to continue perfecting the legal system, institutionalizing the contents of the 2013 Constitution. Along with that, Vietnam's international integration is increasingly extensive and contributes to promoting economic development with the signing of FTA, especially the 14th National Assembly passed the Comprehensive and Strategic Partnership Agreement (CPTPP) and related documents. So, compared to the WTO agreements, the new generation FTA is the "plus WTO" agreements. Prove that if at the time of the establishment of the WTO in 1995, there were only 4 FTAs with labor content, by September 2016, there would be 79 FTAs with labor content. Especially when Vietnam joins the agreement, CPTPP and EVFTA force both parties to the agreement to exercise their freedom of association and negotiation; eliminate forced and compulsory labor; eliminate child labor; eliminate gender discrimination in labor. Therefore, enterprises that use many female workers such as textile and footwear have the opportunity to work in the environment with better salary incentives (According to the report of Vietnam Chamber of Industry and Trade - VCCI)

With the great change towards reforming the country and to overcome the limitations of policies for women, the State continues to make important changes that contribute to improving gender equality and mainstreaming equality. gender equality is Vietnam's implementation of 17 sustainable development goals for the period 2015-2030. In particular, the fifth goal of the 17 goals is "Achieving gender equality and empowering all women and girls". The United Nations aims to eliminate all forms of discrimination against women and girls everywhere. At the same time eliminate all forms of violence against all women and girls in the public and private sectors.

With the great change towards reforming the country and to overcome the limitations of policies for women, the State continues to make important changes that contribute to improving gender equality and mainstreaming equality. gender equality is Vietnam's implementation of 17 sustainable development goals for the period 2015-2030. In particular, the fifth goal of the 17 goals is "Achieving gender equality and empowering all women and girls". The United Nations aims to eliminate all forms of discrimination against women and girls everywhere. At the same time eliminating all forms of violence against all women and girls in the public and private sectors.

#### **4. Discussion and Conclusion**

A review of the status of innovative and entrepreneurship policies for women-owned enterprises in Vietnam from 1975 to now shows that this is still a new issue, not really fully realized. During the period from 1975 up to now (2019), institutions for women in general have undergone positive changes, from feudal Confucian ideologies to nowadays, many laws have been enacted. They help women reduce burdens and enhance women's power in socio-economic and political activities. The breakthrough in this period was that the State had initially integrated the principles of gender equality under the Gender Equality Law and the CEDAW Convention into specific programs and projects for each period. The vast majority

of women in Vietnam still do not have much information and are fully aware of what it means to be a start-up business. The innovative start-up activities of business women in Vietnam are still young but have great development potential.

However, while these policies tend to protect women, they can limit women's opportunities and exacerbate negative gender stereotypes about the capacity and role of women in the household, family and society. Some restrictions and the reasons for innovation and start-up policies for women-owned businesses are as follows:

- Firstly, there are no formal rules that define what is meant by a women-owned business.
- Secondly, the agencies responsible for guiding the implementation of the policy argue that there is no need for a separate support policy for women-owned small and medium-sized enterprises.
- Thirdly: Businesswomen also have to balance business management with family and overcome cultural obstacles.

The paper presents a few recommendations to help improve Innovative and entrepreneurship policies from 1975 to the present for women-owned businesses in Vietnam:

- Firstly, Propagating the Party's undertakings, the State's legal policies on start-up and business development; The role and position of women in economic development.
- Secondly, Research and evaluate activities to support women starting a business and developing businesses; at the same time, inspect and supervise the implementation of policies and laws related to starting a business for women.
- Thirdly, offering critical revision in the law that women-owned are entitled to assistance.

## 5. References

1. Elisabeth S.C. Berger and Andreas Kuckertz (2016), *Female entrepreneurship in startup ecosystems worldwide*, Journal of Business Research, JBR-09063; No of Pages 6
2. Le Quang Canh, Nguyen Vu Hung and Nguyen Thi Dieu Hong (2016), *Women-owned small and mediumsized enterprises in Viet Nam: Situation analysis and policy recommendations*, [mekongbiz.org/wp-content/uploads/2017/04/WBAs-Position-Paper\\_English.pdf](http://mekongbiz.org/wp-content/uploads/2017/04/WBAs-Position-Paper_English.pdf)
3. OECD (2013), *The Nature of Policy Change and Implementation: A Review of Different Theoretical Approaches*.
4. Streeck, W., & Thelen, K. (2005). *Introduction: institutional change in advanced political economies*, In W. Streeck & K. Thelen (Eds.), *Beyond continuity: institutional change in advanced political economies* (pp. 1-39). Oxford et al.: Univ, <https://nbn-resolving.org/urn:nbn:de:0168-ssaoar-194981>
5. UN Women (2006), *Viet Nam gender briefing kit 2016*, <https://www2.unwomen.org//media/field%20office%20eseasia/docs/publications/2017/04/gender%20briefing%20kit-en-s.pdf?la=en&vs=4211>

# SWITCHING BEHAVIOUR OF CUSTOMER IN VIETNAMESE COMMERCIAL BANKS

*MA. Duong Thuy Ha*

*thuyha@neu.edu.vn*

*School of Banking and Finance, National Economics University, Hanoi, Vietnam*

## **Abstract**

*The paper examines which factors influence customer's switching behaviour in Vietnamese commercial banks. We developed questionnaires and used for the data collection surveys from 400 customers having their bank accounts in different banks of Vietnam. The results of the study will also provided improved of understanding of how price, reputation, service quality, effective advertising competition, involuntary switching, distances and switching cost influence customer's switching behaviour in Vietnamese commercial banks. The research will identified the most and the least important factors that influence customer's swithching behaviour and also determined the impacts of demographic characteristics on customer's switching behaviour in Vietnamese commercial banks.*

**Key words:** *Switching behaviour, Vietnamese commercial banks, price, reputation, service quality, effective advertising competition, involuntary switching, switching cost, distance*

## **1. Introduction**

### **1.1. Rationales**

Under the context of severe competitiveness and increasing internationalization within financial market, the construction of customer loyalty has become a significant strategy for most financial institutions. In fact, the banks should foster their strong relationship with customers so that they can survive in the current intense competitiveness. In today's world, the development of new technology in financial services has put considerable impacts on customers' behaviors. When they can buy almost the same financial services offered by retail banks, customers seem to change their banking behavior. Most customers would not actively share with the banks their dissatisfaction with the service quality. In this case, they normally leave those banks and never come back if the staff neither take care of them nor ask them about the quality of the provided services. Currently, banking system in Vietnam in general and commercial banks in particular have been facing tough competitiveness in regard of their services. As a matter of fact, in Bank for Investment and Development of Vietnam, Hanoi branch, the number of closed accounts in 2017 was 30568, which increased by 10% compared with 2016, that number in Vietcombank, Hanoi branch in 2017 was 3928, which increased by 7% compared with 2016. The same situation happened to many other commercial banks. From the perspective of foreign banks, Vietnam is regarded as a

potential market. This can be explained by unsatisfactory customers and limited crucial banking services. As a result, it is essential for Vietnamese banks to understand important factors affecting customer switching behavior. Based on the above facts, the author decided to explore “*Research on bank service switch of personal customer in commercial banks in Vietnam*”

### *1.2. Literature review*

Customer defection means customer forsakes current service supplier to use another. Switching behavior was the research focus in service area Garland A,(2002). There are academics giving explanation to the reasons why customers switch service provider. Naveed Ur Rehman Khan (2010) carried out a research on causes of bank switching in Pakistan with 500 samples. He applied factor analysis and regression to conclude that there were seven influencing factors on the decision of bank switching. High charge and distance were the two most important factors having impact on bank defection. Thus, governors should consider these two factors in making business strategy, the banks should establish branches in small roads with reasonable fee. Especially, in order to attract and retent customers, there should be development of new services. Mincheal Clemes et, al. (2010) conducted a study on bank switching behavior of customers in Chinese banks. This study was launched in Jiaozuo city, Henan province, China. The survey with convenient sample identified 7 significant factors affecting bank switching of Chinese customers. The research findings pointed out that fee, reputation, service quality, effective advertising, involuntary switching, distance and switching cost put an impact on switching behavior of customers. Especially, the group of young customers with high income could easily change the preferred banks. However, this study was accomplished in a specific province in China, then, the demographics could not ensure diversity. Zhang (2009) researched and analyzed influencing factors on the decision of switching retail banks in China. The data was gathered by convenient sample of 421 switching customers. The influencing factors included fee, reputation, service quality, effective advertising, involuntary switching, distance, switching cost and demographics. The results clarified that fee, reputation, service quality, effective advertising, involuntary switching, distance, switching cost affected the decision of bank switching. This research also figured out that the group of youngsters with high income was more likely in changing the banks. Lees (2007) worked on bank switching in New Zealand by a survey questionnaire with 732 samples. Results demonstrated that there were three main influencing factors on the decision of bank switching, namely utility maximization, unsatisfied expectation and other factors, of which utility maximization put the greatest impact (32%) on switching decision, followed was unsatisfied expectation (31%). It was also revealed that when customers switched the bank because of their unsatisfied expectation, 70% of them no longer paid any attention to the previous bank. Colgate và Hedge(2001), in their study entitled “An investigation into the switching process in retail banking services”, worked out that losing customers would have negative impact on the market share and profit of the bank. The emperical evidence was concluded from 694 survey samples collected from banks in Australia and New Zealand.

The reasons for bank switching in these cases were classified into three categories namely service incident, cost and rejected service. The results illustrated that the main reasons for bank switching included high price, service quality error and poor serving knowledge. In particular, charging problems put the strongest impact. In fact, cost and unreasonable fee were the most concerning matters. The next trouble was saving interest and lending interest were the most serious problems. Other factors so-called knowledge, poor serving attitude ranked the second influencing factors on switching decision. Steward (1998) stated that among numerous and complicated influencing factors on customers' switching behavior, the four reasons for service defection included switching fee and administrative procedure, facilities, information system and security as well as customer service. Levesque McDougall (1996) investigated customers' switching behavior and realized that fee and inconvenience of geographical distance were important factors to stimulate customers in changing bank services to a preferred bank. Zeithaml et. al (1996), in their study on behavioral effect of service quality, introduced a model on impact of service quality on customers' switching behavior. Empirical results showed strong evidences to the extent customers had been affected by service quality. Keaveney, (1995) in the research namely "Customer switching behavior in online services: An exploratory study of the role of selected attitudinal, behavioral, and demographic factors", reported results of two field researches conducted between two sample of online service users who were randomly selected. He investigated level of switching behavior (information customers used for online service selection and service usage), attitudes (risk taking tendency) and demographical factors (income and education) in order to find out how much effective were these above mentioned factors in differentiating switching customers and non-switching ones. Keaveney developed a model with 8 reasons related to general services as well as those demotivating customers to switch service suppliers. Specific factors were comprised of fee, inconvenience, limited supply of core service, unsatisfactory services, customers' feedback, code of ethics and involuntary switching behavior. Reichheld, F.F. and Sasser, E. (1990) in their book *Zero Defections: Quality Comes to Services*, stated that growing service fee and weak managing competency resulted in losing customers. In fact, enterprises could increase their profit from 25% to 85% if there was in reduction in the number of leaving customers by 5%. Therefore, it is important for commercial banks to realize and invest in constructing customer loyalty in order to win the competition among banks.

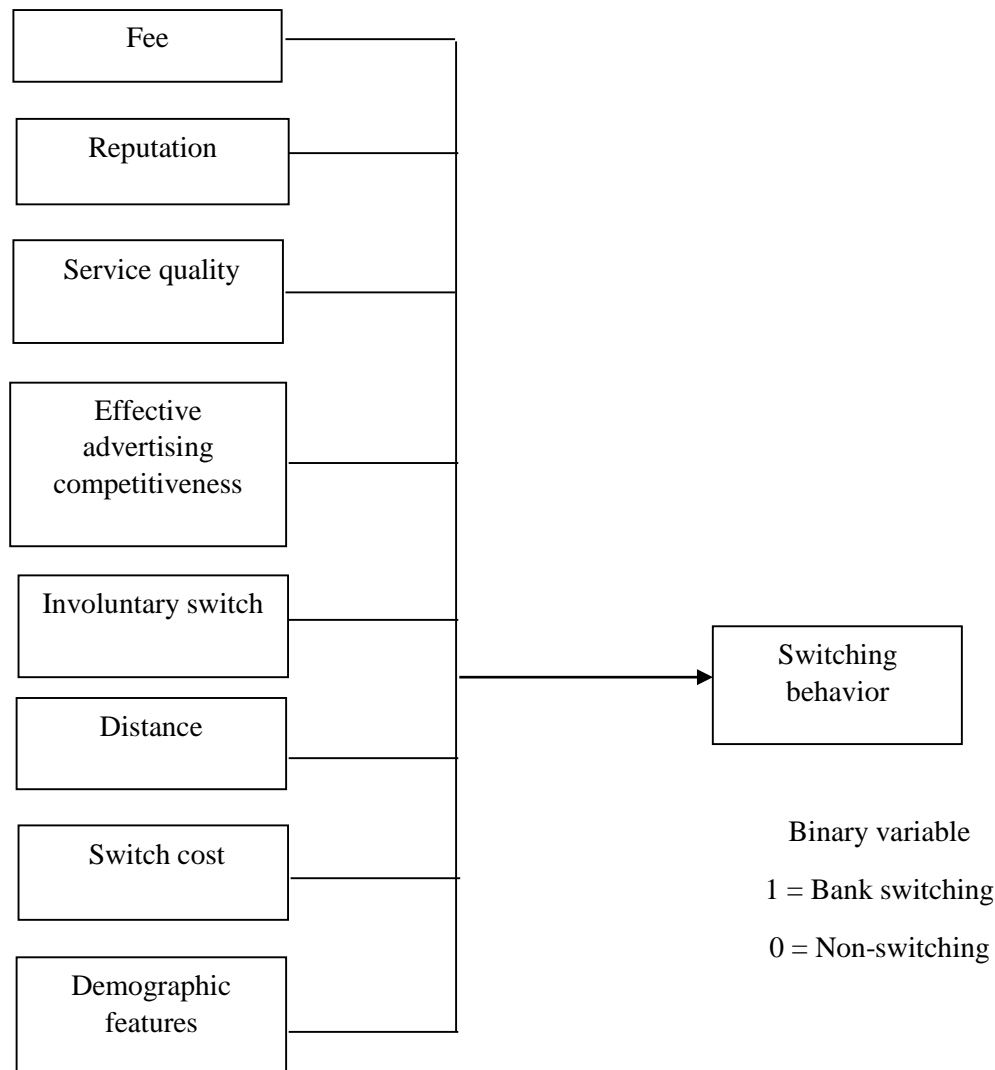
### ***1.3. Key domestic studies***

In Vietnam, Nguyễn Hồ Ngọc Hân, Phạm Huỳnh Mai Thanh, Phạm Ngọc Thúy (2011) researched the effect of switching barrier on customers' loyalty in hotel service sector. The quantitative results demonstrated negative impact of switching barrier on loyalty. Nguyễn Minh Loan (2018) analyzed influencing factors on customers' loyalty in retail banking. The five basic components of service quality were comprised of *First*, tangible channels: such as trademark, image, materials, facilities and machines serving service as well as staff's appearance and costume; *Second*, trust: reflecting appropriate service and punctuality right at the first time; *Third*, responsibility: stating level of expectation and

readiness to timely serve customers; *Forth*, serving competency: showing staff's specialized knowledge and elegant, welcome, willing style and their quick responses to customers' claims and questions; *Fifth*, sympathy: demonstrating warm care, encouragement for each customer. Service quality was an important factor affecting customers' loyalty. Lê Chí Công (2014) studied and constructed loyalty of visitors to sea tourism in Vietnam, which was based on the customer theory and visitors' loyalty in tourism sector. His thesis clarified the theoretical basis of visitors' loyalty and the influencing factors. Then, he proposed 03 new research models and tested them. In particular, he established the necessity to access to tourism destination quality from the perspective of different components. Additionally, he analyzed the influencing level of these components on visitors' satisfaction and loyalty in sea tourism destinations. Hồ Chí Dũng (2013) worked on trademark loyalty of Vietnamese consumers in regard of fast moving consumer goods. He built up and tested the model of influencing factors on trademark loyalty of Vietnamese consumers in regard of fast moving consumer goods. The proposed model included factors namely trademark commitment, trust in the trademark, functional value, emotional value, social value, fit compatibility, satisfaction and level of attention. Phạm Long and Trần Đức Thắng (2013) investigated the study on: The relationship between online banking service and customers' satisfaction and loyalty in Vietnam. This research stated that quality of general online banking service had a positive relation with the quality of electronic information system and that of service quality. Huỳnh Phương Linh and Lưu Tiến Thuận (2012) discussed influencing factors on customers' loyalty towards carbonated beverages PEPSI in Cần Thơ city. The results showed that perceived quality was an important factor in building up customers' satisfaction while products' price put no impact on their satisfaction. Bùi Thanh Tráng (2013) explored influencing factors on purchasing tendency of consumers through a modern retail channel in Hồ Chí Minh city. His work covered 6 factors so-called category and quality; price; location of modern retail channel; product exhibition; promotion campaign and staff's attitude. Among these, the location held the highest influencing indicator, which was followed by the price, category and quality, attitude as well as campaigns. Hoàng Lê Chi, Nguyễn Đình Thọ (2013) clarified switching barrier and customers' loyalty. Based on the data collection from 278 business customers, it was apparent that the switching barrier had a positive relationship with customers' commitment and loyalty. Chu Nguyễn Mộng Ngọc (2010) concentrated on identifying loyal customers of joint stock commercial banks in Hồ Chí Minh city. This thesis indicated that there were 4 big contributors to a bank's trademark asset, including trademark identification; perceived quality; image and customers' loyalty; of which loyalty was regarded as the greatest influencing factor. Phạm Thùy Giang (2012) compared the quality of retail services between banks with 100% foreign ownership and Vietnam's joint stock commercial ones. The influencing order of 5 service quality factors on customers' satisfaction was demonstrated as the following: supply level - empathy- reliability- serving competency - tangibility.

## 2. Methodology

### 2.1. Framework



### 2.2. Definitions

**Switching behavior:** this is regarded as the customers' defection of using a specific service (Stewart,(1994); Hirschman,(1970)). Theo Boote(1998) and Bolton and Bronkhurst (1995), switching behavior reflects the decision of a customer in purchasing a particular service or stopping the usage of a service offered by a company. In banking sector, switching behavior means customers' change from a specific bank's service to another preferred one Garland, (2002)

**Definitions of model factors: Internal bank factors having influence on customers' switching behavior:**

*Fee* is supposed to be opportunity fee of obtaining a product or a service (Zeithaml, ( 1998). Fee awareness is often attached with the concept of currency and non-currency (Chen, Gupta and Rom, ( 1994)

**Reputation** is described as social recognition and a kind of intangible asset that can greatly contribute to the efficiency and survival of a company Rao (1994); Hall, (1993); Formbrun and Shanley, (1990). In another study, Rust, Zeithaml and Lemon (2001) and Aaker (1996) identified reputation as the equity, trademark or capital of customers, which should be combined with reliability and loyalty of customers

**Service quality** is largely intangible and accompanied with the appearance of production and consumption, which represents for the interaction between buyers and sellers through the provision of services Gronroos (1988)

**Competitiveness of effective advertising:** According to the theory by Cengiz et al. (2007), advertising aimed at activities to increase sales or promote the image of the service and that of financial organization or business. Fundamental objectives of advertising are providing potential customers with features of the product and the services

**Opportunity cost of involuntary switching:** Keaveney (1995) described control of customers and suppliers as the factor of involuntary switching. Customers can accidentally change their decisions such as moving houses, changing jobs or branches are closed in customers' areas. Therefore, geographical change or other unexpected factors of customers and suppliers might become causes of customers' switching behavior even for close ones (Taylor Roos and Harmer (2009)

**Geographical location** convenience is one of important factors affecting customers' evaluation on business's efficiency Levesque and McDougall, (1996). Keaveney's (1995) explained inconvenient location of service supplier would be a concerning factor having influence on switching behavior

**Switching cost** is a term to describe one among other kinds of costs, including financial and non-financial costs arising in the case of changing service supplier Matthews and Murray (2007).

**Demographical features of customers:** In addition to internal factors within the banks, causing customers' switching behavior, customers themselves with different demographical features might put an influence on their switching behavior. According to Block et al. (1976), these features were regarded as the foundation for understanding customers' characteristics and behaviors in different market segments. Demographical features are classified into age, income, education, culture and nationality Au et al. (2001)

#### Sampling method

Currently, there is a shortage of studies related to banking sector in Vietnam, which focuses on customers' switching behavior. Therefore, it is crucial to carry out a primary research in order to collect data and test hypotheses. Data is gathered by survey questionnaires. Factors analysis and logistic regression analysis are discussed.



### 3. Results

#### 3.1. Model testing by Logistic regression analysis

**Table 1: Logistic regression results for influencing factors**

<b>Regression results</b>						
	B	S,E,	Wald	Df	Sig,	Exp(B)
Age (Tuoi)	-,014	,316	,002	1	,965	,986
<b>Academic background (Trinhdo)</b>	<b>-,897</b>	<b>,465</b>	<b>3,715</b>	<b>1</b>	<b>,054*</b>	<b>,408</b>
<b>Income (Thunhap)</b>	<b>-1,801</b>	<b>,493</b>	<b>13,334</b>	<b>1</b>	<b>,000***</b>	<b>,165</b>
Cadres and Civil Servant (CBCC)	-,157	,631	,062	1	,803	,855
<b>Mannual labor (NLD)</b>	<b>1,388</b>	<b>,644</b>	<b>4,643</b>	<b>1</b>	<b>,031**</b>	<b>4,008</b>
Officers (NVVP)	,235	,532	,195	1	,659	1,265
Students (SV)	,317	,585	,294	1	,588	1,373
TKD	,093	,390	,057	1	,812	1,098
Male	,356	,332	1,150	1	,284	1,428
<b>Switch fee</b>	<b>-1,311</b>	<b>,204</b>	<b>41,273</b>	<b>1</b>	<b>,000***</b>	<b>,269</b>
Cost	,007	,152	,002	1	,962	1,007
<b>Distance</b>	<b>-,609</b>	<b>,164</b>	<b>13,749</b>	<b>1</b>	<b>,000***</b>	<b>,544</b>
<b>Service quality</b>	<b>-1,059</b>	<b>,173</b>	<b>37,334</b>	<b>1</b>	<b>,000***</b>	<b>,347</b>
<b>Advertising competitiveness</b>	<b>-,430</b>	<b>,162</b>	<b>7,031</b>	<b>1</b>	<b>,008***</b>	<b>,650</b>
Involuntary switch	-,131	,149	,779	1	,377	,877
Reputation	,013	,152	,008	1	,931	1,013
Constant	-,691	,371	3,466	1	,063	,501

a, Variable(s) entered on step 1: Tuoi, Trinhdo, Thunhap, CBCC, NLD, NVVP, SV, TKD, Nam, X1, X2, X3, X4, X5, X6, X7,

*Source: Author's compilation*

\*\*\*, \*\*, \*: statistic significance rate 1%,5%,10% respectively.

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
X1	Between Groups	2,846	1	2,846	2,860	,092
	Within Groups	359,154	361	,995		
	Total	362,000	362			
X3	Between Groups	,175	1	,175	,175	,676
	Within Groups	361,825	361	1,002		
	Total	362,000	362			
X4	Between Groups	,474	1	,474	,473	,492
	Within Groups	361,526	361	1,001		
	Total	362,000	362			
X5	Between Groups	,270	1	,270	,269	,604
	Within Groups	361,730	361	1,002		
	Total	362,000	362			

*Source: Author's compilation*

It can be seen that the factor of switching cost (X1) got value Sig = 0.092 < 0.1. So, it was apparent to reject the hypothesis that there were differences in regard of switching cost's influence on bank switching between the group of manual workers and others.

Other factors of distance (X3), service quality (X4), advertising competitiveness (X5) got Sig value greater than 0.1. This meant that it was appropriate to accept the hypothesis stating there were no differences in regard of the impacts of distance, service quality, advertising competitiveness on bank switching between the group of manual workers and others.

### ***3.2. Test of differences among influencing factors on switching behavior in regard of knowledge background factor***

Hypothesis: There were no differences among influencing factors on switching in regard of knowledge background factor

<b>ANOVA</b>						
		Sum of Squares	df	Mean Square	F	Sig,
X1	Between Groups	49,025	1	49,025	56,548	<b>,000</b>
	Within Groups	312,975	361	,867		
	Total	362,000	362			
X3	Between Groups	4,709	1	4,709	4,758	<b>,030</b>
	Within Groups	357,291	361	,990		
	Total	362,000	362			
X4	Between Groups	15,282	1	15,282	15,912	<b>,000</b>
	Within Groups	346,718	361	,960		
	Total	362,000	362			
X5	Between Groups	26,886	1	26,886	28,963	<b>,000</b>
	Within Groups	335,114	361	,928		
	Total	362,000	362			

*Source: Author's compilation*

#### **4. Discussion and Conclusion**

##### ***4.1. Proposals to Vietnam State bank***

Currently, the State bank still plays the governing role in all banking activities. Therefore, it is suggested that the State bank should carry out the following solutions to develop effective personal customers' services so that they are compatible with the general trend of the world:

*Firstly*, it cannot be denied that accomplishing the legislative frame for personal customer service is a completely new area, which is still in progress of development. Then, there has been no specific legal law adjusting this frame. Therefore, it is essential for the State bank to immediately promote introducing particular policies and mechanisms to direct commercial banks. The ordinances related to personal customer services should ensure the unity and coherence with previous laws, the compatibility with Vietnam's business culture and international standards to avoid law circumventing by small banks, and bring about a healthy, safe and efficient operating environment for a new service area. In addition, it is necessary that the legal documents should cut down on complicated requirements and procedures.

It is also crucial to set up a complete legislative system for the development of e-banking service and e-commerce. Moreover, there should be an establishment of a

modern financial information gate, which can ensure a safe and effective banking system in operation.

In addition, it is essential to develop the card market and cooperate with communications and media agencies to widely propagandize its benefits to different types of people. The security of e-banking service and products should be enhanced. There should be strong connection between the banks and financial agencies such as the State Treasury, department of taxation, department of customs, etc. The interbank electronic payment system should be completed and upgraded. This is the core payment system of the economy in the context of developing information and technology. Also, the scope of interbank electronic payment should be expanded. Then, nationwide payment can be faster.

It is suggested to construct a consistent switching card network. Currently, in order to avoid losses in the investment into card infrastructure, the State bank plays the governing role in quickly directing and closely co-operating with commercial banks to set up a consistent switching network, which helps building up these banks as a system to increase the convenience of card users. The State bank should maintain its completion of managing mechanism and policies, as well as its improvement of the efficiency of managing tools. It should be quick in updating and issuing standards on new types of services in order to create favorable conditions for commercial banks to be active and flexible in their operation as well as to be timely in customer satisfaction. There should be continuous research and completion of regulations on new business tasks and banking services. Especially, the commercial banks should be encouraged to develop their services. In fact, the strategy of fostering these services is extremely essential and appropriate because their development can contribute greatly to the efficiency in banking business and improvement of competitive competency of each individual bank. As a result, it is certain that these banks can meet the requirements of international economic integration and provide customers as well as the economy with optimal conveniences.

*Secondly*, there should be a list of services for personal customer. Then, the State bank should co-operate with General statistics office to give a banking service list based on international standard. It should pay attention to the list's compatibility with reality of commercial banks' demand for development and service supply capability. It should also notify the impact of operating these services on the macro-economy, supervision of managing agencies and operation roadmap towards international agreement in regard of banking and finance sector. Also, the State bank should issue mutual operating procedure, regulations attached with specific instructions for the banks, which might ensure consistent implementation.

*Thirdly*, the next recommendation is related to stabilizing the market and directing the policies. As the policy maker, the State bank identifies not only essential resources to be distributed to promote financial service access, but also types of customers, approaches and time to be allocated. It allows the application of new financial business models with the

participation of new service suppliers, for instance, the model of legalization of micro-finance in Vietnam. Instead of directly supplying financial service, the State bank should stabilize the macro-economy, create regulations on supervisory, ensure technical infrastructure and protect service users. It should quickly issue and complete legislative documents in regard of payment and accounting in order to meet the demand linked with new technology application. This might help replacing outdated documents which mainly served traditional transactions with complicated documents and processes.

*Forthly*, it is essential to foster investigation and supervisory on banking operation activities. A healthy and positive supervising system is the factor creating a favorable environment for commercial banks to develop. In fact, only a healthy and positive supervising system can ensure an effective and stable financial system, which would bring about opportunities for the development of and access to high quality banking services with low cost. The supervising system also covers banking operation activities. As a matter of fact, banking area itself conveys numerous risks and banking problems tend to result in domino effect on the whole economy. The deeper the integration into banking sector is, the more complicated and diversified banking activities are. This means there would be greater risks for credit organizations as well as the whole banking system. Then, the supervisory agency would be the one completely implementing a process with 4 stages namely licensing; issuing regulations; supervising (distance supervisory and on-the-spot investigation); punishing and withdrawing license in order to ensure the consistency and improve the efficiency of the supervision. The implementation of this supervisory system might mark a big change in banking supervision. If all supervisory tasks are strengthened, it is possible to quickly identify reasons for disadvantageous fluctuations. Then, there might be solutions to prevent and mitigate potential risks. Consequently, this can contribute to the protection of both investors and consumers- the condition for commercial banks to develop. The aims of the supervisory system are not only preventing financial crisis, but also ensuring stability of the financial background. Therefore, this system should be established with core criteria based on intensive analysis into easily affected weaknesses and vulnerabilities within the whole banking system. In order to improve the efficiency of supervisory activities, it is suggested to change the supervisory approach of the State bank, which should be carried out with gradual implementation before extreme application.

*Fifthly*, the State bank should foster the orientation of domestic commercial banks. It should co-operate with related ministries as well as sectors to propose to the Government the publication of decrees in terms of non-cash payment and e-commerce. It is suggested to regularly consider and evaluate the status of technical infrastructure serving the application of technology in payment and commercial bank system. The State bank should co-operate with financial organizations in the world to research and get experiences about technology and operating activities in order to upgrade and improve banking technology and service quality so that it can keep track with global trend.

#### **4.2. Proposals to the State**

- The State should ensure a stable socio-political environment and national security. This lays the best foundation for the operation of the banks. It is recommended to complete the legislation for banking activities so that they are compatible with international agreements.

- The State should strictly control the competitiveness within banking sector. This can be carried out by regulations and specific conditions to establish a new bank rather than expanding new branches of a bank.

- There should be regulations on security in business operation and that of debt categories as well as risk provision usage within credit organizations.

- Concerning regulations on customer rights: the State should introduce particular criteria in managing the banks' records and financial statements to identify the financial reality of these banks. Also, the Government should prepare documents stating compulsory deposit insurance for all the banks and regulations on prohibition of supplying customer information for any purposes without legislative requirement, etc.

- Concerning regulations on the implementation of currency policies: there should be regulations in order to control the volume of money supply, inflation and level of economic growth.

- The Government authorities should quickly consider and issue documents instructing and/or amending current legislative regulations so that they are suitable with the market mechanism and international economic integration.

#### **5. References**

1. Beckett, A., Hewer, P., & Howcroft, B. (2000), "An exposition of consumer behaviour in the financial services industry", *The International Journal of Bank Marketing*, 18 (1), pp.15-26.
2. Colgate, M., & Lang, B. (2001), "Switching barriers in consumer markets: An investigation of the financial services industry", *The Journal of Consumer Marketing*, 18(4/5), pp.332-348.
3. Clemes, M. D., Gan, C., & Zheng, L, Y. (2007), Customer switching behaviour in the New Zealand banking industry, *Banks and Banks System*, 2(4), pp.50-66.
4. Colgate, M. (1999), "Customer satisfaction and loyalty: How New Zealand banks need to improve", *University of Auckland Business Review*, 1(1), pp.36-48.
5. Keaveney, S. M. (1995), "Customer switching behaviour in service industries: An exploratory study", *Journal of Marketing*, 59 (2), pp.71-83.

6. Levesque, T.J., & McDougall, G. (1996a), "Customer dissatisfaction: The relationship between types of problems and customer response, *Revue Canadienne des Sciences de l'Administration*", *Canadian Journal of Administrative Sciences*, 13(3), pp.264-276.
7. Lees, G., Garland, R., & Wright, M. (2007), "Switching banks: Old bank gone but not forgotten", *Journal of Financial Services Marketing*. London: Nov 2007, 12 (2), pp.146-157.
8. Nguyen, N., & Leblanc, G. (2001), "Corporate image and corporate reputation in customers' retention decisions in services", *Journal of Retailing and Consumer Services*, 8(4), pp.227-236.

# LEVEL OF FACTORS IMPACT ON THE BUYERS' INTENTION IN BUYING HEALTH INSURANCE AT NON-LIFE INSURANCE COMPANIES IN VIETNAM

*Nguyen Nhat Ha*

*hanhatnguyen1008@gmail.com*

*Nguyen Thai Son*

*nts99bb@gmail.com*

*School of Banking and Finance, National Economics University, Hanoi, Vietnam*

*Bui Quynh Anh*

*anhbq@neu.edu.vn*

*Tran Tien Dung*

*tiendung@neu.edu.vn*

*National Economics University, Hanoi, Vietnam*

## **Abstract**

*The study aims to determine the influence of factors affecting the intention to purchase private health insurance at non-life insurance companies in Vietnam. The samples were surveyed from 500 people from many areas but mostly in Hanoi. The study identified and clarified 5 independent factors affecting the intention to buy private health insurance at non-life health insurance companies in Vietnam. The analysis results show 5 variables: "Past experience", "perception of service quality of insurance companies", "perceived behavioral control", "Attitude towards risks and private health insurance", and the variable "Subjective norms on private health insurance" affect people's intention to buy private health insurance. From the analysis, several policies have been proposed to increase customers' intention to buy private health insurance at non-life insurance companies, which is to raise people's awareness of the need of private health insurance to improve service quality, and especially after-sales service; improve the quality and expertise of staff; complete policies and legal framework on private health insurance renovating the quality of organizing the implementation of the private health insurance regime; form the basis of the entire population pathology record.*

**Keywords:** *private health insurance, intention to purchase, non-life insurance company.*

## **1. Introduction**

Health insurance acts as a mechanism to ensure that people have access to medical care when the amount spent for medical examination and treatment exceeds their ability to pay. However, in Vietnam, the coverage of the state health insurance does not meet all medical expenses, the proportion of people's out-of-pocket medical expenses is high - up to



37% of the total medical examination and treatment cost (Phuong Chi, 2019). The health insurance fund does not guarantee full coverage of health care needs and services, and the level of financial coverage is limited.

To overcome the limitations of state health insurance, each country has different measures and financial instruments. However, the development of commercial health insurance is often encouraged by governments to promote motivating resources for medical examination and treatment. In Vietnam, the mobilization of resources in health insurance through the promotion of commercial health insurance is considered a critical orientation of the Vietnamese Government in the coming time (Committee of the Communist Party, 2017). This study determines the influence of factors on commercial health insurance buying behavior, thereby proposing a solution to raise people's intention to purchase private health insurance, and increasing participation in commercial health insurance contributes to lower out-of-pocket health insurance coverage in Vietnam.

## **2. Literature Review**

Studies on the factors affecting the purchase of private health insurance approaches towards classical economy have been conducted widely, and rarely these studies approach from the view of behavior.

Research by Brownie & Kim (1993) identify macroeconomic factors in health insurance demand. They point out that national income, inflation, government spending, and demographics are important factors in creating health insurance needs. Next, researchers Beck & Webb (2003) confirm that inflation and demographics influence health insurance purchases. Lee et al. (2010) also concluded that demographic and economic factors influence household health insurance needs. Similarly, Bhat & Jain (2006) show the number of children in families, the age and awareness of future medical care costs affect the purchase of insurance. Alternatively, for the number of health insurance purchases, income has shown a significant relationship, namely that those with high incomes buy health insurance more than low income (Yamada et al., 2009). From a microeconomic perspective, Berry (1995) points out that the context of the company, the product transformation, and the complexity of insurance are important factors that create a demand for health insurance.

However, the above theoretical research models cannot explain every case; for example, the health insurance market in Indonesia. To an economy with a reasonable growth rate and improved domestic education, the demand for health insurance in Indonesia was declining, contrary to the evidence presented in the research papers above (Pitriyan & Siregar, 2013). The findings of Auerbach and Kotlikoff (1991) explain the differences in Indonesia by proving that insurance purchases rarely follow benefits. They have provided evidences that the demand for health insurance is not always about economic and demographic factors because the majority of people with health insurance are those who do not really need insurance.

Scholars have had to assess the psychological factors to discover irregularities in economic activities through behavioral studies. For example, in Indonesia's insurance phenomena, the case study by Rabin & Thaler (2001) suggests that risk aversion may explain

the anomalies in the insurance market where people tend to buy insurance when they should not and vice versa, tend to refuse when they really need to.

In Vietnam, there are not many studies related to private health insurance. The research team is based on similarity and references research on health insurance and voluntary health insurance in Vietnam. The domestic studies mainly approach from the classical economic direction. Le et al. (2017) found that demographic factors and health status, which include health status, gender, education level, propaganda, and the number of medical examinations and treatment affect people's decision to buy voluntary health insurance.

Considering the elements of microeconomics, Nguyen et al. (2018) have identified 6 groups of factors that have a strong influence on households' participation in voluntary health insurance, including administrative procedures, level of knowledge about health insurance, income, and social insurance, medical examination and treatment facilities, quality of medical examination and treatment services and voluntary medical insurance premiums.

After consulting the previous scientific studies, the team decided to combine and research on both aspects but mainly from the aspect of behavioral psychology.

### 3. Methodology

The theoretical basis to be exploited is the theory of health insurance, the theory of Planned Behavior, the intention to buy health insurance, and the factors affecting the intention to buy health insurance. First of all, the theory of health insurance provided relevant knowledge about health insurance such as definition, classification, its position in the insurance market, operating principles, its value, and role to individuals, families, and society. Next, our group refers to the theories of behavioral psychology such as Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), the MODE model, etc. in order to understand the mechanism of planned behavior and at the same time, learn more about these theories' relevance to the insurance industry in general and health insurance in particular. As a result, our team has identified factors that will undoubtedly influence consumers' intention to buy health insurance and built a model.

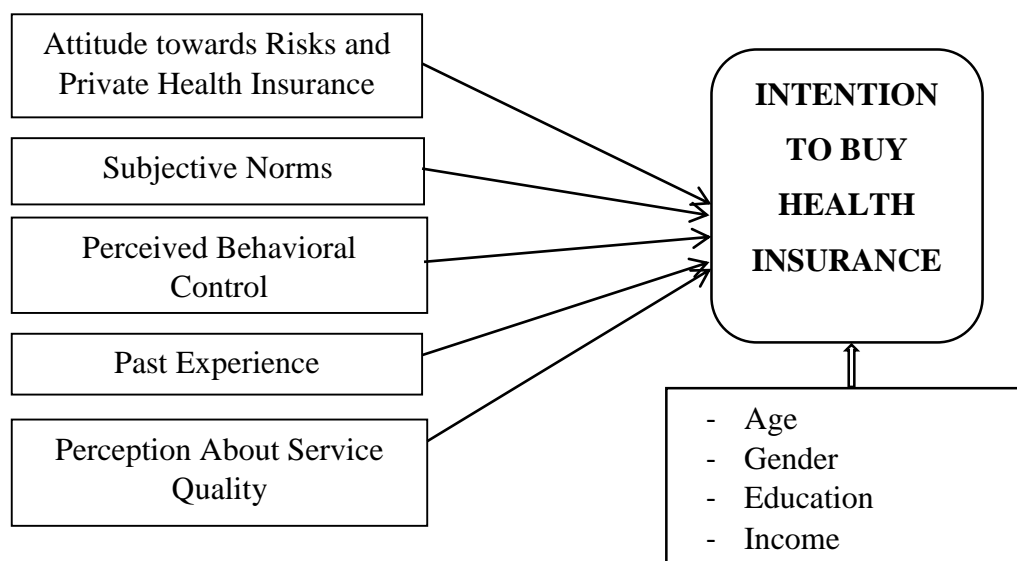


Figure 1: Research Model

The team found 5 factors that influence the intention to buy health insurance at non-life insurance companies in Vietnam included: Attitude towards Risk and private Health Insurance, Subjective Norms, Perceived Behavioral Control, Past Experience, Perception About Service Quality.

### 3.1. Questionnaire

The questionnaire was designed based on a Likert scale from "1 - Totally Disagree" to "5 - Totally agree".

Sample: Over 500 people, including employees, managers, students, etc. This research has 5 variables to analyze the influence affecting the intention to buy health insurance at non-life insurance companies in Vietnam, so our team decided to select a sample size of over 500. The final valid votes are 500 votes. This data will be used for further analysis.

### 3.2. In-depth interview

To ensure the accuracy of the research project, our group conducted an in-depth interview with 5 experts specialized in health insurance in Vietnam. The questionnaires were adjusted to be more specific and appropriate after.

## 4. Analytical Results

Cronbach's alpha is used to measure the reliability of the variables. The results are as follow:

Cronbach's Alpha statistics for independent variable scales including "Perception About Service Quality", "Past experience", "Attitude towards Risk and Private Health Insurance", "Perceived Behavioral Control" and "Subjective Norms" are respectively 0.926, 0.888, 0.879, 0.789 and 0.766 which is relatively high. EFA factors analysis required variables that are greater than 0.5, so all of the variables can be retain. After reliability and value checking, all scales have been re-tested to ensure the requirements for the next analyzes.

Factors with a change in the number of observed variables, according to Table 1, can be arranged as follows:

**Table 1: Summary of factors corresponding to observed variables after factor analysis**

Factor	Variables	Meaning
X1.	NT6, NT5, NT4, NT7, NT2, NT3, KN4, KN3, KN1, NT1, KN2, NT8	Perception About Service Quality And Past experience
X2.	RR3, RR4, RR2, RR5, RR1, CCQ4	Attitude towards Risk and Private Health Insurance
X3	KSHV3, KSHV2, KSHV4, KSHV1	Perceived Behavioral Control
X4	CCQ2, CCQ1, CCQ3	Subjective Norms

*Source: Data analysis results of the research team*

Correlation analysis has been conducted to verify the relationship among quantitative variables through the correlation coefficient Pearson (r). The correlation coefficients in the table below show the relationship among variables is relatively reasonable in both direction and strength. Specifically, all correlation coefficient values are more significant than 0, less than 0.8, and have both positive and negative signs which reflect either positive or negative relationship. The relationship between dependent and independent variables has meaning without abnormal signs. Also, the strength of the correlation coefficients ensures that there is no multi-collinearity phenomenon occurs when using a linear regression model. Therefore, other statistics could be used to verify the relationship among variables.

**Table 2: Correlation analysis**

Correlations						
		Intention	X1	X2	X3	X4
Pearson Correlation	Intention	1.000	.595	.580	.444	.526
	X1	.595	1.000	.545	.510	.563
	X2	.580	.545	1.000	.452	.557
	X3	.444	.510	.452	1.000	.473
	X4	.526	.563	.557	.473	1.000

*Source: Data analysis results of the research team*

Table 3 shows the result of the descriptive statistics. All variables have average (Mean) varies from 3 to 4, X3 has the highest mean (4.0625) while X4 has the lowest mean (3.3653). The lowest standard deviation is X1 at 0.64112, and the highest one is Intention at 0.79670. From these results, it can be said that questionnaires must have received many "agree" answers.

**Table 3: Descriptive statistics**

Descriptive Statistics			
	Mean	Std. Deviation	N
Intention	3.5313	.79670	500
X1	3.4282	.64112	500
X2	3.6740	.70058	500
X3	4.0625	.70032	500
X4	3.3653	.72819	500

*Source: Data analysis results of the research team*

**Table 4: Model Summary**

Model Summary										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.685 <sup>a</sup>	.469	.465	.58293	.469	109.269	4	495	.000	1.992
a. Predictors: (Constant), X4, X3, X2, X1										
b. Dependent Variable: Intention										

*Source: Data analysis results of the research team*

According to the estimated model result, R Square = 0.469, which means independent variables in the model could explain 46.9% of the overall level of the intention to buy private health insurance at non-life insurance companies in Vietnam. This result can be considered acceptable in a model.

**Table 5. Coefficient of the regression model of determinants of the intention to buy health insurance at non-life insurance companies in Vietnam**

Coefficients								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(C)	.061	.178		.341	.733		
	X1	.386	.054	.311	7.098	.000	.561	1.784
	X2	.329	.048	.289	6.815	.000	.595	1.681
	X3	.095	.045	.083	2.079	.038	.671	1.490
	X4	.165	.047	.151	3.476	.001	.572	1.749
a. Dependent Variable: Intention								

*Source: Data analysis results of the research team*

The table shows that the Sig ratio of a slope coefficient, which is higher than 0.05 will not be statistically significant at 5% in significance level. From these results, that the Sig coefficient of independent variables, including X1, X2, X4 is less than 0.01, it can be said that independent variables are statistically significant at 1% in significance level. The Sig coefficient of the X3 variable is less than 0.1, which means this variable is statistically significant at 10% in significance level. Diminutive order of the impact level of 5 determinants is (1) X1 (standardized  $\beta$  coefficient is .311), (2) X2 (standardized  $\beta$  coefficient is .289), (3) X4 (standardized  $\beta$  coefficient is .151), (4) X3 (standardized  $\beta$  coefficient is .083)

According to the regression model, a standardized  $\beta$  coefficient, which is greater than 0, shows a positive relationship among independent variables and the intention to buy health insurance at non-life insurance companies in Vietnam. Therefore, the intention to buy health insurance at non-life insurance companies in Vietnam is mainly assessed from the highest to the lowest: X1 - Perception About Service Quality+Past experience, X2 - Attitude towards Risks and private health Insurance, X4 - Subjective Norms, and X3 - Perceived Behavioral Control.

## 5. Discussion and Conclusion

Health insurance plays a vital role in ensuring and enhancing social security and improving the living standards of the community. The result of analysis showed that all of these factors influence the intention of purchasing health insurance and are arranged as above with a gradual decrease in the impact on consumers' intention to buy.

### ***5.1. Past Experience***

Apply technology to the communication and sales stages, build platforms to manage customer information like websites, forums, and applications so that customers can give feedback on the quality of products and services.

### ***5.2. Perception About Service Quality***

Improve risk management, monitor, and understand the health of customers to require examination and treatment before the disease worsens.

Organizing and training staff can invest in opening Psychology classes to improve the sales success rate, increase sales, and especially improve service quality after the sale and customer care.

Renovating the quality of organizing the implementation of the private health insurance regime, ensuring the completion of simple, convenient, accurate, and quick compensation settlement for participants.

### ***5.3. Perceived Behavioral Control***

Diversify sales channels, raise customer awareness about the importance of private health coverage through methods to achieve product communication, promote products and brands.

### ***5.4. Attitude towards Risks and Private Health Insurance***

The research team proposed to apply the combined public-private health insurance model. At the same time, building a strict legal corridor to combat insurance fraud, ensuring the rights and obligations of related parties: insurance participants, insurance companies, and health facilities, as well as creating build a platform, database on citizen medical records.

### ***5.5. Subjective Norms***

Segment the market, identify the target market, and design appropriate insurance packages and insurance premiums that are both attractive to customers but still ensure revenue.

Through influencers in the community to provide awareness and knowledge of people about finance and private health insurance, thereby creating demand for this product.

### **Limitations and further study**

Although the completed research project still has certain limitations: firstly, the survey sample is still too small compared to the number of participants in health insurance in the country. In addition, the selection of localities as the significant research Hanoi may affect the research results because Hanoi is the capital, with better economic, cultural, and educational conditions. Secondly, the limitation of not being able to access information about private health insurance customers of non-life insurance companies and interviewing officials of these companies also made the research paper incomplete. Also, from this limitation, the research team hopes to be able to conduct further research on a larger scale as a basis for policy issuance and outlining the strategies of non-life insurance companies in private health insurance services in the future.

### **References**

1. Auerbach, A. J., & Kotlikoff, L. J. (1991), 'How rational is the purchase of life insurance?' (No. w3063). Cambridge, MA: National Bureau of Economic Research.
2. Beck, T., & Webb, I. (2003), 'Economic, Demographic, and Institutional Determinants of Life Insurance Consumption Across Countries'. *World Bank Economic Review*, 17(1), 51-88.

3. Berry, L. L. (1995), 'Relationship marketing of services—growing interest, emerging perspectives', *Journal of the Academy of Marketing Science*, 23(4), 236- 245.
4. Bhat, R. & Jain, N. (2006), 'Factoring Affecting the Demand for Health Insurance in a Micro Insurance Scheme'. Working paper No. 2006-07-02. *Indian Institute of Management, Ahmedabad*.
5. Browne, M. J., & Kim, K. (1993). 'An international analysis of life insurance demand'. *Journal of Risk and Insurance*, 60(4), 616-634.
6. Committee of the Communist Party (2017), *Resolution No. 20-NQ / TW about strengthening the protection, care and improvement of people's health in the new situation*, the Sixth Conference of the 12th Central, dated October 25th, 2017.
7. Le Canh Bich Tho, Vo Van Tuan and Truong Thi Thanh Tam, 'Factors affecting the decision on purchasing voluntary health insurance for Can Tho residents', *Science Journal of Can Tho University*, Volume 48, Part D (2017): 20-25
8. Lee, S. J., Kwon, S. I., & Chung, S. Y. (2010). 'Determinants of household demand for insurance: The case of Korea.' *The Geneva Papers on Risk and Insurance Issues and Practice*, S82-S91.
9. Nguyen Thi Xuan Huong, Mai Thi Thu Thuy, Nguyen Nhu Bang (2018), 'Factors affecting the people's decision to buy voluntary health insurance in Trang Bom District, Dong Nai Province', *Journal of Economics and Development*, No. 252 (II), 113-122.
10. Phuong Chi (2019), '37% of household direct payments for health services', Nhandan, retrieved on June 14th 2020, from <<https://bom.to/Jyihv1>>
11. Pitriyan, P., & Siregar, A. Y. M. (2013), 'Health inequity in Indonesia: Is it declining? Working Papers in Economics and Development Studies.', Center for Economics and Development Studies, Department of Economics, Padjajaran University.
12. Rabin, M., & Thaler, R. H. (2001). 'Anomalies: Risk aversion.' *The Journal of Economic Perspectives*, 15(1), 219-232.
13. Yamada, T., Chen, C.C., Yamada, T., Noguchi, H. & Matthew, M., (2009). 'Private Health Insurance and Hospitalization under Japanese National Health Insurance.' *The Open Economics Journal*, volume 2, 61 - 71.



**PART 3:  
HUMANITIES, EDUCATION AND  
SOCIAL SCIENCE**





# THE EFFECTS OF THE CONFUCIANISM - BUDDHISM - TAOISM THOUGHT TO THE DEVELOPMENT OF THE VIETNAM FROM THE X-XIX CENTURY

*MA Nguyen Thi Hoai An*

*hoaianqb86@gmail.com*

*Faculty of Social Sciences, Quang Binh University*

## **Abstract**

*Throughout nearly ten centuries, Vietnam has been influenced by many ideologies: Confucianism, Buddhism and Taoism. Tam Giao ideology deeply affects many fields of politics, society, culture, education, literature... However, with the flexibility in receiving, Vietnamese people harmonize and integrate the three religions' ideas. with traditional national culture. The hallmark of the Triple Thought ideology to Vietnamese society from the X-XIX century is the establishment of independent feudal dynasties, diverse culture, imbued with national identity and a rich literature. achievements and important contributions to the development of the national literature stream.*

**Keywords:** *Confucianism, Buddhism, Taoism, and Vietnamese culture*

## **1. Introduction**

Because the historical circumstances and geographical position, Vietnam and China soon had cultural exchange contacts. The invasion of many Chinese feudal dynasties lasting over a thousand years is the main reason for a large number of Han Chinese words imported into our country (originally natural and later forced to enforce). , used by Vietnamese people. The political intrusion is followed by the invasion of cultural ideology. Confucian thought has profoundly influenced the development of Vietnamese society for a long time. At the beginning of AD, Han characters spread throughout the region, going south into our country, northeast into North Korea, east crossing the sea into the Japanese archipelago. And since then, Chinese characters are considered orthodox texts in Vietnam, Korea, and Japan, and are taught in large scale schools. Han characters are used in many fields of politics (diplomacy), culture (literary writing), education (study and examination) and life (daily communication). Han characters are the means to spread Confucian thought through the system of four-letter and five-scriptural scriptures ... The purpose of spreading Confucianism to Vietnam is to train military martyrs and serve the Chinese colonial government China. But with the spirit of self-reliance and patriotism, Vietnamese Confucian scholars have more motivation to fight and defend the country.

Taoism originated in Southern China in the second century AD, initiated by Lao Tzu and Zhuang Zi perfect the doctrine. Therefore, it is often called the thought Lao - Trang. The highlight of this doctrine is that Lao Tu introduced the philosophy of Immaculate life

and the concept of Ethics. "Vo vi does not mean that we do absolutely nothing, but to integrate with nature. Do not do anything outrageous. Because doing anything excessively according to the law of yin and yang" the objectionable principle, the result is worse than do nothing "[5; 273].

Dao is a basic concept of philosophy. In the Sutra of the Sutra, Lao Tu wrote: "The path is possible and extraordinary. Great list of extraordinary names. Anonymous heaven and earth water, a great name of all things ". Provisional translation: The religion that can be called is no longer ordinary religion. Names that can be called are no longer ordinary names. No name is the root of heaven and earth. There is the name of the mother of all things. Dao according to Lao Tu advocated no vi, settling astray.

The Taoism ideology was introduced into Vietnam and absorbed by the Vietnamese in a lifestyle that is in harmony with nature, a peaceful and free lifestyle. The Confucian scholars, when reluctant to retreat to hide, away from the fame and fame, followed the thoughts of Lao Tu.

Buddhism spread to Vietnam very early. Originating from a remote Indian country, Buddhism came to Vietnam thousands of years ago, socially received, along with the introduction of Northern Buddhism (China), contributed to the formation of Vietnamese Buddhism. developed to this day. Therefore, "the basic characteristic of Vietnamese Buddhism is that the folklore is dominant. Buddhism is accepted as a religion. In China, Buddhism is accepted as an ideology. Vietnamese Buddhism is more religious than ideology, so it is more about giving and salvation than seeking liberation of life and death. Only in the Tran dynasty did Buddhism be studied by intellectual nobility as an ideology, but did not reach climax like in India or China" [2;790]. With the thought of compassion, joyfulness, honest life, and no killing, Buddhism was widely accepted and worshiped by the Vietnamese people from the past to the present. Buddhism plays an important role in the religious life of Vietnamese people. And Buddhism is always considered the religion of our county.

Confucianism - Buddha - Taoism is a system of three religions of thought affecting all areas of social, cultural and educational life in Vietnam throughout the history of the nation.

## **2. Method**

Methods of collating, comparing and tracing cultural, ideological and religious conceptions and characteristics of the times in order to find the origin and form of conception from tradition to modernity.

Method of analyzing language - culture - history: using historical, cultural and linguistic materials to analyze cultural and literary phenomena and its effects on the development of Vietnamese society .

Historical method and logical method: explore historical events from specific to generalized, reconstruct historical process, draw comments and conclusions. On the basis of making general points to prove by specific facts.

### 3. Results

#### 3.1. Take up the Three religions thought to build a feudal state through the dynasties

**Table 1. The history of the Vietnamese feudal dynasties (X-XIX)**

<b>Time</b>	<b>Social and historical premise</b>	<b>The premise of thought and culture</b>
From the 10th century - the end of the XV century	The period of national revival and national culture. Underwent feudal dynasties Ngô (939 - 967), Đinh (966-968), Tiền Lê (980-1009), Lí (1010 - 1225), Trần (1225-1400), Hồ (1400-1407).	- Indigenous culture - Deeply influenced Confucianism - Buddhism- Taoism ideologies
From the sixteenth century - the end of the nineteenth century	- Began to appear political crisis - Feudal dynasty: Lê sơ (1428-1527), Mạc (1527-1592), Conflict Le Mac - war of South and North (1545-1592), Trinh - Nguyen conflict (1627-1672) - Eighteenth century: peasant uprising, the Tay Son movement succeeded in unifying the country, founded by Nguyen Dynasty (1802-1883), French colonial time.	Maintain Confucian ideology - From the eighteenth century, Confucian Confucianism and Confucian Confucianism differentiated; Buddhism and Taoism developed again (Communal houses, temples built) - Revolt of peasants created a new breath of life, a trend of democratic and humanist ideology developed, affecting the Confucian Confucianist progress.

During the domination of our country, Han Nho was tried to spread the propaganda by Chinese officials. But because this was a culture imposed by the aggressors, Confucianism had no place in Vietnamese society. Only in 1070, Ly Thanh Tong erected the Temple of Literature to worship Chu Cong and Confucius who defeated the Confucian landmark officially received.

In the 10 year resistance war against the Minh army (1408-1418), the Confucian scholars gathered under the Le Loi flag had great merits. With the need to reform and manage the country, the Lê Dynasty brought Confucianism to a unique position and became a state religion. Since then, Confucianism flourished along the ups and downs of the court. Early Le dynasty: The Confucianism flourished, and the singers raced their tents to take the exam to pass the official service of the court. In the Le dynasty, Confucianism declined, many Confucianists

retreated to their hometown. When the Nguyen Dynasty came to power, Confucianism's role was asserted once more and then eroded with the influence of Western culture.

The feudal state of Vietnam exploited the strengths of Confucianism in organizing the court and state management under the legal system; through the exam path to select talents for the country, using Han characters as official documents in administrative transactions. Later, on the basis of Chinese characters, our ancestors created Nom scripts, asserting cultural independence. However, there are many Confucian factors when coming into our country that have changed in a way that is consistent with the traditions of the national culture. According to Professor Tran Dinh Huou "Although Confucianism from the fifteenth century had a unique position, there was no ideology that completely and thoroughly governed. No ideology has truly developed. There is no one who follows thoroughly and consistently with an ideology. In society as well as in every person, there is a situation of uniting and reconciling" [3;115]. If Chinese feudalism used Confucianism to rule the people in internal affairs and advocate expansion in foreign affairs, our country would like to maintain stability not only in the court but also in the lives of the people. not only in internal but also in external. The wars that we make are defensive.

### ***3.2. Flexible reception of the three religions thought to build a traditional national culture***

There is a special thing that, when receiving foreign culture from Vietnam, it receives each individual element and gradually Vietnamizes in a way suitable to the country's situation and personality of Vietnamese people and cultural traditions. nation. In order to maintain stability in life, Vietnamese villages create their dependence on collectives, distinguishing residents and residents. In order to maintain the stability of the nation, the Confucian government created the dependence of the bureaucracy on the ruling factory with many measures: "light and heavy salary", "respect for the virtue of disdain", they influenced by the ideology of the army, the importance of the doctrine, the importance of the scholars, the way to respect the peasants, and the disdain for the businessmen deeply ingrained in the minds of the Vietnamese people. Although Despite receiving many different ideologies, Vietnamese people always keep the traditional cultural beauty: lifestyle, customs, behavior with natural environment, behavior with social environment ... This derived from the cultural cradle of wet rice culture typical of Vietnamese people. Agricultural production is highly dependent on natural factors: soil, climate... So Vietnamese people have an integrated thinking, a community lifestyle. The traditional symbol of community is the symbol of communal house, water wharves and banyan tree in rural Vietnam. Economic: economic cohesion between members of the village, always helping each other in productive labor, combating natural disasters, drought, floods, hungry, lost season ... About affection, people always help each other when there are difficulties, tribulations, when happy, when sad. The flexibility and integration in reception have created a culture imbued with national identity. The quintessence of national culture is inherited and passed down from generation to generation. Vietnamese culture undergoes many changes along with national history but the cultural identity is not mixed. It is these traditions that create stability as the basis and motivation for future development.

### ***3.3. Forming and developing brilliant literature under the influence of the Three religions***

In the medieval period, Confucianism - Buddhism- Taoism thought deeply influenced the ideology of East Asian countries in general and Vietnam in particular in many fields, especially literary writing. Thought of the three religions is deeply expressed in the concept of artistic consciousness to the mode of expression. Not only in Vietnam, its influence has spread to East Asian countries with developed Han and Nom literature lines such as China, Korea, and Japan. With adjacent geographic conditions and similar social histories, medieval literature in these countries had common development steps. It is this cultural feature that formed the Han Chinese cultural area in the continental flow. However, the extent of its influence in each country is not the same. And in Vietnam, the peak period of Buddhist literature was the Ly - Tran period. Therefore, according to Vu Trung, he wrote: sophisticated and clear Tran poetry has its forte, as well as Han poetry and Tang dynasty in China " (143; 144).

Professor Dinh Gia Khanh asserted: "Even if we discovered earlier written literature, it is hard to shake the current perception that our nation's literary literature has only can actually become a line next to the line of folklore in terms of independent feudal states. The birth and development of written literature is closely related to the thousand years of Dai Viet's history " [4;15]. Literature under the Ly Tran period was deeply influenced by the egoless ideology of Buddhism. Because, during the Ly - Tran dynasty, Zen Buddhism was the state religion. On the other hand, Zen Buddhism absorbed the thought of incarnation of Confucius. That combination is the cultural foundation to create the peak era for poetry in the Ly Tran period with many typical authors such as Khong Lo Zen master, Tue Trung, Si sergeant, Tran Nhan Tong, etc. Along with the influence of Buddhist thought, the literature of each country in East Asia has a difference in the national spirit. And the difference in the process of acquiring external ideas has created the Thought of religion in Vietnam. It was the Confucian Confucian ideology that formed the non-self of the times. It is a person who is aware of the limit, temporarily forgetting himself to integrate into the greatness of nature and sky, promoting the role of social consciousness, placing the interests of the community above the interests of individuals. , selflessness, charity, fearlessness, contributing to the human nature, forming humanism in medieval Vietnamese literature. In our country's history, the Ly Tran period was the peak period, with many brilliant achievements in terms of politics, society, culture, economy, especially poetry. Ly Tran poetry is famous for its unique meditation poetry, valuable in both content and art. Prominent in the meditation poetry is the image of the non-self, the natural landscape, the mountains, the emotional states, the profound philosophy. Ly Tran's poems are like colorful paintings that are both lively and quiet, both nationalistic and contain a strong religious spirit. The Zen poem of the Ly Tran Dynasty not only manifests vividness in the spiritual life but also portrays a great image of the great person. It is also the vibes, the moments of oscillation in the hearts of Zen masters enlightened in Buddhist philosophy.

Meanwhile, Vietnamese literature in the late fourteenth century and the early fifteenth century was influenced by Confucian thought. Typical poems of Nguyen Trai and Le Thanh Tong. Nguyen Trai is an excellent author in many types of literature, succeeding

both in writing in Chinese and writing in Nom, both poetry and prose. In terms of thought: Nguyen Trai is considered to be the greatest figure in the history of feudal Vietnam. Nguyen Trai had been flexible in absorbing and creating Confucian teachings in accordance with the national characteristics and the situation of the country. In essence, Nguyen Trai was a Confucianist. Nguyen Trai's thought is an orthodox Confucian ideology with the core idea of the cause of humanity - the love of the people and people of Vietnam.

During ten centuries of development, Vietnamese medieval literature has an interwoven influence between ideologies. Each author of medieval literature expressed the influence of two streams of Confucian and Taoist ideas in writing at different levels. Confucianism entered Vietnam and strongly influenced the intellectual class and literary creation world. There appeared a Confucianist class who emphasized the process of cultivating the personality, cultivating knowledge, boiling the history of cooking to pass to be a life servant such as Le Thanh Tong, Nguyen Khuyen, Nguyen Cong Tru, Cao Ba Quat ... However, the Confucianists borrowed the Taoist meaning of Lao Tzu to supplement the Confucian ideological system. That explains why, my father after so many years as a bureaucracy in the famous place of the mandarins and then retreated to hide in his heart to connect with the feelings in the poems that touched the heart. For example, Nguyen Trai with 254 poems from the National Anthem collection, Nguyen Binh Khiem with 171 poems in the national poetry collection.

#### **4. Discussion and Conclusion**

The first is the issue of preserving the national cultural identity and educating the sense of preserving and preserving traditional values in the context of internationalization. "Nation culture" [3; 234] and village culture are an important element contributing to the cultural identity of the ethnic groups in Vietnam. In the process of formation, Vietnamese culture has an interaction with Han culture. In the current period, the interaction with Western culture also affects more or less the traditional Vietnamese culture. It contributes to honoring traditional values while still harmonizing with the modern beauty in every Vietnamese home. However, the sustainable indigenous cultural class and the sense of national independence have created a solid foundation for traditional Vietnamese culture.

The second is the issue of Religion and belief today. Our party and state always uphold the viewpoint of respect for the rights of religious freedom of every citizen. Because, religion and beliefs are long-standing phenomena, deeply ingrained in the subconscious and the needs of a part of the people. The entire population is a united great bloc, so there is no distinction between religious people and religious people. The Party and the State manage this issue in order to realize and promote the sovereignty and freedom of belief so that all people can contribute to the cause of building and protecting the national revolutionary cause. The nature of religion is a form of social consciousness, a social entity with many complex relationships, affecting many areas of people's life. So the work of the Party and State on religion must be uniform and flexible to address the people's religious needs, and at the same time fight against the enemy forces that take advantage of religious issues to incite people.

The third is the problem of renewing the method of teaching medieval literature in the current context. Medieval Vietnamese literature from the tenth century to the end of the nineteenth century was a period of literature with great contributions to the development of our country's literature. For a long time, medieval literature has left many typical literary works. A number of works have been selected for teaching at lower secondary and upper secondary levels. However, medieval literature made up a large part of the high school curriculum. The teaching of medieval literary works for good results is always the concern of teachers. Because most of the medieval literary works were composed in Han characters or Nom scripts according to very strict norms. The use of the method of type will encourage teachers to pass on medieval literature knowledge to learners more smoothly and deeply. From there, learners have a more specific view on the inheritance and development of some types of medieval Vietnamese literature from time to time.

It can be said that the medieval literary works in the General Literature program reflect quite a full face of genre. In order to teach well this part, teachers need to master the basic knowledge about literary genre as well as artistic characteristics of each type of medieval literature. Orientation of lectures according to genre poems helps teachers easily integrate historical literary knowledge, characteristics of the genre and artistic expression of the work. This avoids spreading and fostering the interest of the learner. During nearly ten centuries of development, medieval literature has contributed to Vietnamese literature many valuable works in terms of content and artistic expression. Understanding and analyzing a medieval literary work according to the method of type will contribute to help students master the type of Vietnamese literature from the X-XIX century. The innovation of teaching and learning methods of medieval literature is the decoding of artistic patterns in the direction of going from the general to the individual, from the general model to specific details. This is a must for medieval literature teachers and researchers. In addition, teachers can integrate historical and cultural knowledge in relation to literature to outline the age of each literary work. From specific suggestions, guidelines, and teachers' instruction, students can access literature more effectively, contributing to improving the quality of teaching medieval literature in schools. pine current.

## 5. References

1. Le Huu Ai, Nguyen Tan Hung (2012), *Philosophy*, Da Nang Publishing House.
2. Nguyen Duy Hinh (1999), *Buddhist Thought in Vietnam*, Social Sciences Publishing House, Hanoi
3. Tran Dinh Huou (1996), *Coming from the tradition*, Culture Publishing House, Hanoi.
4. Dinh Gia Khanh (chief editor) (1998), *Vietnamese literature (X - century in the first half of the eighteenth century)*, Educational Publishing House, Hanoi.
5. Tran Ngoc Them (2000), *Vietnamese Cultural Facility*, Education Publishing House, Ho Chi Minh City.



# THE IMPACTS OF HEALTH INSURANCE ON HEALTHCARE IN THE POOR AND NEAR-POOR HOUSEHOLDS IN VIETNAM

*Le Thi Nhu Quynh*

*quynhln@neu.edu.vn*

*Nguyen Thi Ngoc Diep*

*diepnn@neu.edu.vn*

*School of Banking and Finance, National Economics University*

*Pham Xuan Nam*

*nampx@neu.edu.vn*

*Faculty of Economics, National Economics University, Hanoi, Vietnam*

## **Abstract**

*Improving health and reducing catastrophic healthcare expenditure for the poor and near-poor are the major concerns of the Vietnam Government. This research analyses the impacts of health insurance schemes for the poor and near-poor households in Vietnam on two aspects, including healthcare utilization and out-of-pocket expenditure. The study applies the zero-inflated model and pooled OLS regression on the data that is extracted from the Vietnam Household Living Standard Surveys in two years 2014 and 2016. The findings show that health insurance significantly increases the probability of having a doctor visit and the number of doctor visits for a health check or outpatient treatment. For inpatient treatment, insurance does not increase the probability of having a doctor visit or the number of doctor visits. Having insurance significantly reduces out-of-pocket expenditures for both inpatients and outpatients.*

**Keywords:** *Health Insurance, Healthcare utilization, Poor and near-Poor, Out-of-pocket expenditures.*

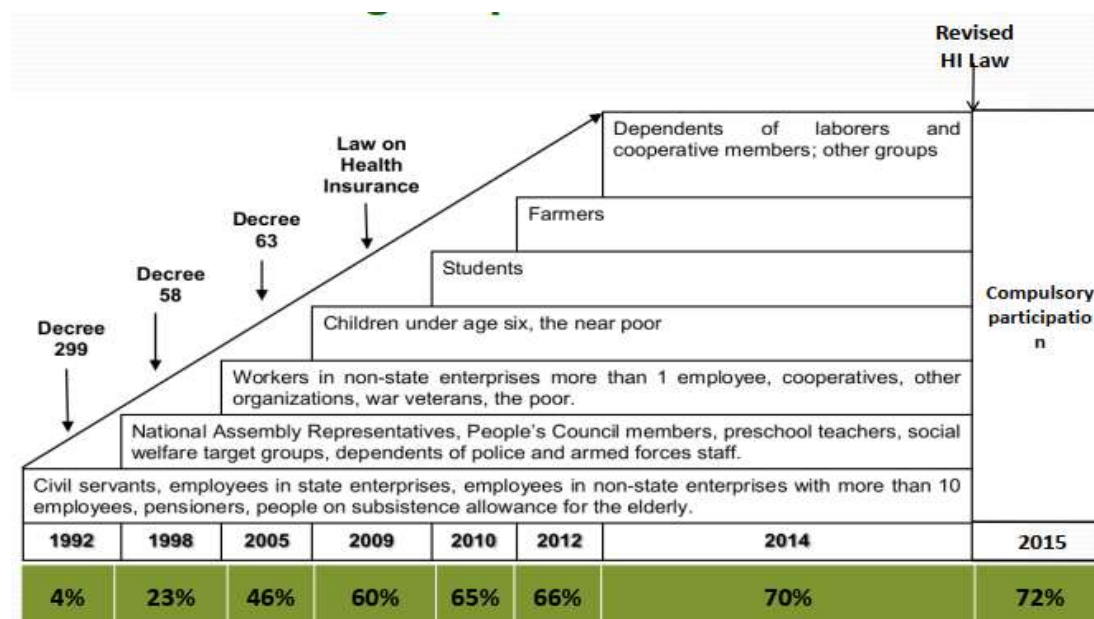
## **1. Introduction**

The study is going to explore the impacts of health insurance, implemented by the Vietnam government, for the poor and near-poor households to improve general public health as well as to reduce catastrophic healthcare expenditures. Health insurance is expected to increase health care utilization and then improve the health status of people. With health insurance, people are more willing to do periodic health checks, which enables early diagnostics and early treatments. For those who are sick, insurance helps them reduce out-of-pocket expenditure and relieve the consequences of health events on the economic situation. This argument has been supported by a lot of theories and empirical research as in the review of Levine (2008).

In Vietnam, since the 1980s, the country has implemented a series of policies on the liberalization and privatization of the healthcare system. However, this significantly

increases the out-of-pocket expenditures on health care. By the 1990s, out-of-pocket payments represented more than 70% of total health expenditures. To mitigate the impacts of these expenditures on the public, the Vietnam government introduced the plan of universal health insurance to expand the coverage up to 80% of the population by 2020. The government has also committed considerable budgetary resources for this plan with the heavy subsidies to cover insurance premiums for the poor, near-poor, and other vulnerable groups. In 2014, the state contribution to health insurance funds reached the level of 50% (Somanathan, Tandon, Huong, Hurt, & Fuenzalida-Puelma, 2014). Until now, more than 70% of the population is covered by insurance and prepayment, including formally employed, the poor, students and children under 6 years old (Somanathan et al., 2014).

**Figure 1: Compulsory insurance coverage**



Currently, there are two main sub-schemes of health insurance, including compulsory and voluntary health insurance (HI). First, compulsory HI is applied to the poor and near-poor, all employees and workers in state and non-state sectors, state officers, teachers, students, pensioners, children under six, farmers and the dependents of laborers and so on. The premium rate is calculated based on individual contributions. For instance, the rate for an employee is 4.5% of salary in which 3% is paid by his employer and 1.5% is paid by himself. For the poor, near-poor, students and others, the premium equals 4.5% of the minimum salary that is equivalent to USD 30. However, the government has a subsidy policy for vulnerable groups. For example, the poor and children under six are fully sponsored by the State budget. The near-poor receive the support of at least 70% of the premium. Students are subsidized at the rate of at least 30% of the premium. Pensioners are fully subsidized by the Vietnam Social Security Agency. Second, voluntary health insurance targets the remainder of the population. This is provided by both the government agencies and private companies but the private insurance proportion is insignificant.

Thanks to a high subsidy from the government, the poor and near-poor groups have high enrolment rates. The core issue here is whether a high insurance coverage translates into effective coverage and the insured are benefited from the government's insurance policy in terms of improving healthcare utilization and avoiding catastrophic expenditures. The impacts of insurance on healthcare in Vietnam have been evaluated in some research. Most studies come to a compromise that health insurance increases the utilization of medical care. However, the effect of health insurance on out-of-pocket payments is the topic of controversy. Using the Vietnam Household Living Standard Survey (VHLSS) 2004, Wagstaff (2007) studied the impacts of health insurance, funded by the government and provinces, for the poor and ethnic minorities. He found that the program's impacts, obtained by using the propensity score matching method, showed a significant increase in service utilization, especially in inpatient care, and reduced the risk of catastrophic expenditure. However, the insurance did not reduce average out-of-pocket spending and had an insignificant effect on usage among the poorest.

T.-H. Nguyen (2008), using VHLSS 2006, compared the effects of health insurance among insurance schemes and different groups of the insured. The study showed that under-utilization in health insurance happened in some groups of beneficiaries. The poor and ill outpatients used health insurance cards more often than the rich and healthy ones and health insurance was more beneficial for the poor and the ill than for the rich and healthy ones. The wealthy people still relied on health insurance for more expensive treatments. The research also suggested that cumbersome procedures affected the utilization of health insurance. He described that using insurance to pay for outpatient treatment was perceived as an inferior good. When money was restricted, paying with the health insurance cards became more palatable, but when the money was more abundant than time was, more rapid treatment received on the private money basis was preferred. Income had no impact on the use pattern of the health insurance card in inpatient treatment. The insured with more information in outpatient used the health insurance card more often in outpatient treatments but not in inpatient treatments. Ill people had higher utilization rates than healthy people. Utilization rates varied by types of insurance schemes and care providers.

Regarding the general impact on the out-of-pocket expenditure, Jowett, Contoyannis, and Vinh (2003) and C. V. Nguyen (2012) found that health insurance reduced out-of-pocket expenditures on health care and the level of impact was variant to geography, ethnicity, economic status and education level and so on. In contrast, other researchers gave evidence of insignificant impacts. For instance, Somanathan et al. (2014); Wagstaff (2007) and Do, Oh, and Lee (2014) indicated persistent high out-of-pocket payments among the group of beneficiaries as the result of high prices of medical services, poor understanding of insurance entitlement and inefficiency of the health insurance system. They also pointed out the weaknesses of the universal coverage plan such as high subsidization, adverse selection, unattractive benefit packages, and low quality of services covered by insurances. This severely affected the ultimate goal of improving public health.

This study is expected to contribute to empirical findings in several ways. First, it is based on the more updated dataset and can give a more precise assessment of reality. Second, the enrolment and the impact of health insurance will be evaluated in a specific group of poor and near-poor. From that, the research contributes to policy implications to improve the effectiveness of subsidized health insurance in Vietnam. The paper includes four parts. The second part presents the data and methods employed in this study. The fourth part presents the empirical results, followed by the last with discussions and conclusions.

## **2. Methods**

### ***Dataset***

The study uses the data from the Vietnam Household Living Standard Survey (VHLSS) in two years 2014 and 2016. These surveys were conducted by the General Statistical Office of Vietnam with the technical support of the World Bank. The sampling frame is based on the 2009 Population and Housing Census of Vietnam. Each survey covers 9,399 households, which are representatives of the national, regional, and rural and urban levels. From the above samples, we can also extract a sub-sample that includes poor and near-poor households. The research uses the poverty classification that is applied by the Ministry of Labor, Invalids, and Social Affairs (MOLISA) for targeting social programs. Accordingly, in 2014, the thresholds for poor households were VND 400,000 per capita per month in rural areas and VND 500,000 in urban areas. The caps for near-poor households were 520,000 and 620,000. In 2016, the government set a new multi-dimensional poverty line, which classified households as poor if they have an income per capita below VND 700,000 in rural areas or VND 900,000 in urban areas and are “deprived” in at least three of 10 dimensions of nonmonetary poverty. And the income caps for near-poor households were VND 1,000,000 in rural areas and 1,300,000 in urban areas.

The VHLSS provides detailed information on household and members, including demography, income, expenditure, education, health, employment, assets, and participation in poverty programs. Regarding the topic of research, the surveys contain data on the enrollment in health insurance, healthcare utilization, the number of health care visits during 12 months (before the interview), out-of-pocket expenditures on health care for all sampled individuals. Besides, the research also employed data on the provincial healthcare system such as the number of doctors, nurses, and hospitals per 1000 people from the source of GSO ([www.gso.vn](http://www.gso.vn)).

### ***Econometric models***

The impacts of health insurance are analyzed through two models. The first model focuses on the utilization of healthcare services among the poor and near-poor households. The second model is about the effect of health insurance on out-of-pocket expenditures on health care. The key problem in estimating the impacts of health insurance is the endogeneity of insurance status to utilization decisions (Levine, 2008). This refers to adverse selection in health insurance that happens when people with poor health are more likely to enroll in health insurance. This may lead to overestimating the impact of health insurance. For the

poor and near-poor people in the sample, 91% of them have insurance and 79% of them have free or sponsored compulsory insurance. Only 9.7% of the poor and near-poor had voluntary insurance. Therefore, the adverse selection problem here is considered insignificant.

#### *Healthcare Utilization*

The effects on the healthcare utilization of the poor and near-poor are analyzed through the zero-inflated Poisson (ZIP) model. ZIP is used to measure the impacts of health insurance ownership on the number of doctor visits for inpatient and outpatient cares because the number of doctor visits has an excess of zero counts. The ZIP model has two parts, a Poisson count model and the logit model for predicting excess zeros.

$$\Pr(Y_i = 0) = \pi + (1 - \pi)e^{-\gamma}$$

$$\Pr(Y_i = h_i) = (1 - \pi) \frac{\gamma^{h_i} e^{-\gamma}}{h_i!} \text{ with } h_i > 0$$

$$\gamma = \exp(\ln(t) + I\beta_D + X\theta_D + T\mu_D)$$

$\pi$  is the logistic link function,  $\pi = \frac{\delta}{1 + \delta}$  and  $\delta = \exp(\ln(t) + I\beta'_D + X\theta'_D + T\mu'_D)$

in which  $Y_i$  is the number of doctor visits, which is measured by the number of annual healthcare visits for inpatient care or outpatient care.  $I$  is a dummy variable in which the value 1 means being insured.  $X$  is a vector of characteristics of households, individuals, and provincial healthcare systems.  $T$  is a time dummy variable.

#### *Out-of-pocket Expenditures on Healthcare*

To estimate the impact of health insurance on the out-of-pocket health expenditures of the poor and near-poor, the study uses the two-part model in the context of pooled data as below:

$$D_i = \alpha_D + I_i\beta_D + X_i\theta_D + T_i\gamma_D + \varepsilon_{it}$$

$$\ln(E_i) = \alpha_Y + I_i\beta_Y + X_i\theta_Y + T_i\gamma_Y + v_i \text{ for } E_i > 0$$

in which  $E_i$  is out-of-pocket expenditures per visit.  $D_i$  is a binary variable which equals 1 if  $E_i$  is positive.  $I$  is a dummy variable in which the value 1 means being insured.  $X$  is a vector of characteristics of households, individuals, and provincial healthcare systems.  $T$  is a time dummy variable.  $v_i$  is unobserved terms. For the first model, we use the logit probability model. The second model is the pooled OLS.

### 3. Results and Discussions

#### *Health insurance coverage*

**Table 1: Summary statistics on enrolment in health insurance**

	Enrolment in Health Insurance											
	Year 2014						Year 2016					
	No HI	Free HI	Partially or Non-Sponsored HI	Voluntary HI	More than two HI	Total	No HI	Free HI	Partially or Non-Sponsored HI	Voluntary HI	More than two HI	Total
<b>Total</b>	10,619	11,506	4,938	8,854	164	36,081	7,688	12,600	5,032	10,333	135	35,788
	29.43	31.89	13.69	24.54	0.45	100	21.48	35.21	14.06	28.87	0.38	100
<b>Gender</b>												
Female	5,214	5,744	2,523	4,799	83	18,363	3,716	6,290	2,643	5,530	71	18,250
	28.39	31.28	13.74	26.13	0.45	100	20.36	34.47	14.48	30.3	0.39	100
Male	5,405	5,762	2,415	4,055	81	17,718	3,972	6,310	2,389	4,803	64	17,538
	30.51	32.52	13.63	22.89	0.46	100	22.65	35.98	13.62	27.39	0.36	100
<b>Ethnicity</b>												
Kinh and Hoa	10,030	6,002	4,564	8,523	112	29,231	7,014	7,195	4,644	9,795	119	28,767
	34.31	20.53	15.61	29.16	0.38	100	24.38	25.01	16.14	34.05	0.41	100
Ethnic Minorities	589	5,504	374	331	52	6,850	674	5,405	388	538	16	7,021
	8.6	80.35	5.46	4.83	0.76	100	9.6	76.98	5.53	7.66	0.23	100
<b>Urban Status</b>												
Rural	7,698	9,576	2,489	5,563	134	25,460	5,423	10,525	2,552	6,504	114	25,118
	30.24	37.61	10	21.85	0.53	100	21.59	41.9	10.16	25.89	0.45	100
Urban	2,921	1,930	2,449	3,291	30	10,621	2,265	2,075	2,480	3,829	21	10,670

**Enrolment in Health Insurance**

	Year 2014						Year 2016					
	No HI	Free HI	Partially or Non-Sponsored HI	Voluntary HI	More than two HI	Total	No HI	Free HI	Partially or Non-Sponsored HI	Voluntary HI	More than two HI	Total
	27.5	18.17	23	30.99	0.28	100	21.23	19.45	23.24	35.89	0.2	100
<b>Age</b>												
Under 6	161	3,172	30	54	20	3,437	100	3,225	39	59	14	3,437
	4.68	92.29	0.87	1.57	1	100	2.91	93.83	1.13	1.72	0.41	100
6-18	720	1,850	233	4,132	49	6,984	446	2,049	227	4,158	32	6,912
	10.31	26.49	3.34	59.16	0.7	100	6.45	29.64	3.28	60.16	0.46	100
18-60	9,006	4,726	4,169	3,858	75	21,834	6,530	5,249	4,219	5,076	66	21,140
	41.25	21.65	19.09	17.67	0.34	100	30.89	24.83	19.96	24.01	0.31	100
Above 60	732	1,758	506	810	20	3,826	612	2,077	547	1,040	23	4,299
	19.13	45.95	13.23	21.17	0.52	100	14.24	48.31	12.72	24.19	0.54	100
<b>Poverty Status</b>												
Non-poor	10,411	9,709	4,847	8,728	159	33,854	6,979	8,129	4,799	9,644	117	29,668
	31	29	14.32	26	0.47	100	24	27	16.18	33	0.39	100
Near-poor	118	984	58	87	3	1,250	452	2,084	159	527	12	3,234
	9.44	78.72	4.64	6.96	0.24	100	13.98	64.44	4.92	16.3	0.37	100
Poor	90	813	33	39	2	977	257	2,387	74	162	6	2,886
	9	83	3	4	0.2	100	9	83	3	6	0.21	100

*Source: Author's calculation from VHLSS 2014 and 2016*

Table 1 shows the coverage of health insurance over the sample of VHLSSs 2014 and 2016. There are four statuses of insurance, including uninsured, free compulsory insurance (for children aged six or less, the poor, policy beneficiaries and others), partially or non-sponsored compulsory health insurance (for the near-poor, employees, students and so on), and voluntary health insurance.

29.43% of sampled individuals are uninsured in 2014 but the figure significantly decreases to 21.48% in 2016. In 2014, about 31.89% of the sample have free health insurance. The figures for other compulsory HI and voluntary HI are 13.69% and 24.54% respectively. Only 0.45% possess more than two types of insurances. In 2016, all enrolment rates across insurance schemes increase, especially for free HI and voluntary HI. By gender, males and females each account for approximately equal shares in every type of insurance status. In terms of ethnicity, 34.31% of Kinh and Hoa are uninsured in 2014. The rate quickly falls to 24.38% in 2016. Voluntary HI is the most popular among Kinh and Hoa people, followed by free HI and other compulsory insurance. In contrast, among ethnic minority people, in 2016, only 9.6% are uninsured and 76.98% have free HI.

In either urban area or rural area, about one-third of sampled individuals in each area have no insurance in 2014. The situation is improved in 2016 with the uninsured rate falling to 21.4%. Free compulsory HI is dominant in rural areas with the participants accounting for 37.61% of the rural population in 2014 and 41.9% in 2016. Partially or non-sponsored compulsory HI is the least popular with 10% of the rural people enrolling in these schemes. About 26% of people in rural areas have voluntary insurance in 2016. On the other hand, voluntary and partially or non-sponsored compulsory HI is more popular in urban areas than in rural areas. In 2016, 35.89% and 23.24% of urban dwellers participate respectively. By age, people in the working-age have the lowest insured rate. The insurance enrolling rate for people aged 18-60 is 41.25% in 2014 and 30.89% in 2016. Children under 6 and the elderly have the highest rate of enrolment thanks to the government insurance policy.

By poverty status, the poor and near-poor are two groups with a high rate of having insurance. 91% of the poor people are insured and 83% of them have free insurance. Vietnam experience the phenomenon that is called the “missing middle” problem with a high rate of enrolment in the low and high-income class and persistently low rate in the middle class. Free HI is the most popular in low income and lower-middle-income groups. Voluntary health insurance is preferred by the upper-middle and high-income groups.



*Healthcare usage and expenditure*

**Table 2: Healthcare Usage and Expenditure**

	Inpatient Treatments			Outpatient Treatments		
	Number of visits	Having Doctor Visits	OOP Expenditure per Visit ('000 VND)	Number of visits	Having Doctor Visits	OOP Expenditure per Visit ('000 VND)
<b>Year 2014</b>						
<b>Non-poor</b>	<b>0.09</b>	<b>0.06</b>	<b>4517.18</b>	<b>1.01</b>	<b>0.28</b>	<b>489.14</b>
Uninsured	0.05	0.04	5958.69	0.66	0.25	614.07
Insured	0.11	0.07	4185.37	1.16	0.29	442.27
<b>Near-poor</b>	<b>0.11</b>	<b>0.08</b>	<b>2003.08</b>	<b>0.58</b>	<b>0.15</b>	<b>386.70</b>
Uninsured	0.05	0.03	3116.67	0.27	0.14	488.44
Insured	0.12	0.09	1968.64	0.61	0.15	376.9
<b>Poor</b>	<b>0.10</b>	<b>0.06</b>	<b>1787.35</b>	<b>0.59</b>	<b>0.13</b>	<b>303.89</b>
Uninsured	0.16	0.04	4352.5	0.29	0.12	310
Insured	0.09	0.06	1590.03	0.62	0.13	303
<b>Year 2016</b>						
<b>Non-poor</b>	<b>0.09</b>	<b>0.06</b>	<b>5417.66</b>	<b>1.08</b>	<b>0.30</b>	<b>548.31</b>
Uninsured	0.04	0.03	7301.46	0.70	0.26	672.62
Insured	0.11	0.07	5152.95	1.20	0.32	516.811
<b>Near-poor</b>	<b>0.12</b>	<b>0.07</b>	<b>2065.06</b>	<b>0.88</b>	<b>0.22</b>	<b>295.99</b>
Uninsured	0.06	0.04	3897.42	0.52	0.22	525.93
Insured	0.13	0.08	1901.61	0.94	0.22	259.03
<b>Poor</b>	<b>0.12</b>	<b>0.07</b>	<b>1726.104</b>	<b>0.73</b>	<b>0.16</b>	<b>268.43</b>
Uninsured	0.06	0.05	3485.71	0.75	0.25	388.80
Insured	0.12	0.07	1584.52	0.73	0.16	249.84

*Source: Author's calculation from VHLSS 2014 and 2016*

Table 2 summarizes the average number of doctor visits and the average out-of-pocket payment per visit of the sampled people. First, for outpatient care, healthcare utilization shows an increase from 2014 to 2016 for all groups. In 2019, 30% of non-poor people have at least one doctor visit for outpatient treatment or health check, an increase from 28% in 2014. The proportion of near-poor people having outpatient care also rises from 15% in 2014 to 22% in 2016. The figure for poor people increases from 13% to 16% over the same period. Also, the number of doctor visits shows improvement, especially for the poor and near-poor people. The poor and near-poor people visit doctors more frequently over two years. The average number of visits for the poor increases from 0.59 in 2014 to 0.73 in 2016 while the figure for the near-poor rise from 0.58 to 0.88. For inpatient care, healthcare utilization experiences insignificant changes. In 2016, 7% of the poor and near-poor people take inpatient treatments. Meanwhile, 6% of the non-poor have inpatient treatments.

Regarding out-of-pocket health expenditures, the average spending per visit of insured patients is lower than that of uninsured patients in all categories. In 2016, for non-poor people, insured outpatients, on average, pay 23.5% less than uninsured non-poor ones do and insured inpatients, on average, pay 29.5% less than uninsured ones do. The saving rates were even higher for insured poor and near-poor patients, ranging from 30% to 50%. Among the three groups of poverty, the spending per visit of the poor is the lowest, followed by that of the near-poor and then that of the non-poor. The cost per visit of non-poor patients increases significantly in two years. The growth rate is 12% for outpatient care and 18.5% for inpatient care. In contrast, the average out-of-pocket spending per visit for the poor and near-poor outpatients decreased over two years. The cost drops by 10% for poor outpatients, compared to a 23.5% drop for near-poor outpatients. Meanwhile, the average out-of-pocket expenditure for near-poor inpatients is almost unchanged.

*Impacts of health insurance among poor and near-poor people*

**Table 3: Estimated Results**

	Inpatient treatment				Outpatient treatment			
	Having a doctor visit	Number of doctor visits	Having OOP expenditure	Log of OOP expenditure	Having a doctor visit	Number of doctor visits	Having OOP expenditure	Log of OOP expenditure
Being sick or injured during the past 12 months	48.7157*** (2.5136)	0.4429* (0.1726)	3.9006*** (0.1196)	0.4456*** (0.1125)	0.6702*** (0.1160)	0.1924* (0.0874)	0.3800*** (0.1075)	0.6250*** (0.1259)
Insured, yes=1	0.0941 (0.2879)	0.2212 (0.1982)	0.3464 (0.2069)	-0.9582*** (0.1751)	0.5307*** (0.1066)	0.2781** (0.0970)	0.2177* (0.0947)	-0.5493*** (0.1135)
Poor =1, near-poor = 0	-0.2764 (0.1612)	0.1199 (0.1060)	-0.0259 (0.1094)	-0.1447 (0.1111)	-0.0957 (0.0650)	0.0425 (0.0617)	-0.1282* (0.0624)	0.0174 (0.0744)
Employed, yes=1	0.3316 (0.1922)	-0.3163** (0.1060)	0.0055 (0.1251)	-0.0936 (0.1224)	-0.0093 (0.0796)	-0.1799* (0.0780)	-0.0217 (0.0728)	0.0365 (0.0912)
Male, yes=1	-0.5960*** (0.1655)	0.0885 (0.1031)	-0.2782* (0.1101)	0.3878*** (0.1128)	-0.2360*** (0.0640)	-0.0516 (0.0600)	-0.1605** (0.0619)	0.1560* (0.0747)
Age	-0.0045 (0.0045)	0.0055* (0.0022)	0.0016 (0.0029)	0.0074** (0.0028)	0.0061** (0.0019)	0.0076*** (0.0019)	0.0138*** (0.0018)	0.0122*** (0.0022)
Years of Schooling	0.0175 (0.0242)	-0.0135 (0.0162)	0.0309 (0.0161)	0.0235 (0.0159)	-0.0975*** (0.0099)	-0.0036 (0.0097)	-0.0516*** (0.0096)	0.0332** (0.0120)
Urban, yes=1	0.5171 (0.2722)	-0.4246** (0.1442)	0.0862 (0.2016)	-0.0886 (0.1956)	0.0285 (0.0963)	0.0799 (0.0873)	0.0242 (0.0955)	-0.1982 (0.1142)
Ethnicity, yes=1	-0.0503 (0.2164)	0.1280 (0.1402)	-0.0466 (0.1531)	-0.4092** (0.1523)	0.0203 (0.0842)	-0.416*** (0.0694)	-0.4539*** (0.0816)	-0.0294 (0.0959)
Household Size	-0.0001	0.0370	0.0319	0.0546	-0.1490***	0.0196	-0.1510***	-0.0030

	Inpatient treatment				Outpatient treatment			
	Having a doctor visit	Number of doctor visits	Having OOP expenditure	Log of OOP expenditure	Having a doctor visit	Number of doctor visits	Having OOP expenditure	Log of OOP expenditure
	(0.0453)	(0.0239)	(0.0312)	(0.0292)	(0.0192)	(0.0157)	(0.0205)	(0.0246)
Proportion of Children	-1.0657*	-0.3175	-1.0383**	-0.3567	-0.1347	-0.0040	0.0135	-0.2033
	(0.5319)	(0.3893)	(0.3356)	(0.3182)	(0.1842)	(0.1778)	(0.1752)	(0.2164)
Proportion of Elderly	0.6829	-0.0406	0.1504	-0.8511**	0.2134	-0.1894	-0.2993*	-0.6155***
	(0.3779)	(0.2346)	(0.2764)	(0.2666)	(0.1626)	(0.1359)	(0.1480)	(0.1738)
Sex of Household Head	-0.1565	-0.1240	-0.4280**	0.0285	-0.1169	-0.0439	-0.0498	-0.0030
	(0.2380)	(0.1432)	(0.1494)	(0.1296)	(0.0823)	(0.0698)	(0.0803)	(0.0934)
Head's Years of Schooling	-0.0027	0.1855***	0.1530*	0.1758*	0.1734***	-0.0027	0.0793*	0.1195*
	(0.0978)	(0.0558)	(0.0689)	(0.0691)	(0.0420)	(0.0378)	(0.0403)	(0.0524)
No. of Doctors per 1000	-0.8368	0.3494	0.4161	-0.1511	-0.8857**	-0.1867	-0.0925	0.2792
	(0.6606)	(0.3458)	(0.4445)	(0.5002)	(0.2910)	(0.2503)	(0.2844)	(0.3142)
No. of Nurses per 1000	0.2765	-0.2809	-0.6902**	-0.2182	0.4660***	0.2778*	-0.3631*	-0.0747
	(0.3229)	(0.2241)	(0.2369)	(0.2257)	(0.1402)	(0.1260)	(0.1469)	(0.1722)
No. of Hospitals per 1000	1.9343	0.4585	1.6226	2.1222	-1.1021	-2.1464**	-3.9407***	0.1051
	(1.8506)	(1.2213)	(1.3246)	(1.2985)	(0.7036)	(0.6561)	(0.6932)	(0.8303)
year=2016	0.0969	-0.0624	-0.2951*	-0.1786	0.4383***	0.0235	0.2595***	-0.2167*
	(0.1775)	(0.1066)	(0.1243)	(0.1236)	(0.0754)	(0.0641)	(0.0768)	(0.0951)
Constant	-2.2031***	-1.1173**	-3.4905***	6.8316***	-0.1007	0.7568***	0.1486	4.3570***
	(0.5568)	(0.4102)	(0.3570)	(0.3808)	(0.2098)	(0.1749)	(0.2155)	(0.2604)
Observations		8329		8329		8329		8329

Robust standard errors in parentheses

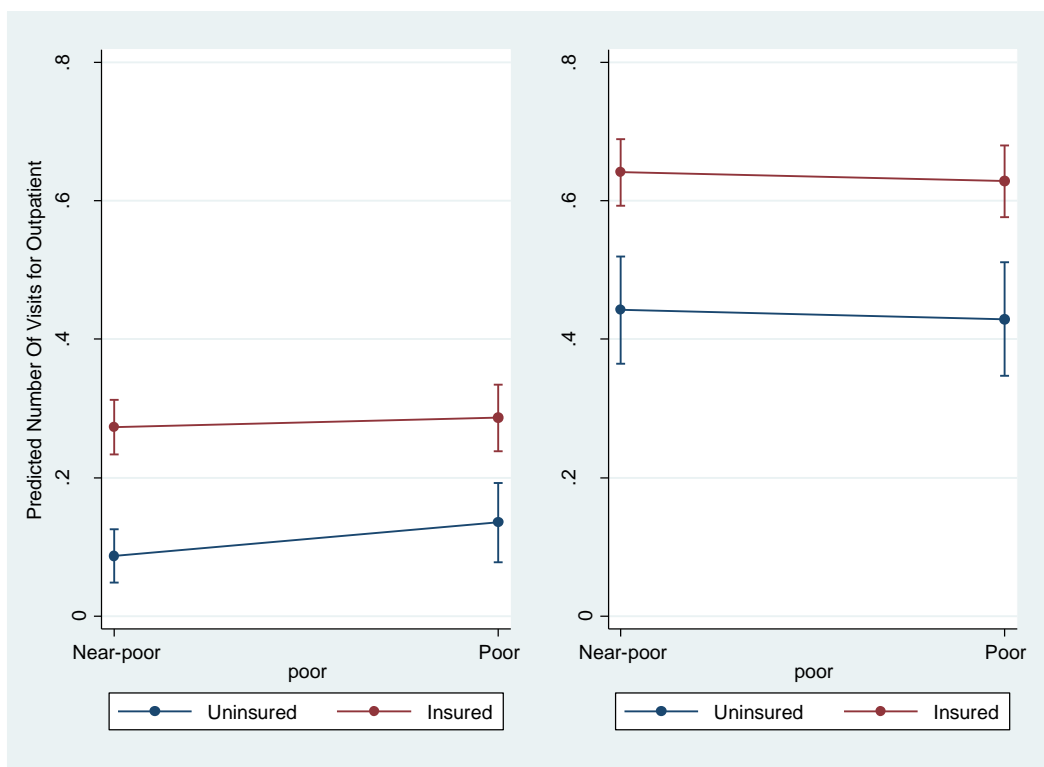
\*\*\*  $p < 0.001$  \*\*  $p < 0.01$  \*  $p < 0.05$

Table 3 presents the estimated effects of insurance for the sample of poor and near-poor people. The results of the models show that having insurance significantly increases the probability of having at least one doctor visit for outpatient care but, therefore, also increases the probability of having out-of-pocket expenditure. For outpatients, insurance also significantly increases the number of doctor visits. The average marginal effect of insurance on the number of doctor visits for outpatient care is 0.36, which is statistically significant at a significant level of 1%. For outpatients who have out-of-pocket expenditure, having insurance can reduce payments by 54.94%. For inpatient care, having insurance has no significant effects on the probability of having at least one doctor visit, the number of doctor visits and the

probability of having out-of-pocket spending. The average marginal effect of insurance on the number of visits for inpatient treatment is 0.026, which is not statistically significant at a significant level of 10%. However, for inpatients who have out-of-pocket expenditures, having insurance, on average, remarkably reduces their payments by 95.82%, given others fixed.

Figure 2 demonstrates the predicted number and a 95% confidence interval of the number of doctor visits across insurance status and poverty status, given other factors fixed at means. For both inpatient treatment and outpatient treatment, insured people have a higher expected number of doctor visits than uninsured people in both poor and near-poor groups. The expected demand for outpatient treatment or health check is higher than that for inpatient treatment.

**Figure 2: Predicted number of doctor visits**



Other factors significantly affecting healthcare utilization and expenditures include gender, employment, education, ethnicity, household size, the proportion of children and elderly in a household, education of household head, the number of doctors, nurses and hospitals per 1000 people. Specifically, an employed patient has a lower frequency to visit doctors than an unemployed patient has. Female is more likely than male to have doctor visit and out-of-pocket expenditures. But the average expenditure of male patients is much higher than that of female patients. An older person has a higher number of doctor visits for both inpatient care and outpatient care and also has higher out-of-pocket expenditures than a younger person. Member of a household with a higher proportion of children has a lower probability of visiting doctors and a lower number of doctor visits for inpatient treatment. Member with higher household head's education is more likely to have doctor visits for outpatient care and also has a higher number of doctor visits and out-of-pocket expenditures.

#### 4. Conclusions

Vietnam has been successfully increasing the health insurance coverage for two past decades. Until now, about 80% of the population has been insured. The core issue here is whether the fast expansion of health insurance is associated with effective coverage and improvement in public health. This research analyses the impacts of insurance on health care utilization and health expenditure in Vietnam. The study finds that having insurance encourages people to check health more frequently to diagnose diseases and then take treatments. Insurance tends to increase the quantity of care received, which then increases the proportion of people having out-of-pocket expenditure. This is reasonable because the generosity of coverage is less than 100 percent and the prices of services show an upward trend. However, for poor and near-poor patients, insurance helps them reduce the burden of healthcare costs and then reduce the risk of impoverishment.

#### 5. References

1. Do, N., Oh, J., & Lee, J.-S. (2014). Moving toward universal coverage of health insurance in Vietnam: barriers, facilitating factors, and lessons from Korea. *Journal of Korean medical science*, 29(7), 919.
2. Jowett, M., Contoyannis, P., & Vinh, N. D. (2003). The impact of public voluntary health insurance on private health expenditures in Vietnam. *Social Science & Medicine*, 56(2), 333-342.
3. Levine, D. (2008). A Literature Review on the Effects of Health Insurance and Selection into Health Insurance. *Berkeley: University of California*.
4. Nguyen, C. V. (2012). The impact of voluntary health insurance on health care utilization and out-of-pocket payments: New evidence for Vietnam. *Health economics*, 21(8), 946-966.
5. Nguyen, T.-H. (2008). *The economics of not using the health insurance card: a case study of Vietnam*. Paper presented at the Vietnam Development Forum (VDF) Tokyo.
6. Somanathan, A., Tandon, A., Huong, L., Hurt, K., & Fuenzalida-Puelma, H. (2014). *Moving toward Universal Coverage of Social Health Insurance in Vietnam*. Washington DC: World Bank.
7. Wagstaff, A. (2007). *Health insurance for the poor: initial impacts of Vietnam's health care fund for the poor*.

# **SPIRITUAL TOURISM DEVELOPMENT IN VIETNAM AND ITS COROLLARIES TO RELIGION - SPIRITUALITY**

*MA. Nguyen Nam Hung*

*nguyennamhung117@gmail.com*

*Department of Political Theory,*

*Thai Nguyen University of Technology, Hanoi, Vietnam*

## **Abstract**

*In Vietnam, spiritual tourism is a new type of tourism, formed over the past 20 years. However, in a short period of time, spiritual tourism in Vietnam has seen a strong growth, holding an important position in Vietnam's tourism industry, greatly contributing to the socio-economic development in many localities. However, besides the benefits, spiritual tourism causes negative impacts on religion - beliefs: changing the scale, structure, architectural value of monuments and worship facilities. ; alter religious traditions; distort the nature and value of religious-spiritual activities; secularization of religious - spirituality by many anti-cultural acts; and above all, religion - beliefs are taken advantage of for commercialization. That raises the requirement for State agencies to further enhance their role and responsibility in the management of spiritual tourism activities, making spiritual tourism truly a return to its roots of national culture.*

**Keywords:** *Spiritual tourism, sustainable tourism, religion*

## **1. Introduction**

Spiritual tourism can be understood as a type of tourism combining travel with the activities of the holy element of visitors. This type of tourism usually takes place at religious and religious establishments such as temples, shrines, cathedrals, etc., along with activities of praying, worshiping, participating in festivals, etc. That brings about the spiritual emotions and experiences of the human spirit while traveling. Besides, spiritual tourism is also associated with the need to visit, enjoy the landscape space, architecture, sculpture,... of the relics; explore the value of tangible and intangible cultural heritage associated with relics and religious constructions...

Spiritual tourism plays an important role in Vietnam's tourism industry, having a significant impact on the economy, culture and society. Spiritual tourism creates jobs and direct income for local people, promotes the initiative and actively exploiting, reviving and contributing to the preservation of tangible and intangible cultural values... There is no doubt about the benefits that spiritual tourism offers. But besides that, spiritual tourism has been making beliefs - religions change compared to tradition. This article outlines a picture of spiritual tourism in Vietnam in recent years, showing the benefits that this type of tourism brings. But above all, the article shows the consequences or in other words the negative

effects that spiritual tourism has been causing on the beliefs and religions. So far, this has been rarely discussed.

## **2. Overview of the development of spiritual tourism in Vietnam in recent years**

### ***2.1. The formation of a new type of tourism: Spiritual tourism***

Considered as the "religious museum" of the world, on the territory of Vietnam, there are thousands of religious - religious works, of which more than 3,000 places are classified as national monuments. Along with the relics are cultural activities and beliefs, such as ancestor and clan worship, gratefulness for national hero, celebrity, or worship, pray for good things for people, for country be safe. It is the rich cultural treasures and beliefs that have created the personality and identity of the Vietnamese nation, and become attractive tourist attractions for tourists, mainly spiritual tourism.

It can be said that visiting, worshiping at worshiping facilities is an activity not strange to people. However, the orientation and exploitation of this activity for tourism development is a new job in Vietnam. The concept of spiritual tourism has existed for a long time in the world, but in Vietnam, it has only been mentioned for more than a decade when economic and social conditions have developed, material and spiritual life raised. Especially after Vietnam's first international conference on spiritual tourism in Ninh Binh (November 2013), following the initiative of the Secretary General of the World Tourism Organization (UNWTO), traveling The spiritual calendar in Vietnam is in full bloom. According to the statistics of the General Department of Tourism, out of nearly 33 million domestic tourists in 2014, spiritual tourists accounted for 13.5 million, equivalent to 41% [1].

Spiritual tourism is different from other tourism activities because it is associated with a religious - belief element. Spiritual tourism is a type of tourism that takes spiritual cultural elements as a goal to satisfy the spiritual needs of people in spiritual life. It is from the needs associated with religion, beliefs,... of travelers that have formed this type of tourism. As such, spiritual tourism has some similarities with categories such as beliefs, pilgrimages, religions and festivals. However, considering the object and scope of activities, spiritual tourism is wider and the above mentioned types can become the object of spiritual tourism. In terms of content and nature, spiritual tourism is a form of cultural tourism that has been changed to meet the unique needs of tourists.

### ***2.2. Tourism products associated with spirituality***

*Tourism exploiting traditional festivals:* According to statistics, there are about 8,000 festivals in the whole country, including about 7,000 traditional folk festivals. The localities with many festivals are Hanoi, Bac Ninh, Thai Binh, Hai Duong, Ha Tay (old) and Phu Tho. With a large number, widely distributed throughout the country, the traditional festival becomes a very attractive and potential tourism resource in the process of developing spiritual cultural tourism in Vietnam.

*Tourism to visit relics and places of beauty:* With a rich spiritual life, there are tens of thousands of religious and religious establishments in Vietnam, including thousands of

works rated national monuments... Religious relics always have high tourist attraction values, not only in landscape values, but also contain many unique cultural - historical and architectural - artistic values... represents a concept of human life, world view, aesthetic thought, philosophy of Vietnamese people.

*Research tourism:* Tourism researching spiritual places directed to those who have a certain interest in the traditional cultural values of Vietnamese people such as researching architectural and artistic values, conception of the ancients on the universe, nature, society... Tourism research at spiritual has strengths that are independent of the weather and low seasonal characteristics.

*Tourism of traditional trade villages associated with worshipping the village's gods and the founder of the craft:* Traditional trade villages have been identified as key tourism products in many localities with a dense system of trade villages in the Red River Delta. Typical is the Ha Tay (old), with over 1,000 traditional craft villages; In addition, there are Hai Duong, Phu Tho, Ninh Binh, Hung Yen, Bac Ninh, Bac Giang and some provinces in the Red River Delta. In craft village tourist spots, apart from the craft elements, cultural factors such as folk beliefs and relics associated with them are always attractive tourist products.

*Tourism to explore and enjoy the forms of folk performances:* There are many forms of folk performances associated with spiritual notions and relics, such as: Xoan singing is a form of performance performing closely with the worship of King Hung; Chau Van singing is often held at the places of worship of Mother Goddess, worshipping Tran Hung Dao in the Red River Delta region; Do singing in the Ha Tay (old) is associated with the worship of Tan Vien god... The traditional folk performance form itself has become a valuable cultural tourism resource. Moreover, when they are intimately combined with spiritual sites and festivals, their tourism value becomes even more attractive.

### ***2.3. Current status of spiritual tourism activities today***

Spiritual tourism in recent years has made strong developments, manifested in the increase in the number of tourist destinations as well as the increase in construction investment and development of tourist destinations. If surveyed on tourism websites, especially spiritual tourism, you will find that there is not a modest number of tourism destinations from North to South in the territory of Vietnam. If divided by type, it can be seen that there are types of spiritual tourism associated with religious and faith factors with material manifestations such as pagodas, churches and other religious works; Spiritual tourism associated with the worship, gratefulness to the national heroes, people with meritorious services to the country, such as visiting monuments, temples, monuments and tombs of famous people like Hung Dao Dai Vuong ... recently visited the grave of General Vo Nguyen Giap; spiritual tourism associated with ancestor worship; Spiritual tourism associated with the element of meditation, seeking balance and serenity like meditation practice in Truc Lam Yen Tu sect (Quang Ninh)... In general, spiritual tourism is a type of tourism associated with the sacred element, the occult, exploiting the cultural and spiritual



elements such as tourism resources, bringing experiences and feelings about the sacred in human spirit while participating in this tourist activity.

The development of spiritual tourism is reflected primarily in the increase in the number of spiritual tourist destinations, typically some of the temples that have been / are being built or expanded in scale such as Yen Tu pagoda, Ba Vang pagoda (Uong Bi - Quang Ninh), Tay Thien pagoda (Vinh Phuc), Bai Dinh pagoda (Ninh Binh)... In addition to the temples, in Binh Duong, Dai Nam Van Hien temple was built in 9 years (1999-2008) on an area of 9ha, is considered the largest temple in Vietnam. These are just typical examples for investing and expanding the scale of spiritual tourism. The financial source for developing and expanding the scale of spiritual tourism comes from the merit (especially for pagodas) and investment from the private and businesses.

Along with the expansion of the spiritual tourist scale is the growth of tourists. Tourists coming to spiritual destinations come from different motives: sightseeing, pilgrimage, worship, pray for the grace of gods, saints, Buddhas, etc. Although every individual needs, however, in general, individuals from the same social group will have spiritual needs in the same needs group. Traders often wish to trade big and big profits to avoid police and market management; businesses hope to sign many contracts, win many bidding packages; students hope to achieve high results... Besides, there are the expectations for health, money for families and relatives... In addition to spiritual needs, many tourists come to spiritual destinations combining ecotourism to relax, find a sense of peace, temporarily forgetting the stressful of everyday life. It is a competitive advantage on which the relics rely on to attract participants to the pilgrimage.

Along with the growth in economic life, the new context has created more tourism incentives, contributing to increasing the number of tourists participating in spiritual tourism. For example, at Yen Tu tourist site, according to the statistics of Yen Tu Monuments and Landmarks Management Board, in 2006, the number of tourists coming here was about 40,000. However, by 2010, the number of tourists here exceeded the number of 2 million, meaning that it increased 5 times after 4 years<sup>9</sup>. In 2012, Huong pagoda welcomed over 1.4 million visitors to the festival; including nearly 10,000 foreign visitors<sup>10</sup>.

#### ***2.4. Benefits of spiritual tourism***

As mentioned above, spiritual tourism is different from other tourism activities because it is associated with religious - belief factors, so the first benefit of spiritual tourism helps to meet the special needs of Human spirit through tourism activities. The orientation to religious activities, belief in "epiphany" at an appropriate level is also a way for people to have more faith and energy to survive and develop.

In terms of economy, it must be affirmed that spiritual tourism is making important contributions to the socio-economic development of localities. Although most spiritual

---

<sup>9</sup> Figures of Yen Tu National Forest and Relics Management Board 2014

<sup>10</sup> Report of the Organizing Committee of Huong Pagoda Festival 2012, 2014.

tourism sites do not sell tickets, these places, especially those with sacred worship facilities or famous gods, enjoy a significant economic benefit from travel. For example, Ba Chua Kho temple (Co Me, Bac Ninh) is a spiritual tourist destination with huge economic benefits. According to the aggregate data of the Management Board of Co Me temple, an average of 80,000 people come to the temple every year. Only the merit earned annually is up to tens of billion VND [5]. Thanks to spiritual tourism activities at Ba Chua Kho temple, many poor farmers in Co Me village have risen thanks to the production and trading of gold coins and votive objects sold to the worshippers. At the spiritual tourist attraction of Huong pagoda: In 2012, the revenue from scenic tickets and ferry tickets reached about VND 100 billion. If including the spending of visitors on other tourism services, the revenue of the Huong Pagoda Festival in 2012 reached over VND 400 billion.<sup>11</sup>

From a socio-cultural perspective, spiritual tourism can contribute to overcoming cultural prejudices and encouraging "friendly" cultural relationships. Spiritual tourism is the foundation for foreign tourists to conduct tourism activities with the purpose of studying the cultures associated with the Vietnamese people, thereby gaining a better understanding of the country, people and culture of Vietnam.

In addition, spiritual tourism also plays an important role in cultural education and awareness of local people as well as tourists in the process of organizing tourism activities. Festivals from religion, folk to modern have reminded, restored the cultural values, national history and helped future generations feel more proud of their homeland and the country.

In addition, spiritual tourism can encourage and support sustainable ecological practices. The association of tourism with spiritual places has encouraged agencies as well as local people to pay more attention to the protection, restoration and embellishment of monuments as well as the protection of the natural environment and the socio-cultural environment in the locality.

Thus, there are many benefits that spiritual tourism can bring to human social life, especially for people at tourist destinations. But, as mentioned above, once tourism exploits spirituality, spirituality will no longer be it but will face many changes due to negative impacts from tourism.

### **3. The changes of religion - spirituality under the negative impact of tourism development**

#### ***3.1. Religion - spirituality are exploited for the purpose of commercialization***

Admittedly, once the exploitation of spiritual factors for tourism economy, the relics, worship facilities, beliefs and spirituality will no longer merely serve the spiritual purpose of humans, which became more or less an economic exploitation tool.

Over the past ten years, many beliefs and religious buildings (mainly temples) have been growing more and more and more, with the reasonable listening purpose of developing

---

<sup>11</sup> Report of the Organizing Committee of Huong Pagoda Festival 2012, 2014.

spiritual tourism. If you know that nearly half of the visitors to Ninh Binh in the past few years have come to Bai Dinh pagoda, people will understand why so many great spiritual tourism projects have been born and continue to have Spiritual tourism projects trillion VND is under construction or "asking for approval". In 2018, many people could not help but be startled by the proposal of investing in a spiritual tourist destination at Huong pagoda worth VND 15,000 billion of Xuan Truong enterprise. The public has not even forgotten to propose this great spiritual project, recently, Hoa Binh province has "bravely" submitted to the Prime Minister for approval to build a vast spiritual resort on the province's agricultural land. The Ho Nui Coc spiritual tourism area (Thai Nguyen) is also being implemented. In Hue, Bai Ca Investment Joint Stock Company is also asking the People's Committee of Thua Thien Hue Province for permission to study the plan to build a spiritual tourist area in Hai Van mountain. And the hottest is the Lung Cu eco-cultural and eco-tourism project being implemented in Lung Cu commune, surrounding Dragon mountain - where the Lung Cu flagpole relic is located - a sacred spot on the border sovereignty of nation...

One thing is easy to see, when the spiritual tourist destination aims to profit, things like collecting fees, placing dense donation boxes, offering offerings, making prayers, offering stars for good luck ... become normal story. The business element is evident when the investor has implemented many services at tourist pagodas, including reasonable services, some services are "thought out", forcing tourists to use. Unlike traditional pagodas, right in the basement of Tam The building, Bai Dinh pagoda and Tam Chuc pagoda is a large restaurant with thousands of square meters, can serve food for thousands of people and there are many working rooms, conference room. And like a regular tourist destination, Bai Dinh pagoda has a large area selling souvenirs and catering services near the gate; Parking is quite expensive and electric car service, cleaning service... In addition, the situation of "*pagoda gate BOT*" takes place in many temples doing tourism today. If this situation continues, the consequence will not only be the risk of disrupting the harmonious landscape of the monument, but also contribute to the increasing commercialization of spiritual life, offending religious beliefs of community.

One point to note is that these huge spiritual projects and projects with the investment capital of trillions VND billion come from the capital of large private corporations. However, speaking of the words of Venerable Thich Tam Thuan - abbot of Sung Phuc Zen Monastery (Hanoi) - although acknowledging the merit of the temple-building enterprise, it also points out a sad thing at these tourist pagodas, that's not doing a good job of a temple: *Propagating Buddhist teachings*.

Because, in these pagodas, there is almost no figure of a monk and there is a lack of research and propagation of Buddhist teachings - which are the main purposes of a pagoda. According to Venerable Thich Tam Thuan, a large pagoda like Bai Dinh should have 500-1,000 learners. Meanwhile, Venerable Thich Quang Minh, representative of the Vietnam Buddhist Church, directly cares for the two temples of Bai Dinh and Tam Chuc, saying that Bai Dinh pagoda often has 300-400 people working at the pagoda but not must be monk [7].

### ***3.2. Change the scale, structure, architectural value of monuments and worship facilities***

Understanding the social movement as well as the spiritual needs that many investors and businesses have invested in building and developing spiritual resorts and destinations on a large scale. Based on the trend of "heritage" and policies on preserving and promoting the cultural values of the nation, freedom of religion and belief, cultural heritage such as temples, communal houses and pagodas are invested, restored, embellished, granted the title of heritage. Along with the development of media, information, and tourism services that attract a lot of tourists to participate in spiritual tourism. Vietnamese people have a fondness for what is majestic and popular, so a tourist resort built big, beautiful and eye-catching is often easy to attract visitors.

This trend has some positive aspects such as promoting the economic potential of heritage in association with tourism, spreading the value of the heritage. However, running after the title has distorted the heritage, both material and spiritual. The worshipping facilities have been expanded, the cultural and spiritual heritages have been upgraded, sometimes distorting the heritage under many manifestations.

In addition to the case of Yen Tu scenic, public opinion as well as the voice of researchers also raised many questions in the mass development of temples and pagodas such as Bai Dinh pagoda (Ninh Binh), Tay Thien (Vinh Phuc)... Perhaps, cultural heritage has become something to do business, despite deforming heritage, losing its identity with hybrid architecture.

From the huge revenues, it is easy to see why many people speculate and massively build spiritual tourism projects to make profits, or even build fake works to earn illicit profits. Many people have not forgotten that the competent forces in the area of Huong pagoda had to take strong action to relieve more than 40 fake pagodas and fake caves that were illegally erected in the area many years ago. Similarly, there was a time people in Sam Son city (Thanh Hoa province) could not help being startled when Truong Le mountain area appeared a strange temple illegally built on the land of a house and was named "Linh Son Thuong". Or recently, the construction of a statue of Lady Chua Xu on Sam mountain, An Giang province, has caused public anger. It is worth mentioning that, even without permission, the project is still underway. It was not until the work was about to be completed, under pressure from public opinion and authorities, that the investor apologized and dismantled...

However, not every project protested by people was stopped as the case mentioned above. There are large-scale constructions invested in constructing many items, so stopping and dismantling are very complicated. In fact, there are also constructions for spiritual tourism mainly impressing only in the name full of mysticism, strange elements, monumentality, rather than meaningful spiritual value.

### ***3.3. Altering the traditions of belief and spirituality at the monument***

Not only changing the scale, structure of monuments, spiritual tourist attractions also attract tourists with new creations of legends, changing characters, changing positions of gods; many ancient worship traditions have also been changed.

Although all the characters worshiped at the relics have "backgrounds" and stories, but over time, especially since our country entered the Renovation Period (1986), many gods have attributed to many new legends. Ba Chua Kho temple (Co Me, Bac Ninh) is typical for traditional "creation". From a food storehouse keeper, Ba Chua Kho (Lady of the Storehouse) was attached to a ritual of borrowing money, asking for money. At least after 1986, the village of Co Me began to appear stories related to the character of Ba Chua Kho attached to the ceremony of borrowing money and asking for fortune. From the original legend, the people of Co Me village have woven a lot of stories about business people who want to borrow money from Ba Chua Kho to do business, or tourists from everywhere come to come to beg for fortune, health and other personal purposes... all are responsive. It can be seen that the purpose of this "creation" is to increase the sacredness and effectiveness of the blessings of the gods to attract many pilgrims to practice their religion.

While restoring the monument, in many places, old temples were erased with new ones, typically at Bau pagoda (Phu Ly city, Ha Nam province), an ancient temple with a history hundreds of years. At Bau pagoda, Ba Phap Van was the former owner of the temple to worship Bau pagoda. However, after Bau pagoda was newly built in 1990, the trace of the ancient Tu Phap pagoda faded much. Because the new construction is a beautiful, magnificent Mahayana Buddhist temple, horizontal court, vertical row. The main pavilion of Bau pagoda is completely decorated with Mahayana Buddhist statues, without the shadow of the statue of Ba Phap Van. That is, the god of electricity was displaced, kicked out of his own sanctuary in the place they were thousands of years ago. Behind the main building, in the To Duong building, the altar of Phap Van is placed on the same level as the Venerable Thich Vien Thanh and the Buddha altar. This arrangement clearly shows the idea of equating Venerable Thich Vien Thanh on a par with statues of Buddha and Mother Goddess. Still know, over time, the inadequate control of the manager, the ignorance and the reasoning of the money holders (investors), the change in worship in some monuments is not inevitable. But, the change to erase and lose the old, like the one at Bau pagoda is unacceptable.

#### ***3.4. Secularizing beliefs - spirituality by many anti-cultural acts***

It is a sad fact that the cultural foundation and humanistic spirit of the festival has been broken by many anti-cultural acts taking place at spiritual tourist destinations. In recent years, besides the annual Pig Sacrifice Festival (Nem Thuong, Tien Du, Bac Ninh), which has heated the public with many mixed opinions, the online community has really "stirred up" before emotionless action, lack of culture of many people, especially young people: wearing short skirts to the temple, climbing on statues, posing for photos and showing off on Facebook, drawing, writing on Buddha pictures at Bai Dinh pagoda... And really the indignation is the clips of fighting in Giong festival (Soc Son, Hanoi) and the procession of destroying cars in Xuan Dinh village festival (Bac Tu Liem, Hanoi).

The practice of robbing bamboo flowers is an indispensable part of the Giong festival. Bamboo flower symbolizes the bamboo bushes that Saint Giong used to fight the invaders. Usually after the ceremony, the celebrant will throw the bamboo flower in front

of the temple yard, the attendees come to rob to get lucky. But at the Giong Festival in 2017, when bamboo flowers were taken into the Upper Temple, the battle for holy fortune became a real attack of tourists. A fight with fists and sticks took place, many people of the palanquin guard team were beaten, they rolled among a crowd of people crowded and pushing. A historian said: For thousands of years, there has never been a fight with a palanquin guard to steal like that. I am very ashamed of the youth's actions during the festival at Giong temple, while this place has many sacred meanings to the Vietnamese people... [2].

The festival at the beginning of the year is to pray for blessings, the temple ceremony at the beginning of the year is to pray for peace, but certainly there will be no blessings and peace in places where people treat each other with fists, with violence. Worrying is the lack of restraint, violent acts on the rise with increasing severity. This not only lost the sacred values of the festival but also broke the good contracts of the crystallized community in it. And this situation is and continues to distort, degenerate the good customs of the nation.

### ***3.5. Distort the nature and value of religious - spiritual activities***

The development of spiritual tourism in recent years, on the one hand, meets the spiritual needs of tourists, but on the other hand also promotes the phenomenon of "spiritual profiteering" when a large number of tourists seek to the sacred monuments just for the sake of asking for fame and money. For example, Ong Hoang Bay temple (Lao Cai province), which was a place of worship of the national defense deity - a hero who defeated the Northern enemy and protected the villagers; but do not know when it has become a place for many people to offer prayers for lottery, illegal trade, illegal business... Ritual "Opening seal" in Tran temple (Nam Dinh province) which is a humanitarian activity, wishing for a peaceful country and educating the patriotic tradition,... but for many people, "Seal of Tran temple" turned into a talisman for promotion.

From the purpose of material color, when performing rituals, many people no longer know how to keep themselves in the sanctuary, leading to the scene of jostling each other to burn votive papers, buying many gifts to "bribe" the gods .. If before, the invocation of the divine came from pure belief, just as the sincere subject, the small ceremony, the big one did not matter, nowadays, the petition has brought a commercial mindset with the concept, must there are great offerings, many money to be able to receive the grace of gods and Buddhas. The cultural space, the sacredness of the festival and the space of worship are also thus distorted and distorted.

It can be said that the above-mentioned profiteering acts are a manifestation of the "spiritual corruption" phenomenon which stems from the pursuit of personal interests, lack of understanding and attraction to the psychology of the crowd. From here, the anti-cultural acts were replicated, became popular, created opportunities and conditions for some organizations and individuals to turn some worshiping places into an address of "buying gods and selling saints", using people's beliefs to deceive for illicit profit.

Some of the consequences mentioned above may not fully reflect the negative impacts tourism has on religious and spiritual traditions. But nonetheless, these are the

downsides of this activity that need to be cared and reorganized so that spiritual tourism is really sacred, healthy, attractive to tourists and brings many authentic effects, contributing to socio-economic development of the country.

#### **4. Discussion and Conclusion**

The negative effects of spiritual tourism on religious and religious traditions mentioned above are due in part to the loose management organization of authorities at all levels. Sometimes, due to the importance of economic benefits, the monitoring and supervision processes have been neglected, making the organization spontaneous and messy. Besides, people in many places do not realize the value of sustainable tourism so they have spontaneous and arbitrary actions to mainly attract tourists and earn extra income.

The aforementioned issues require government agencies to further enhance their role and responsibility in the management of spiritual tourism. For spiritual tourist destinations, the authorities should soon review, assess objectively and scientifically from many angles in order to guide the future investment plans carefully and sustainably. The management of competent agencies should be more stringent, especially in licensing construction investment to ensure openness, transparency, respect for historical and cultural values, and avoid being dominated by beneficial relationships with tourism operators. On the other hand, it is necessary to strictly handle violations in all stages from the construction of spiritual tourist area, to the organization and operation of all activities in this field, especially not to happen the situation of taking advantage of spiritual factors to profit.

In addition, a very important solution is to focus on propaganda to change public awareness when participating in religious practices, as well as enhance the knowledge and understanding of local people and tourists about spiritual culture, behavior when participating in spiritual tours.

Religion - spirituality is an important resource in tourism development. However, if they are exploited indiscriminately, lacking methodology, grabbing, for the immediate benefit, the long-term consequences will lose the traditional spiritual and religious values, which also means losing Factors that make up the value of spiritual tourism. Wanting spiritual tourism to develop sustainably must make spiritual tourism truly a return to the origin of the nation, so that all travelers can always find relaxation, peace of mind and from there cherish respect, preserve and promote the cultural and spiritual values of the nation.

#### **5. References**

1. BT, "Spiritual tourism in Vietnam is attracting tourists", updated August 10, 2014, *Website Television of People's Public Security*, <http://www.antv.gov.vn/tin-tuc/van-hoa-the-thao/du-lich-tam-linh-tai-vn-dang-hap-dan-du-khach-62195.html>
2. Cu Xuan Truong, "Anti-cultural behaviors are breaking folk beliefs and corrupting festivals", *New Hanoi Electronic Newspaper*, <http://hanoimoi.com.vn/ban-in/Suy-ngam / 743008 / velvet-shoes-distribution-van-hoa-dang-phai-vo-news-nguoi-dan-and-lam-chat-le-hoi>

3. Luong Hong Quang (2015), "Management of current spiritual tourism activities (Case study of pilgrimage sites of traditional sites and festivals)", in Proceedings of the Scientific Management Conference on *Management of spiritual tourism activities in the current context*, Hanoi University of Culture, Hanoi, Vietnam.
4. Ministry of Culture, Sports and Tourism (2014), *Thematic report: Vietnam tourism, current situation and development solutions*, Hanoi, Vietnam.
5. Nguyen Minh San (2015), "Spiritual tourism in Vietnam, the situation, issues and management solutions", in Proceedings of the Scientific Conference on *Management of Spiritual Tourism Activities Current context*, Hanoi University of Culture, Hanoi, Vietnam.
6. Nguyen Van Tuan (2013), "Spiritual Tourism in Vietnam - Situation and Development Orientation", Presentation at the International Conference on *Spiritual Tourism for Sustainable Development*, Ninh Binh, Vietnam , November 21-22, 2013.
7. Thien Dieu, "The temple is empty of spiritual students in the trillion-spiritual tourist area", updated October 24, 2019, *Tuoi Tre Newspaper online*, <https://tuoitre.vn/chua-vang-bong-nguoi-tu-hoc-in-tourism-tourism-tam-linh-ti-20191023211732431.htm>

#### **Acknowledgements**

The authors wish to thank Thai Nguyen University of Technology. This work was supported by Thai Nguyen University of Technology.



# CULTURAL LIFE OF WORKERS IN INDUSTRIAL ZONES: CURRENT SITUATION, CAUSES AND SOLUTIONS

*MA. Truong Vu Long*

*xuanthahuong88@gmail.com*

*Department of Political Theory,*

*Thai Nguyen University of Technology, Thainguuyen, Vietnam*

## **Abstract**

*Workers are an important labor force that contributes to the country's development. In recent years, taking care of cultural life for workers in industrial parks has received much attention from the society. However, in general, the cultural life of workers is still many difficulties and shortages. There are many factors affecting the cultural life of workers, but it can be said that high work pressure and difficult economic conditions are the basic factors. Improving the quality of cultural life for workers in industrial parks today is a big problem that is worth paying attention to and solving. In order to accomplish this, there must be strong involvement from the state agencies, the goodwill of enterprises and the active participation from the workers themselves.*

**Keywords:** *Cultural life, industrial zone, workers, workers life*

## **1. Introduction**

Cultural life is an abstract concept, understood in many different broad and narrow meanings, depending on the approach and each research object. Here, the cultural life of workers refers to the spiritual activities that are separated from professional work, done outside working hours. Thus, the cultural life of workers is understood as the totality of workers' spiritual activities in their free time, including the process of creating, storing, spreading and enjoying cultural and artistic products arts, participate in sports activities, entertainment,... Besides physical life, cultural life plays an important role in developing and perfecting people. In fact, the two material and spiritual needs are closely related, complementary to each other. The construction of cultural life among workers in industrial zones has not only been a practical social need, but has become a central task in building high-quality workers, as well as in building a foundation for industrialization and modernization in Vietnam.

## **2. Overview of the current state of cultural life of workers in industrial zones today**

By the end of November 2019, Vietnam had 335 industrial parks, of which 256 industrial parks were put into operation and 79 industrial parks are in the stage of compensation, ground clearance and capital construction [3]. The rapid development of industrial parks nationwide has facilitated the attraction of a large amount of investment capital for industrial development and socio-economic development for each locality as well

as the whole country. Industrial zones have attracted and created more jobs for workers, especially those working in rural areas, contributing to reducing unemployment in the community. According to incomplete statistics, there are currently about 3 million workers working in industrial parks, economic zones, export processing zones... The majority of workers in industrial parks at a young age are marriage age, child rearing age.

Determining that, taking care of cultural life for workers in industrial zones is an important task, on October 12, 2011, the Prime Minister issued Decision No. 1780/QĐ-TTg on approve *the Scheme on Building the workers' cultural life in industrial parks till 2015, with orientations to 2020*. The Scheme sets out the goal by 2020: 100% of workers and employers in industrial zones will be disseminated laws on building cultural life; More than 70% of workers in industrial zones participate in cultural and sport activities and 80% of enterprises meet cultural standards. In addition, the State as well as localities have issued many policies to encourage businesses to commit to social responsibility in actively taking care of building cultural life of workers.

In recent years, many businesses have paid attention to building many social and cultural institutions, promoting cultural and sport activities at enterprises. The results of a survey show that: from 2008 to now, 45.9% of enterprises have cultural exchanges with other businesses, 62.9% of enterprises have internal artistic activities, 82.4% of enterprises organized physical training and sport activities, 80.4% of businesses organized tours and 16.4% of enterprises organized other activities for workers [1]. In addition to the superiority of state-owned enterprises in taking care of the cultural and spiritual life of workers, non-state-owned enterprises and foreign-invested enterprises have initially adjusted their implementation social responsibility, take care of cultural and spiritual life for workers: Many businesses have provided financial support for trade unions to organize cultural, artistic and sport activities for workers; organize traditional festival day of the enterprise, build material - technical facilities, equipment on the campus of the enterprise; construction of houses and shift shifts for workers; create conditions for workers to engage in cultural, sports and peace of mind working at the enterprise. Trade unions at all levels have paid attention to the direction and organization of building cultural and sport institutions and activities for workers. Every year, trade unions at all levels organize tens of thousands of thematic talks for tens of millions of workers; organize thousands of contests and festivals, art performances, sports contests for officials and employees.

Most of the workers believe in the Party's lines and policies and the State's laws and policies; always working hard, adapting to industrial working environment; lead a simple, healthy and thrifty lifestyle. A part of labor workers, especially knowledge workers, have the will to rise up, and consciously study to improve their educational and professional levels; practice occupational skills, feel secure at work, be attached to the enterprise; pay attention to the cultural and spiritual life, entertainment and health after work hours.

Although there have been many improvements over the years, the spiritual and cultural life of the majority of workers today is not commensurate with their great

contributions to the development of businesses and the country. Workers in industrial zones not only worry about being "hungry" in their daily rations to be able to work, but also "hungry" in terms of culture. The simple hobby of female workers after hard work is often at the night market, the toad market to buy cheap clothes and daily necessities. Male workers often gather in groups to play cards and chess. Criminal crimes, social evils, theft and sex trafficking are always complicated. The increasing proportion of female workers who are single mothers or have abortions - the result of "cohabiting" in boarding houses. In general, the cultural environment in the workplace and where the workers live is still inadequate; poor cultural life; Some workers lead an unhealthy lifestyle and get caught in social evils... is the real situation of cultural life of workers in industrial zones today.

In fact, very few enterprises have implemented well the Scheme 1780 of the Government; Positive signals often come from businesses that receive the annual "Enterprise for the Workers" award. The statistics on sports activities and entertainment of the above businesses are only formal, meaning only answer the question "Yes - No" but do not reflect the level and quality of activities. Another survey of provinces and cities directly under the Central Government shows that the rate of enterprises regularly organizing cultural and sport activities for workers in industrial parks is low. Only 28% of businesses organize exchanges, art festivals, art performances; 31% of enterprises organize sports practice and competition; 49% of enterprises organize propaganda and law dissemination; 29% of businesses organize tours; 21% of businesses maintain their favorite clubs [2]. According to a recent survey of Dong Nai Provincial Youth Union about the life of young workers at the boarding houses in Vinh Cuu district shows that more than 30% of workers often watch TV after work back home; more than 12% go out for entertainment; The rest mostly choose to rest at home [8]. Least participation in cultural and recreational activities, after working in the factory, most workers choose to close and rest. In general, the cultural life is monotonous and poor.

### **3. Factors affecting the cultural life of workers in industrial zones today**

There are many factors affecting the spiritual cultural life of workers; Basically can be divided into two groups as objective factors and subjective factors.

#### ***3.1. Objective factors***

Objective factors are understood as external factors and conditions that can dominate the cultural life of workers in industrial parks today such as labor intensity, work pressure; Attention of all levels, sectors and business leaders; The role of trade unions; The operation of cultural institutions.

#### ***Work pressure***

Working time, intensity as well as work pressure greatly affect human life. This can be clearly seen in Japan - one of the leading economies in the world. According to the Organization for Economic Co-operation and Development (OECD), about 22.3% of

Japanese workers work an average of 50 hours per week, much higher than the rate of 12.7% in the UK, 11.3% in the US and 8.2% in France. Working until exhaustion seems to be the culture in Japanese labor. In recent years, there has been a phenomenon in Japan called "*Karoshi*", a phenomenon where workers die or commit suicide due to work pressure. Japanese police statistics show that 2,227 people committed suicide in 2014 due to fatigue, anxiety about work or working conditions [6]. Said author Wataru Tsurumi in *The Complete Manual of Suicide*: "Suicide is part of Japanese culture". It can be seen that high labor intensity and great work pressure are important causes of this problem.

In Vietnam, workers in industrial zones are also under a lot of work pressure. *The Labor Code* states that each employee works 8 hours a day but if that happens, it is only on the labor contract; In fact, most workers work about 10 to 12 hours a day. Overtime seems to be a normal thing, it is inextricably linked with the life of workers in industrial zones. Overtime is not only the demand of workers because they want to earn more income but also the demand of enterprises in the form of voluntary of workers through the "Application for overtime". There is no concern of right and wrong, but it is only to find that time and energy devoted to work robs workers of other meaningful parts of life. Too busy because of work, workers have very little time for entertainment and exchange, because they spend time to... sleep, to recover physical strength without thinking of anything else. Therefore, the motif "eat - work - sleep" becomes a vicious cycle in the life of workers.

#### ***Attention of state management agencies and business leaders***

State management agencies play a very important role in improving the cultural life of workers when creating mechanisms to regulate or encourage businesses and trade unions to take care of their spiritual life. worker. As mentioned above, on October 12, 2011, the Prime Minister issued Decision No. 1780/QĐ-TTg on approve *the Scheme on Building the workers' cultural life in industrial parks till 2015, with orientations to 2020*, which outlines specific objectives.

The goal is good, but how it works depends greatly on the business owner. In fact, very few businesses are interested in the cultural and spiritual life of workers. In fact, very few businesses are interested in the cultural and spiritual life of workers. The majority of enterprises still focus on profits and production and business activities without attaching importance to construction investment, organizing cultural, artistic, physical training and sport activities for workers. Trade unions, whether they want to create conditions for workers to participate in cultural and sports activities, also have to wait for "opportunities" such as holidays, new year, International Labor Day, or Workers' Month to propose with the business owner. In some enterprises, the business management leader is only an employee for the investor, does not have full real rights, so the recommendations and recommendations of the employees must be consulted with the business owner, so leading to delays in handling and resolving problems and proposals of workers. Besides, the organization of cultural and entertainment activities also depends on the economic situation of the business, because once an enterprise falls into a difficult situation, inefficient business is very difficult interested in

investing in other fields. Thus, there are 3 factors affecting the interest of businesses to the spiritual life of workers: One is the "mind" of business owners for workers; second is the perception of business owners about the role of spiritual cultural life for workers; third is the economic situation of that enterprise.

### *The role of trade unions*

Trade unions are organizations that represent the voice and rights of workers, but in recent years, many grassroots trade unions have had difficulty in expressing voices and claiming benefits for workers. One thing to consider frankly is that, at the grassroots level, the head of a trade union does not have much power, nor is the position great. Some union leaders are the head of a department in the company, the rest are normal workers like many others... Therefore, their voice has less weight with the business owner. Moreover, the interference in the work of trade unions from employers is still happening in many places. There, unions became the right hand of the business owner rather than the guarantor of the workers.

The capacity of grassroots trade union cadres is an important issue, but said as Ms. Nguyen Thi Lang - Head of Propaganda Department, Hai Duong Labor Union: "Don't blame public officials weak union, or tight budget. With the experience of long-term union officials, in my opinion, only about 10 million VND plus the enthusiasm, enthusiasm, and unburdening of union officials, can also organize a playground for workers like the old. dance football, volleyball, or cultural - art "home tree, garden leaves". The problem here is the lack of venue and time to organize". Thus, in most businesses today, grassroots trade unions have not been created many favorable conditions to successfully fulfill their duties.

### *Operation of cultural institutions in the industrial zone*

Cultural institutions such as cultural centers, museums, cinemas, libraries, etc. play an important role in the cultural life of workers; It is the place where cultural, arts, sports and entertainment activities take place, the venue of clubs, etc. However, the mechanism and policy to develop this system still faces many difficulties: no mechanism, policy has been developed, lack of coordination of the political system and local governments; lack of land fund; lack of construction capital; lack of investment.

Currently, only a few FDI enterprises are interested in investing in kindergartens, houses, public houses for workers but only meet a small part of the needs of workers. Some industrial zones have cultural houses and cultural centers but they are far from the places where workers live. Many places have cultural houses but poor facilities, not fully equipped with equipment and tools for workers to use. Meanwhile, some entertainment and service-oriented entertainment centers are often reserved for high-income earners. Typically, the Center for Culture, Sports - Tan Thuan Export Processing Zone (Ho Chi Minh City) is built with modern structure, many utilities (basement, parking, English classrooms, computers, swimming pool, table tennis room...) with the goal of becoming a place for entertainment and entertainment for workers, but the price of services is still high, not consistent with the income of the workers [7].

### **3.2. Subjective factor**

Subjective factors of workers such as needs, personal hobbies, especially the economic conditions of individuals significantly affect the reception and enjoyment of spiritual cultural values of workers.

#### ***Personal needs and hobbies of workers***

Each person's needs are often not the same. There are enthusiastic people who like to make friends, like sports and crowded activities; there are also quiet people who like to indulge themselves in personal activities. Gender differences also entail different cultural needs: Often men tend to enjoy active activities, strong sports such as football, volleyball; while women tend to be more inclined to sightseeing and shopping activities. But in any case, the need to live a happy and healthy life is the wish of everyone. These needs and interests are partly personal in nature, but they are also largely due to external influences. On the labor side, with the income that has not met the living needs, most workers have a high work intensity, focus on overtime work, so they do not have enough conditions and time to participate in cultural and spiritual activities. Gradually, that need narrowed and seemed unnecessary to them. Besides, the workers themselves are eliminating the need to enjoy culture, paying little attention to the daily information of social life. After work, they crouched in a 10m<sup>2</sup> motel room, befriending the phone and sleeping. Work pressure is a factor that has eliminated their entertainment needs.

#### ***Personal economic conditions***

Material needs are basic and first human needs. Ph.Engels - a famous thinker of Marxism-Leninism once wrote, general idea that: *People first need to eat, drink, shelter and wear, before they can do politics, science, technology art, religion.* That is, when people are met with basic material needs, they can "think" of their spiritual needs. This is especially true of the workers in today's industrial parks. In fact, when the salary is not enough for living, the demand for entertainment is also narrowed to the workers. They dream of having a small house to settle down, nutritious meals, having a kindergarten for children, a supermarket selling cheap goods, a medical room timely medical examination and treatment... before wishing to enjoy the needs of culture and entertainment.

According to many economists, the average salary of workers currently does not guarantee the minimum living needs of workers. According to a survey of the Labor Union Institute (Vietnam General Confederation of Labor) in 2018, the average total income of employees (including allowances, overtime, bonuses, etc.) about 5.5 million VND/month. Despite the improvement compared to the previous year, this salary only meets 78-83% of the basic expenditure needs of workers. According to the survey, 17.4% of workers said that their income was abundant and accumulated (up 1.3% from the previous year); 43.7% was just enough to cover life (down 7.6%); 26.5% had to spend on frugal and miserable spending (up 5.8%); 12.5% of income is not enough to live on [5]. Therefore, when the salary is not enough to take care of life, the demand for entertainment is also narrowed to the workers. According to another survey by the Vietnam General Confederation of Labor, nearly 90%

of workers live in temporary housing, most of which do not meet the minimum living needs of workers. Most rented rooms are only 10 - 12m<sup>2</sup>, even some rooms are only 7-8m<sup>2</sup>, but to save money, there are usually 4-5 people renting together. In fact, some businesses build houses and dormitories for workers but these works are not synchronized with other social infrastructure such as hospitals, kindergartens and schools. Due to limited economic conditions, very few rooms can buy televisions or computers; In the free time, men mainly gather to eat, sing, and women buy cheap goods at night markets... Because they are afraid of spending money, they are afraid/afraid to go out. Along with the smartphone, the few m<sup>2</sup> room became the reluctant "cultural space" of the workers. This shows that, in order to improve the spiritual cultural life for workers, it is necessary to firstly ensure the basic material needs of them.

#### **4. Some recommendations to improve the cultural and spiritual life for the working class in industrial zones**

##### ***4.1. For the authorities and socio-political organizations***

*Continuing to improve the wage policy towards the minimum wage to ensure the minimum living needs.* As mentioned above, the difficulties in the cultural life of workers reflect the difficulties in economic life. Therefore, in order to improve the cultural life of workers, it is firstly necessary to ensure sufficient material life for them. Every year, the issue of minimum wages for employees is frequently discussed. In fact, in recent years, the minimum wage has increased steadily but in a "drip" manner, failing to keep up with the increase in the cost of living, thus not helping much in improving the lives of worker. Therefore, in the coming time, state agencies need to have a breakthrough solution in salary reform, in the direction that basic salary must meet basic living needs.

*Clearly define the criteria for the profile and construction of industrial zones in our country.* When businesses or investors want to participate in production and business activities in industrial zones, they need to meet the minimum standards for institutional cultural institutions like residential areas but with appropriate sizes for enterprises. Laws and regulations on investment related to the construction of industrial zones need to have a specific content about spatial planning of enterprises, in which regulations need to have basic construction works for life cultural and entertaining life of workers.

*Strengthening the role of socio-political organizations such as trade unions, youth unions, professional associations...* As mentioned above, the role of trade unions and social organizations in the community of workers in industrial parks is still inadequate. Trade unions are organizations representing the rights of workers, but the grassroots trade unions in the industrial parks have not been able to do so, so it is not convincing, attracting a large number of workers to actively participate in activities. The ineffectiveness of socio-political organizations has made the propaganda of laws and policies of the Party and the State to workers ineffective. From that fact, the law propaganda in the coming time is more necessary through many forms such as leaflets; through collective meetings in the industrial park, through promoting cooperation between organizations and businesses in the operation

process. The way and language to be conveyed to workers should be clear, but simple and easy to understand.

*Strengthen cooperation between local cultural management agencies and organizations representing workers working and living in industrial zones.* This cooperation brings great benefits to the group of workers working in industrial zones where there are no or few sports and cultural constructions to satisfy their entertainment needs. Workers can use local soccer fields, gymnasiums and cultural houses to participate in the cultural activities of people living around the industrial park. Local governments can organize exchanges between people living in the area with workers in industrial zones through friendly matches, music festivals, or through big events of the community (for example, traditional festivals). This solution can solve the immediate difficulty of the lack of cultural facilities for workers' entertainment needs as well as the organization of implementation of cultural activities not yet implemented full and varied.

#### **4.2. For businesses**

Enterprises in industrial zones need to have full awareness of the role of cultural activities for the spiritual life of workers. For businesses, profits from employees is very important so labor productivity is often put on top. However, workers can only achieve the highest labor productivity when they have enough free time to conduct leisure activities, reproduce labor force and physical - really healthy spirit. In addition, if the company has a good policy to meet the needs of enjoying spiritual culture, they may avoid the situation of workers leaving their jobs and not being enthusiastic with the company - which is very common in industrial zones where there are many young workers.

In order to improve the quality of cultural life for workers, businesses need to perform the following tasks:

Every year, businesses need to take a reasonable time to organize football tournaments, table tennis, badminton, performing arts and other group activities ... for workers. The regular organization of these activities not only satisfies the need to regenerate production but also enhances community cohesion, solidarity between units and individuals. This can be the initial foundation to build a corporate culture with an identity, making employees desire to work - making a lasting contribution to the company.

Plan and organize regular professional improvement classes for workers, on the one hand, to create conditions for employees to improve their qualifications and contribution to enterprises on the one hand to send messages to workers about their ability to advance. Employees with a good academic background may have more opportunities to get a raise, to hold a higher position in the business. The opening of professional classes also satisfies the needs of self-improvement and learning needs of workers.

Enterprises in industrial zones need to build their own welfare system with the goal of focusing on the interests of workers. The content of the welfare program may include activities that employees are interested in such as: periodic travel of the year, flexible leave,



social insurance, health insurance... Experience in developed countries shows that, when there is a complete welfare system, businesses receive a lot from employees such as loyalty, gratitude, high spirit of work, creativity in labor, the spirit of self-sacrifice for business... Most importantly, employees will not put themselves into negative considerations in their relationship with businesses (I'm just an employee, the company just wants to exploit the labor force with the lowest wages, the company only consider workers as tools...). Large companies, corporations such as Google, Samsung, Microsoft and many other small and medium companies achieved the success of the business from this seemingly small factor.

In the first time, when participating in production and business in industrial parks, enterprises need to spend a part of the space to build housing quarters, sports grounds, and parks for workers, not just focusing on construction factories, offices and warehouses. Attention to the spiritual life as well as the quality of life of workers is consistent with the trend of social enterprise, social marketing is very popular in the world. From the development perspective of that trend, ensuring the life of workers is also ensuring the future and the current success of the business.

#### ***4.3. For workers***

Workers should actively participate in unions and organizations protecting their own interests. Joining these organizations not only strengthens the role of unions, unions, etc., but also maintains their own voice in protecting their rights. Thereby, workers also monitor whether their enterprises are implementing the benefits and regimes according to the provisions of law. Workers also need to actively organize and participate in cultural, sports and recreational activities. Life is not only about wages, income and ability to pay for basic material needs, but also about other activities to improve the quality of life for ourselves and our members in the family.

It should be noted that, when determining the cultural and spiritual needs, workers should make choices appropriate to their financial capacity, legal provisions, and free time to achieve the highest efficiency and not getting caught up in social evils like gambling, prostitution, drugs, watching and passing on harmful cultural products, etc. Identifying cultural needs and appropriate cultural products not only helps workers to regenerate intelligence and health, but also enhances the educational level according to the common standards of industrial society and the public class in modern times.

Improving the quality of cultural and spiritual life for workers in industrial zones involves three main subjects: businesses - governments - workers, in which the beneficiaries of cultural products are workers. The interactions taking place in that relationship, as well as the balance of profit - welfare policy - taxes, always play a decisive role in the goal of improving the cultural life at the grassroots level in general spiritual culture of workers in particular in industrial zones. To realize the guidelines and policies of the Party and the State, it requires the efforts of all parties involved in the process of dialogue, cooperation, implementation and towards a common goal.

## 5. Discussion and Conclusion

Along with the basic needs of people such as eating, staying, wearing, ..., cultural activities, sports and entertainment also play a very important role for workers, helping them relax after work time high pressure, labor regeneration and thereby help employees feel secure to work, more attached to the company, businesses. However, in reality, the spiritual cultural life of workers now faces many difficulties and shortcomings, not commensurate with their great contribution to the development of the country.

There are many factors leading to poverty in the cultural life of workers in industrial zones. In addition to objective factors (such as excessive work pressure, frequent overtime, lack of attention from state agencies as well as business leaders, trade unions have not promoted well their role, the lack of cultural institutions in the industrial park) are subjective factors (such as personal preferences, deprived economic conditions). But, in general, great work pressure and difficult economic conditions are the two factors that most affect the cultural life of workers in industrial parks today. The poverty in cultural life is actually a reflection of the difficulties in the physical life of workers.

Improving the quality of cultural life for workers in industrial parks today is a big problem that is worth paying attention to and solving. In order to accomplish this, there is a need for strong involvement from state agencies, improving the performance of trade unions, strengthening cooperation among local cultural management agencies and trade union organization in industrial zones. Businesses need to pay more attention to organizing cultural, sports and recreational activities for workers, because it will also benefit the business itself. Besides, workers themselves need to be proactive in improving the quality of their cultural life, actively participating in activities organized by trade unions and enterprises.

We still say that the working class represents the advanced production force, the one who holds the banner of revolutionary leadership,... has important contribution to the cause of industrialization and modernization of the country. Therefore, in the coming time, the working class should be paid more attention, not only to be fully guaranteed in terms of material life but also to have a rich spiritual and cultural life.

## 6. References

1. *Actual status of leisure activities of workers in idle time*, updated on 12/9/2015, <http://xn--phongthuyinh-i7a.vn/bat-dong-san-2/thuc-trang-hoat-dong-giai-tri-cua-cong-nhan-lao-dong-trong-thoi-gian-nhan-roi.html>
2. Dang Thanh Ha (11/2016), *Building institutions for workers in industrial zones*, Nhan Dan Newspaper, issues 24 and 25 November 2016.
3. Department of Management of Economic Zones (Ministry of Planning and Investment) (2019), *Report on the establishment of industrial parks and economic zones of the whole country in 2019*, Hanoi, Vietnam.

4. Hanoi University of Culture, Department of Culture, Sports and Tourism of Dong Nai province (10/2017), *Proceedings of Scientific Conference Improving the cultural and spiritual life for workers in industrial zones in Dong Nai province and the Southeast region in the period of industrialization and modernization*, Dong Nai, Vietnam.

5. Le Huu Viet (7/2018), *Vietnamese workers earn an average of 5.5 million VND/month*, Tien Phong Electronic Newspaper, <https://www.tienphong.vn/kinh-te/vietnam-entertainment-technology-in-vietnam-capital-55-trieu-dongthang-1299792.tpo>

6. Sim Do (5/2015), *Japan before the worry "Karoshi"*, Lao Dong Electronic Newspaper, <http://nld.com.vn/thoi-su-quoc-te/nhat-ban-truoc-noi-lo-karoshi-20150527220533185.htm>

7. *Spiritual and cultural life of workers in industrial zones*, updated on November 15, 2013, *Nhan Dan Electronic Newspaper*, <http://www.nhandan.com.vn/vanhua/item/21663902-doi-song-van-hoa-coal-crab-cong-nhan-khu-khu-congiiep.html>

8. Thao Nguyen, "Building cultural institutions for workers: Urgent needs", *Dong Nai Labor Electronic Newspaper*, <http://laodongdongnai.vn/Cong-doan/Hoat-dong/2F2604/xay-dung-device-show-van-hoa-for-men-needs-with-a-cap-bach-cuoi-bai-cuoi.aspx>

#### **Acknowledgements**

The authors wish to thank Thai Nguyen University of Technology. This work was supported by Thai Nguyen University of Technology.

# COMPLETING THE LAW ON HANDLING OF ANTI - COMPETITIVE AGREEMENTS

*MS. Tran Thi Nguyet*

*nguyettt@neu.edu.vn*

*Faculty of Law, National Economics University, Hanoi, Vietnam*

## **Abstract**

*Anti-competitive agreements have the potential to cause great harm to the interests of consumers and / or other business entities in the relevant market. In order to effectively control anti-competitive agreements, the State needs to use many measures simultaneously, including measures to handle violations, especially fines in administrative or criminal sanctions play an important role. Nevertheless, the question is, what effective tools can be used to deal with violations of anti-competitive agreements and to determine the correlation between these measures and objectives is to design a way to control anti-competitive agreements in accordance with the context of Vietnam's economy in this comprehensive integration period. The article analyzes the remaining limitations in the mechanism of handling violations and provides directions to improve the law on handling of anti-competitive agreements.*

**Keywords:** *Anti-competitive agreement, compete, complete; handling, law.*

## **1. Introduction**

In Vietnam, the law that governs anti-competitive agreements was established with the Competition Law 2004. In 2017, by amending The Penal Code 2015, for the first time, Vietnam imposed criminal penalties for a number of violations of competition regulations, in which the main act of restricting competition is the focal point of Article 217, marking a breakthrough change in lawmakers' awareness and thinking about the seriousness of the anti-competitive agreement act, bringing Vietnam to operate in the common trajectory of competition law of many countries in the world. In 2018, the promulgation of the Competition Law 2018 together with the provisions on strict sanctions for serious competition restriction agreements made the law on controlling and handling anti-competitive agreements more and more complete. However, the provisions of the law still reveal some inadequacies, especially prominent in two major issues that are the determination of objective acts prohibited in Clause 1, Article 217 of the 2015 Penal Code not be compatible with the Competition Law 2018 and on the correlation between measures to handle violations of the law on control of anti-competitive agreements. In addition, two leniency policies in the Competition Law 2018 and regulations on exemption from penal liability and penalty exemption for legal entities in the Penal Code exist in parallel, creating overlaps and causing difficulties for law enforcement.

## 2. Method

To accomplish the research objectives, the author will use a combination of many methods of legal science research. There are some mainly research methods: legal analysis (traditional law research method), case study method and comparative law method. To be specified:

Methods of data collection: Data collected from legal documents, books, textbooks, scientific works, specialized journals related to the law on anti-competitive agreements, newspapers, annual reports of the Competition Administration Department, the Ministry of Industry and Trade, the Ministry of Planning and Investment ... are valuable in giving clear evidences, ensuring logic and persuasion;

Methods of analysis: This method is used to analyze, explain and systematize specific provisions of the studied legal systems. The purpose of using this method is to provide a comprehensive and comprehensive view of the legal provisions governing anti-competitive agreements.

Comparative law method: This method is used to identify the similarities and differences of provisions in the studied legal systems related to the law that controls the agreements restricting competition between laws. Vietnamese law and international law, thereby seeing the similarities, differences of Vietnam and international as a solid basis for making solutions to overcome the inadequacies of current Vietnamese law. on this issue.

Methods of analyzing practical situations: A number of practical situations will be selected for analysis. The analysis of situations to understand and evaluate the application of relevant regulations in practice, find out the incomplete points, the points still unreasonable in the provisions of law. At the same time, the use of practical case studies will complement the arguments, interpretations, and recommendations that the research makes.

## 3. Results

### *3.1. Determining objective acts prohibited in Clause 1, Article 217 of the Penal Code 2015 that are incompatible with Articles 11 and 12 of the Competition Law 2018*

The Penal Code 2015 identifies acts of anti-competitive agreements that can be criminally handled based on the approach of the Competition Law 2004. Accordingly, the anti-competitive agreements mentioned at Points a and b, Clause 1, Article 217 of the Penal Code 2015 stipulate automatically subject to criminal penalties if these agreements cause damages of up to 5 billion VND or illicit profits to 3 billion. Meanwhile, in order to handle other agreements mentioned at Point c, Clause 1 of Article 217, apart from the necessity for violations, the investigating bodies also need to prove that the parties to the agreement having a combined market share of 30% or more in the relevant market before being examined for penal liability.

An approach like that has a historical element when the Penal Code 2015 was formulated in accordance with the provisions of Articles 8 and 9 of the Competition Law 2004 that were still in effect. However, when compared with the provisions on the anti-

competition agreement in Articles 11 and 12 of the Competition Law 2018, there are many shortcomings and incompatibilities. The Competition Law 2018 has removed the combined market share threshold of 30% of the previous regulation in determining the competition restriction agreement. Under the old Law, agreements restricting competition if the combined market share of parties to the agreement is 30% or more will be prohibited. According to the Competition Law 2018, when determining whether an agreement is prohibited or not, the authorities will apply a number of evaluation criteria to determine whether such agreement is causing or possibly causing the impact of competition restriction significantly on the market or not. Horizontal agreements, including those relating to price fixing, customer allocation, bid rigging, output restriction, market entry and market entry exclusion, are considered violate. Other horizontal agreements will be prohibited if they cause or have the potential to cause competition restriction in the market. Concerning vertical agreements, agreements on bid rigging, preventing market entry and eliminating market participants are prohibited. Other vertical agreements are prohibited if they cause or have the potential to cause an anti-competitive effect on the market. In addition, the Competition Law 2018 has added a number of new behaviors related to anti-competition agreements including non-transaction agreements with non-parties; agreement to restrict the market of products, the supply of goods and the provision of services of the parties that do not participate in the agreement. With the changing approach of analyzing anti-competitive agreements, it can be said that the provisions on prohibiting anti-competitive agreements in Articles 11 and 12 of the Competition Law 2018 have shown a big change in Lawmakers' awareness in classifying and evaluating the severity of different types of anti-competitive agreements is more in line with the general trend of modern competition law in the world. Accordingly, serious anti-competitive agreements are listed in Clauses 1, 2, 3 and 4 in Article 11 of the Competition Law 2018. They are strictly prohibited without having to prove consequences or market share (this approach is almost the same as constituting the form in criminal law science). As discussed above, these anti-competitive agreements is also in the scope of adjustment of criminal law in many countries around the world. This change is appropriate when the market share threshold of 30% creates a safe corridor too wide for businesses participating in anti-competitive agreements, and agreements such as price fixing, market sharing, and production restrictions are agreements that severely limit competition (hardcore cartel) that does not bring any economic effect, only causes negative effects on competition and seriously affects the interests of people. consumption, therefore, needs to be dealt with strictly by strong criminal sanctions. Therefore, the method of determining the objective acts prohibited in Clause 1, Article 217 of the Penal Code 2015 is completely incompatible with the Competition Law 2018 and the general trend of countries around the world. In addition, the requirement to prove that the parties to the agreement have a combined market share of 30% or more at Point c, Clause 1, Article 217 creates an unnecessary burden for the investigating authority. It should be emphasized further that the determination of market share thresholds has been identified as one of the problems that hinder the effective implementation of the Competition Law 2004, making this law very restrictive until it is amended.

In terms of behavior, the reasonableness of criminal treating of agreements preventing business activities to enter or develop in market, and agreements on elimination of enterprises which is not in line with the content of the agreement assigned at Points a and b, Clause 1, Article 217 of the Penal Code 2015 is to be considered even in accordance with the approach in Articles 11 and 12 of the Competition Law 2018. According to author's view, the criminalization of these types of agreements is beyond the anti-competitive criminal requirements because they are intended to hinder or eliminate competitors directly to gain a competitive edge rather than directly damage consumers. In fact, in order to eliminate competitors, businesses involved in the agreement may have to agree on the fix prices that lower than the competitive prices or to provide services of better quality with expectation to raise the selling price of goods and services in the future to recover capital after maintaining the market. Therefore, these acts do not satisfied the appropriation elements as the anti-competitive agreement groups mentioned at Point c, Clause 1, so competition sanctions are sufficient to prevent and overcome, the firms involved may be subject to criminal prosecution in case they are unanimous in raising the selling prices of goods and services. In addition, bid rigging or fraud, which is also considered a serious competition restriction agreement, is prescribed in Clause 4, Article 11 of the Competition Law 2018, not listed in Article 217 of Penal Code 2015, but in a separate law in this Code (Points b and c, Clause 1, Article 222). This is acceptable in case of technically legislative. However, from the author's point of view, the nature and severity of bid rigging acts (Point b, Clause 1, Article 222 of the Penal Code 2015) and bid fraud (Point c, Clause 1, Article 222 of the Code) is the same as the anti-competitive agreements mentioned at Point c, Clause 1, Article 217 of the Penal Code 2015, but the scope and limitation for criminal prosecution for these acts are much stricter. Specifically, according to the provisions of Clause 1, Article 222 of the Penal Code 2015, the damage threshold is causing damage more than 100 million VND or under 100 million VND but had a previous conviction for this behavior; the penalty shall be a fine of up to 20 years imprisonment and plus additional fines is a ban from holding position for a maximum of 5 years, may be confiscated in part or whole of property. Besides, for the regulations offence on bidding has serious consequences do not apply monetary fines to individuals and commercial legal entities as well. It is thought that in the future, it is necessary to re-examine the rationality of this regulation in Article 222 of the Penal Code 2015 in the direction of combining the acts at Points b and c, Clause 1, Article 222 into Article 217 of the Penal Code 2015.

### ***3.2. The correlation between measures to deal with unreasonable anti-competitive agreements***

The law investigating results on dealing with anti-competitive agreements in the US indicated the violations of competition laws, especially on controlling anti-competitive agreements, the subjects shall be fined up to US \$100 million for businesses, US \$1 million for individuals with up to 10 years imprisonment (1). At the same time, the enterprise must compensate 3 times for damages when individuals or related parties made claims(2). Meanwhile, in other countries such as Japan, France, and Canada, the measures to handle violations of the law on controlling anti-competitive agreements with administrative fines will be up to 10% of the total turnover's enterprise of the preceding year. Moreover, such countries also apply the monetary fine sanction by combining the criminal law and the application of compensation for damages in civil lawsuits. The findings showed the

approaches to dealing with violations of the law on controlling anti-competitive agreements of the US and those countries are different but very strict. While competition laws in Japan, Canada, and France impose a fine of 10% of the total revenue of the preceding year, the US competition law sets a fine of US \$100 million with businesses, but the US focuses on compensating for consumers and stakeholders through the compensation of 3 times the actual damage. The above analysis shows that whether the fines are they are also huge sums of money. Businesses that violate the laws on controlling anti-competitive agreements also pay a heavy price for committing an offence the law on controlling anti-competitive agreements. Meanwhile, although the Vietnam Competition Law 2018 supplemented the regulation on the investigation of criminal liability for violations, this law has not been approach when dealing with the relationship between administrative sanctions and monetary fines in criminal law in controlling anti-competitive agreements. As a result, the combination of the Competition Law 2018 and the Penal Code 2015 will give the total amount of fines in administrative penalties and monetary fines for penal liability investigation under the criminal law is still quite low (3). In the author's opinion, that low level of fines will not guarantee deterrence, prevention and punishment for serious anti-competitive agreements, which are extremely dangerous acts for social, market distortions, serious violation of economic management order. In the context of the current business environment in Vietnam, when the cohesion of both surface and underground according to the custom of trading with friends has a ward, anti-competitive agreements have a chance to happen more and more. sophisticated with many increasingly crafty tricks. It can be said that the Competition Law 2018 has breakthrough provisions in the approach of managing competition restriction agreement acts. However, in order to achieve the objectives set out in the competition law in the new period, the legal regulations on controlling and handling anti-competitive agreements still need to be further improved in strict direction. engraving more. The law on controlling anti-competitive agreements must consider highly effective solutions to successfully control and control dangerous acts for this society. To ensure sufficient deterrence and prevention, the author proposes recommendations for sanctions for serious anti-competitive agreements as follows:

The State should focus on studying the penalties and levels and combine them to further improve the penalty framework for acts of serious anti-competitive agreements (when the level of criminal handling is reached). Accordingly, raising the fine level for violations is fundamental. With heavy financial penalties, traders and business entities will no longer want, dare and cannot negotiate to restrict competition in order to deform the market. As can be seen, in relation to the provisions of the Competition Law 2018, the fine level specified in Article 217 of the Penal Code 2015 applies to serious competition restriction agreements such as price fixing agreements, Agreement to divide the market, agreement to limit the quantity ... is too low. It can be said that, from VND 200 million to VND 1 billion - is the fine as prescribed in Clause 1, Article 217 of the Penal Code 2015, which is too little, too small in the capital flow of traders or businesses - the basic entity. and the most important of the economy (market). Or as a fine of only 1 billion VND to 3 billion VND as prescribed in Clause 2, Article 217 of the Penal Code 2015, when the subject of this crime is already in aggravating frame: twice up; use cunning, tricky tricks; abusing market dominance; gaining illicit profits of 3 billion or more; causing damage to other people of 5



billion VND or more ... is also too low, not enough to deter and prevent crimes. When traders are thinking of using "tricky tricks", secrets, long-term insidious, the fine as the current regulations are insignificant. They are willing to do so, because the amount of illicit profits is immeasurable when embarking on anti-competitive agreements. Therefore, according to the author's perception, it is necessary to amend the regulations on fines for anti-competitive agreements. Accordingly, Article 217 of the Penal Code 2015 should be amended in the direction of removing regulations on fines for violations of the law on controlling anti-competitive agreements; or provisions according to the instructions for reversing the stipulation of fines in the Competition Law 2018. The conspicuous inadequacy is that, Article 217 of the current Penal Code 2015 shows that criminal constituents, violations of competition regulations are currently being designed with material elements. It means mandatory signs that are subjective to the object's crimes, including: criminal acts, consequences of criminal acts; and the causal relationship between the act and the consequences caused by the offense. The objective behavior of this crime will be discussed below. However, in order to be able to prosecute criminal responsibility for the person committing this crime, the investigating authority needs to prove the consequences of the criminal act; namely, damage to others from 1 billion dong to less than 5 billion dong or illicit profits from 500 million dong to less than 3 billion dong. At the same time, it is necessary to prove the causal relationship between the offense and the consequence. In fact, to prove the consequences of violating competition regulations is not easy for the investigating authority. For example, in order to prove the consequences of an agreement to divide the consumption market, it is very difficult to find evidence proving damage to customers or illicit profits gained. Similarly, it is more difficult to prove the causal relationship between a criminal act and its consequences. Meanwhile, we realize that *the crime of competition law constitutes a form, with only one mandatory objective element of the crime is a dangerous act, the degree of high danger to society*. Accordingly, the investigating authority does not need to prove the consequences but only proves that the offender has committed an objective act of violation of competition law. This stems from the fact that the damage caused by anticompetitive behavior is very hard to prove. At the same time, the investigation of anti-competitive agreement acts requires investigating authorities to overcome various barriers and challenges, such as the ability to analyze markets and economic factors, supply-demand relations as well as collecting evidences and documents necessary for prosecuting violations. Because of this, the Organization for Economic Co-operation and Development (OECD) recommends that legal proceedings be prosecuted as soon as possible violations are identified, without having to expand the economic factors of the case.

Another factor to consider when considering the benefits of criminal handling of competition law in particular and economic violations in general is that the benefits must be larger than the necessary costs for criminal prosecution of such acts. Criminal prosecution and enforcement require major expenses for activities ranging from investigations, prosecutions, trials, to sentence execution and prison operation. Not to mention, investigating resources are limited, while determining a violation of competition restriction is very complicated, requiring investigating agencies with professional knowledge and skills. market research, market analysis, supply-demand relationship... The dispersion of limited resources like that will not bring about the expected results.

In our opinion, the provision of reference back to the provisions of the fines in the Competition Law 2018 is the option with many advantages. The reason is that the fine is one of the important regulations in controlling acts of anti-competitive agreement. The maximum fine for a violation of the anti-competitive agreements is 10% of the total turnover of an enterprise that commits violations in the relevant market in the fiscal year immediately preceding the year of committing, but lower than the lowest fines for violations specified in the Penal Code. On the other hand, in terms of legislative practice in Vietnam, the authorities in law enforcement will be the agencies assigned the task of drafting the law or will be deeply involved in the process of contributing and amending law. From that perspective, we can see that it is more feasible to refer to the application of the 2018 Competition Law, or it is feasible to amend this Law, the effectiveness will be better than the revision of the Penal Code on dealing with violations of anti-competitive agreements. Moreover, in order to quantify the penalties for anti-competitive agreements, it is necessary to have implementation guidelines. The choice of the amendment to the Penal Code will be more difficult in guiding the implementation of this content than in the reference to the application of the Competition Law.

***3.3. Two leniency policies in the Competition Law 2018 and regulations exempting criminal liability and penalties for legal entities in the Penal Code 2015 exist in parallel, creating overlaps, making it difficult for law enforcement***

Article 112 of the 2018 Competition Law stipulates a leniency policy for enterprises that voluntarily inform to help the National Competition Commission detect, investigate and handle acts of anti-competitive agreements prohibited prescribed in Article 12. Competition Law 2018 (Anti-competitive agreement is prohibited). Accordingly, enterprises can be exempted or reduced the penalty level if they meet the conditions of leniency policy. The exemption level may be up to 100% of the fine level prescribed in Point a, Clause 7 of Article 112 of the 2018 Competition Law. This is a new provision that has not been applied in the Competition Law 2004. This new point encourages enterprises to proactively declare to help the National Competition Commission detect and handle anti-competitive agreements prohibited. However, the scope of leniency, which is completely exemption or reduction of sanction levels, applies only to administrative remedies. At the same time, the leniency policy does not apply to individuals. Meanwhile, according to Article 88 of the Penal Code 2015, commercial legal entities are only exempt from the penalty "*after all the damages have been overcome and compensation for damages caused by the offense has been paid*". Because commercial legal entities are the subject of a violation of competition regulations, this provision may lead to the fact that a legal entity has been granted administrative immunity due to voluntarily declaring an anti-competitive agreement but still be sanctioned under Clause 4, Article 217 of the Penal Code 2015. In this case, the purpose of the leniency policy in the Competition Law 2018 is difficult to achieve. In addition, it is necessary to supplement the provisions that allow commercial legal entities to be exempted or reduced with corresponding penalties specified in Clause 4, Article 217 of the Penal Code 2015 if they have met the conditions of leniency policy in accordance with the Competition Law 2018.

For individuals, under the provisions of Point c, Clause 2, Article 29 of the Penal Code 2015, an offender may be considered for exemption from criminal liability if he/she "*confess his/her crime, contribute effectively to the crime discovery and investigation, try to minimize the consequences of the crime, and have made reparation or special contributions that are recognized by the State and society*". Thus, in principle, offenders violating competition regulations can be exempt from criminal liability if they meet this condition. However, considering the nature of the acts of anti-competitive agreements with high secrecy, in order to encourage the offenders to proactively report to help the authorities detect and handle crimes in a timely manner, there should also be specific provisions to ensure that criminals can automatically be exempted from penal liability if they meet the conditions of leniency policy instead of arbitrary application (subject to the evaluation of the competent authority).

In summary, as analyzed above, the parallel existence of two leniency mechanisms in the Competition Law 2018 and the penalty exemption in the Penal Code 2015 for the same act of anti-competitive agreements will make it difficult for enterprises when declaring and create overlap in law enforcement, especially in collecting evidence to investigate and break anti-competitive agreements. Therefore, in the author's opinion, it is necessary to study and supplement specific regulations on grounds and conditions for exemption from penalties for legal entities, and exemption from criminal liability for individuals for violations of competition regulations such as above.

#### **4. Discussion and Conclusion**

Dealing with anti-competitive agreements is not simple and easy. Strict remedies on serious competition restriction agreements have made the law on controlling and handling anti-competitive agreements more and more complete. However, the limitations still exist in the mechanism of handling violations as analyzed above, so that in the present and near future, Vietnam needs to improve the relevant laws. The article has tried to point out a few things like that, looking forward to your valuable comments.

#### **5. References**

1. Penal Code 2015
2. Competition Law 2014; Competition Law 2018
3. Nguyen Anh Tuan (2018), "*Commenting on violations of the Competition Law (Article 217)*", web: Hanoi Procuratorate University;
4. Tran Viet Dung, Pham Hoai Huan (2019), "*Handling of violations on anti-competitive agreements*", Legislative Research Magazine No. 2+3 January 2019;
5. Tran Thi Nguyet (2008), "*Regarding anti-competitive agreements*", The Journal of State and Law, No. 1 (237)/2008;
6. Pham Phuong Thao (2019), "*Practice of handling anti-competitive behavior which is prohibited under current Vietnamese law and some solutions to complete*", The Journal of Industry and Trade 27/6/2019.

# MORE AWARE OF THE VIETNAM'S DEVELOPMENT WAY THAT NGUYEN AI QUOC FOUND IN THE EARLY 20TH CENTURY, OPPORTUNITIES AND CHALLENGES FOR VIETNAM'S DEVELOPMENT

*Assoc. Prof. Tran Thi Thu Hoai*

*thuhoaitranthi77@gmail.com*

*Faculty of Political Theory, National Economics University, Hanoi, Vietnam*

## **Abstract**

*The way to save country that Ho Chi Minh found for the people of Vietnam in the early twentieth century is to liberate the people according to the proletarian revolution trajectory. This choice has proven its correctness in both theory and practice. The paper contributes to clarify advantages and disadvantages, opportunities and challenges that this road has created for the development of Vietnam during the past century and the present period. We have exploited and used all the advantages the opportunities to create miraculous victories in two big wars to protect national independence in the twentieth century. The difficulties and challenges are to accumulate internal resources large enough to overcome the long gap between the poor and backward state of the country and the real goal of socialism. The key issue to overcome difficulties and challenges is to consolidate the Communist Party of Viet Nam, make the Party really "mobilize the force and creativity of the people", promote enormous strength from the people.*

**Keywords:** *Ho Chi Minh, national independence, proletarian revolution, thoroughly.*

## **1. Introduction**

The way to save country that Ho Chi Minh found for the Vietnamese people in the early twentieth century is the proletarian revolution. He asserted: Wanting to save the country, to liberate the nation, there is no other way than the proletarian revolution. This truth has been analyzed by domestic and foreign researchers throughout the century and affirmed its correctness. A hundred years have passed since Ho Chi Minh's leader affirmed this choice. The theoretical and practical, objective and subjective grounds have been put forward to demonstrate the only option. This correctness has been plowed back by the researchers. However, looking back at the history and observations of Vietnam today in relation to other countries in the regional, international and contemplative communities, we may find many interesting things.

One of the arguments that researchers always make to affirms the choice of Ho Chi Minh leader is only right in the context of Vietnam at that time is the bourgeois revolution is an "incomplete" one. It is because, the country is independent, but the working people still do not have a prosperous and happy life, so Ho Chi Minh denied the bourgeois revolution. Meanwhile, the October Russian Revolution, the world's first proletarian revolution,

achieved the thoroughness. Therefore, this is one of the important reasons for Ho Chi Minh to decide to follow the way of Lenin, the way of the October Russian Revolution. As he said, when he studied the history of American revolution: "In America, although the revolution has been successful more than 150 years, the peasants are still miserable, they still worry about making the second revolution. It is because the American revolution is the bourgeois one which is not thorough"[4; 291,292]. He concluded on the paradox: "The French or American revolution is not radical. In theory, it is the republic and democracy but in fact it oppresses workers and peasants inside and oppresses the colonies outside" [4; 296].

When studying the October Russian Revolution, he concluded: "In the world now, only the October Russian Revolution is to succeed and radically succeed, that is, people enjoy true happiness, freedom and equality. It is not false happiness, freedom and equality as the French Empire bragged in Annam" [4; 304].

Thus, it is the "not yet arrived" of the bourgeois revolution that is one of the reasons why he did not choose the way of bourgeois revolution for Vietnam. And also the "arrival" of the October Russian Revolution is one of the many reasons that he chose Vietnam to follow the way of the October Russian Revolution.

And he also advised, "We have sacrificed to make revolution, we should do it thoroughly. When the revolution succeeds, political power is assigned to a large number of people, not a few people. Thus, we do not have to sacrifice many times, so that the people can be happy" [4; 292].

Research over the past centuries on this content has shown the "badness" of a non-radical revolution and the "beauty" of a thorough revolution. That is true but not convincing enough. Looking at the duality of the problem, with a dialectical view, it can be seen that a revolution "not yet arrived" or "arrived" has its beauty or its badness.

This paper was completed based on the theoretical socio-economic morphology of Marxism. The author also explored the duality of the problem in the Marxist contradictory law. Specific historical principles, development principles are also fully exploited by the author. This is an important methodological basis for the author to look back on history objectively that the product is this article.

## **2. Results**

### ***2.1. A "not yet arrived" or "arrived" revolution has both advantages and disadvantages***

**With a "not yet arrived revolution",** the badness as Ho Chi Minh pointed out that "the workers and farmers are still miserable" because the government is in the hands of few people. So that, the ruling class used the government as tools to oppress workers both at home and abroad. And because of the "not yet arrived" nature, the revolution has to take place again and again to reach the destination where the people really enjoy a prosperous and happy life. "The revolution has been carried out 4 times already. At present, French farmers and peasants are still planning to make another revolution to escape oppression" [4; 296].

However, the advantage of a “not yet arrived” revolution is that it takes less time and is easier to implement. According to the development logic that Marxist Leninism itself points out, that revolution made a brief transition, direct transfer step from this socio-economic form to the next socio-economic form immediately after it (example: transfer step from feudalism to capitalism).

And now, nearly two decades of the twenty-first century have passed, French farmers and peasants have not "escaped from the oppression" because French society is still a capitalist society. But in that social order, France still developed and was still one of the countries among the top developed countries in the World. When will they make the next revolution to achieve a radical revolution, "arrived" one then it is still a secret?

**With an "arrived revolution"**, the beauty as Ho Chi Minh has shown that: "people enjoy the true happiness, freedom and equality". And the good thing is that because the revolution has already arrived, it only has to be done once, not many times. However, with an "arrived revolution", the disadvantage is that it is very difficult to do because it must take a long jump, a breakthrough development. In Marxist Leninism, it is the indirect transfer step that skips one or several socio-economic forms. Such a long jump requires a lot of time, big accumulation and careful preparation in many aspects to success.

Vietnam has made an "arrived revolution" since August, 1945. Political power is vested in the masses. Two-thirds of the century has passed, whether Vietnamese workers and peasants have enjoyed true happiness, freedom and equality yet. Have they really been liberated in labor or they still depend on manual, rudimentary, energy-consuming labor tools? These questions should be asked so that we have a correct, adequate view and clearer orientations for the country's future?

## ***2.2. "Not yet arrived" or "arrived" status is not the only criteria that Ho Chi Minh depended on to choose the way to liberate the nation***

We need to look back on the proletariat revolutionary way that Ho Chi Minh leader found for Vietnam in the early 20th century. We scrutinize on the basis of his data, not our subjective speculations. From there, we will define the current and future way of the country better.

Apart from the criteria of the "arrived" or "not yet arrived" status of the revolution that Ho Chi Minh leader chose this revolution, refuse another revolution, in my opinion, one of his arguments that the researchers need to make it clear that: Ho Chi Minh quoted no less than once the words of Angdre Giuylieng: “Many indigenous people come to socialism less because of intellectual attachment to socialist principles but because of the search in parliament, in public opinion a support against the colonists who exploited them”[3, 32]. In another paragraph in Ho Chi Minh’s article: "An indigenous person who comes to socialism, has no meaning other than seeking support to against exploiting colonists" [3.32]. This means that indigenous people (including Ho Chi Minh) come to socialism because they seek support to liberate the people but do not really understand what socialism is? This situation is the same as when Ho Chi Minh came to the Communist International Organization. Because he saw the this Organization cared about and supported the revolution of the

colonial countries' people so that he wanted to joint, but he didn't really understand what the Communist International Organization really is like? From sensory perception to rational cognition, from the first observations of allies forces in the revolution of national liberation to form a theory about the future state of the nation is the indispensable logic of the process awareness. The cognitive process of Ho Chi Minh is not outside this inevitable logic.

It can be seen that setting a strategic goal for moving on to communism and socialism is a way for Ho Chi Minh to find the motivation and allied forces for the revolution to gain independence from imperialism and colonialism. The problem is that, after achieving the direct goal, achieving independence, the road ahead needs to be concretized and applied in accordance with national practice, needs to adhere to the core criteria that Ho Chi Minh pointed out : A way must bring the happiness to the working people.

### ***2.3. What has Vietnam taken advantages of a radical revolution? What is the difficulty that a radical revolution poses to Vietnam today?***

The long-term goal of moving communism and socialism has gathered the great unity's strength of the entire nation and all other possible strengths of the Vietnamese people to create a power's huge source to defeat the big enemies who develop a higher socio-economic form than Vietnam. This is the great opportunity and advantage that the way of national liberation in the proletarian revolution trajectory created for the Vietnam.

Going back to the history, Marx's theory of socio-economic morphology answered the question: Why did Japan and Thailand escape the fate of being annexed and enslaved by the West in the second half of the nineteenth century? The answer is: Because these two countries had implemented reforms to become developed countries at the level of the West. Becoming capitalist nations to win over its capitalist enemies is the wise choice of Japan and Thailand under the realistic conditions allowed by these countries. Meanwhile, Vietnam had no reform. We were still a feudal country and would be occupied and ruled by a higher level developed enemy. It was the French capitalist empire.

Continuing that logic to answer the question: Why could a poor, backward feudal country like Vietnam be able to win over the two highly developed capitalist enemies, the French colonialists and the American imperialists in the 20th century? The answer in this case is: Because of setting ourselves on a high trajectory of humanity, communism and socialism (This is the goal that Ho Chi Minh's revolution looking forward to the future), the revolution of Vietnam has mobilized to the utmost the internal strength of the nation, the hidden strength of the nation has been revealed and promoted to a high degree to create the total strength to defeat the strong enemies. The thousand-year mettle of Vietnamese people, the culture of not resisting the miserable slavery of the Vietnamese people resonating with a bright future towards a "four-sea-one-family" society where having no exploited people has created a huge power to help us fight and win. This is the great opportunity that the way of national liberation in the proletarian revolution trajectory has brought us. Such affirmation makes us realize one thing clearly: The opportunities and advantages we have used already. These opportunities have helped Vietnam to get illustrious victories in our nation's history in the twentieth century. **So what are the difficulties and challenges that this way creates for our nation?**

Liberating the nation by the proletariat revolution means to admit an indispensable logic: Achieving independence and then building the country along the socialist way, advancing to the socialism.

The biggest difficulty is the distance between the starting point and the destination. From the 60s of the twentieth century, the Communist Party of Vietnam has been well aware of this: The biggest characteristic of the North when building socialism is: "From an outdated agriculture goes straight up to socialism without going through development of capitalism" [2; 118]. And now, when more than half a century has passed, 12th Congress of Vietnamese Communist Party taking place in January 2016 confirmed that our country has "become a middle-income developing country". However, "creating the foundation to basically become an industrialized country in the direction of modernization does not achieve the setting goals" [1;18]. In all areas of social life, there are too many inadequacies, limitations and shortcomings. Regarding the economy: "In the recent 10 years, macroeconomic has sometimes been unstable... Quality, efficiency, productivity of social labor and the competitiveness of the economy are still low"[1;18]. In other respects: "The development in terms of economy, culture, society and environment is unsustainable. Many pressing issues arise, especially social issues and social management have not been fully realized and effectively addressed. There are potential factors and risks of social instability. In some respects, some fields, a part of the people have not been fully and fairly enjoyed the fruits of the renewal process" [1;18]. That is the affirmation of the Communist Party of Vietnam, a comprehensive leadership force in all aspects in Vietnamese social life. If being viewed from other perspectives, from the assessment of different social forces, non-governmental organizations, international organizations on our country's socio-economic development, the picture is more gloomy. Therefore, the social state in which "people is rich, country is strong, society is democratic, fair and civilized" actually exists is too far away.

Looking objectively and fairly with the history, it can be affirmed: We set a destination that is socialist society, communism, a destination at much higher level than capitalism in many aspects but our starting point is too low in many aspects. Along with we took the subjective mistakes in planning the country's development way. Now, we still have to make great efforts and try very hard to reach the current level of European countries and America, capitalist countries. We have to recognize this fact clearly to plan measures to overcome challenges, difficulties to go to destination. Our goal is higher than them, but to reach the goal is still time with great efforts of both the political system and the people to overcome challenges, difficulties, turn difficulties and challenges into motivations.

"Ignoring capitalism", we do not have to go through a traumatic, tragic period of history with a wealthy minority exploiting the sea of the poor that the Wall Street crisis had revealed. "Ignoring capitalism", we do not have to face with the painful economic and social problems that capitalist countries experienced. But we also have no chance to enjoy the wonderful fruits of bourgeois civilization. Through these two aspects, we will be confident on the way that beloved President Ho Chi Minh has chosen for the people with rich experiences along with his erudite and brilliant wisdom. .



**The key question for the nation at this time is:** To continue to step firmly on the way chosen, the prerequisite is that the Vietnamese Communist Party must be strong. We need to do everythings to make the Party "become the highest representative organization of the working population, the manifestation of wisdom, honor and conscience of the nation" [5; 412].

How can the Party really be a "vanguard"? How can the Party "arouse the power and creativity of the people"? [5; 412,413]. The Party must know how to rely on the people, take the people as the root? How can the Party effectively apply the principle of criticism and self-criticism as "a miraculous method to correct and eliminate defects or mistakes" [5; 413]. The work that the Party needs to do is "pay close attention to raising the Party's working level" [5; 413], raising the "political activeness, organizational solidarity and ideological level of the party members" [5, 413]. All of these can be done when the Party "has no other interests than that of the people and the country" [5; 413]. This problem is too difficult to find the solution in the present conditions. When the situation of party membership to promote officials, to be an official to gain personal benefits is quite popular today. And when "the decline of ideology, politics, morality, lifestyle in a part of cadres and party members was initially prevented but not repelled; a very few cadres and party members, who have been dragged, provoked, incited, bribed by bad elements, have thought, acted against the Party and the State" [1; 176].

#### ***2.4. What does Vietnam need to do to continue going the way of Ho Chi Minh leader?***

What is the Communist Party of Vietnam doing to continue the way that Ho Chi Minh had found for the people of Vietnam? The problem is to accumulate the nation's internal strength to shorten the distance from reality to the goal.

That internal strength is being attempted by the Communist Party of Vietnam -the leadership of the country- along with all Vietnamese people through the revolutionary way system planned by the Party.

***The first and the most important strength is the economic power.*** We are trying to create it by the strategy of promoting industrialization and modernization. The Tenth National Party Congress (2006) affirmed that the goal is to soon bring our country out of underdeveloped status, create the foundation to basically become an industrialized country towards modernization by 2020. Congress XI (2011) continues to develop: From now until the middle of the twenty-first century, our country would become a modern industrial, socialist-oriented country. The XII<sup>th</sup> Congress affirmed to "improve the quality of industrialization and modernization" [1, 31].

Industrialization and modernization in Vietnam is associated with the development of the knowledge economy; takes advantage of human resources as a basic element for rapid and sustainable development; science and technology are the foundation and driving force of industrialization and modernization; industrialization and modernization associated with development of socialist-oriented market economy and international economic integration; Fast, effective, sustainable development and economic growth is associated with the implementation of social justice progress and environmental protection.

The above developed orientations are basic measures to develop the social production forces. In parallel with the development of production forces, the establishment of appropriate production relations is promoted by the way of developing a socialist-oriented market economy in order to liberate production resources, constantly improve people's living standard.

In terms of ownership, it is the recognition of all forms of ownership through the development of multi-sector economy. Economic sectors are equal before the law. Regarding the management mechanism, it is a market mechanism with macroeconomic management of the socialist state under the leadership of the Party. About the social orientation and distribution, we have to make progress and social justice right in every step and every policy of development. Successful implementation of the industrialization and modernization policy and building a socialist-oriented market economy is the basic factor to create economic internal force, to ensure the Vietnam's power to operate on the history's orbit that proletariat revolution had placed us on.

***That power is political power.*** It is the continuous improvement of the political system of socialism with the leadership of the Communist Party, the role of social management of the State and the strength of socio-political organizations. We have to complete each components of the political system, the relationship inside and outside the system, especially the relationship of the political system with the people and society. By doing that, we are creating political power, together with economic power, we can operate on the way chosen by Ho Chi Minh leader.

***It is also the strength of an advanced Vietnamese culture*** imbued with national identity, integrating without dissolving. The strength is generated from the efforts to solve social problems such as the reduction of poverty, encouragement legal enrichment. It is also the strength of foreign policy of the independence and autonomy that increasingly confirms the position of Vietnam in the hearts of international friends.

Thus, with a comprehensive revolutionary policy's system from the economic, political fields to cultural, social fields; from internal to external relations; the Communist Party of Vietnam plays a leading role to the State and society above all the basic areas of social life. These have been creating power for the country in all aspects that make foundations for us to operate on the way that President Ho Chi Minh found for the Nation from the early twentieth century.

### **3. Conclusion**

Ho Chi Minh outlined the Vietnam's development way. He also showed us the basic tools to perform. The key is how we penetrate those ideas and apply creatively on the difficult and challenging journey to reach a bright future with the true values of happiness and freedom.

The way of liberation that Ho Chi Minh found for Vietnamese people in the early twentieth century has both advantages and disadvantages, opportunities and challenges. The advantages and opportunities we have exploited and used very well to create great victories in the struggles with major powers (France, the US) in the twentieth century to maintain

independence. Difficulties and challenges we are facing to overcome the great distance between reality and destination. The key issue is to strengthen the leadership of the Communist Party of Vietnam. To continue to follow the way that Ho Chi Minh leader chose, the Vietnamese Communist Party has planned a comprehensive guideline system to build and develop the country on all aspects from economy, politics to culture, society, from internal to external affairs. Returning to the instructions of the Ho Chi Minh leader, we see when the Party knows "to mobilize the forces and creativity of the people" [5; 412,413], to rely on the people, to take the people as the root, Socialism will become closer and closer, the way that Ho Chi Minh chose for our nation will have a chance to come true.

#### 4. References

1. Central Propaganda and Training Commission (2016), *Learning materials for documents of the 12th National Congress of the Vietnamese Communist Party*.
2. Ministry of Education and Training (2014), *Revolutionary Curriculum of Vietnamese Communist Party*, National Political Publishing House, Hanoi.
3. Ho Chi Minh (2011), *Complete volume, volume 1*, National Political Publishing House, Hanoi.
4. Ho Chi Minh (2011), *Complete volume, volume 2*, National Political Publishing House, Hanoi.
5. Ho Chi Minh (2011), *Complete volume, volume 9*, National Political Publishing House, Hanoi.

# COMPLETE THE REGULATIONS OF THE LAW ON ANTI - COMPETITIVE AGREEMENT IN LABOR

*Prof. Dr. Tran Van Nam*

*namtv@neu.edu.vn*

*LLM. Tran Thi Nguyet*

*nguyettt@neu.edu.vn*

*Faculty of Law, National Economics University, Hanoi, Vietnam*

## **Abstracts**

*Inadequacies in the regulations on anti-competitive agreements in the field of labor law is a huge problem, arising from the absence of legal regulations. This has made many legitimate benefits of employers not regulated by law as an object protected by anti-competitive agreement. The law and the labor contract parties do not specify the objects protected by anti-competitive agreement. Lawful interest of workers are not guaranteed. The law has no regulations on dispute resolution mechanism relating to restraint of competition. The post focuses on analyzing the inadequacies of the law on anti-competitive agreement in Labor Law; At the same time, the post come up with some solutions to improve the law on anti-competitive agreement in labor law.*

**Key word:** *Inadequacies, labor, improve, anti-competitive agreements.*

## **1. Introduction**

An agreement to restrict competition between employers and employees is no longer a new issue in Vietnam. In particular, in the current market economy, when the mobility of workers increases, this agreement is a very important role. The term "anti-competitive agreement" was mentioned in the Competition Law 2004, nowadays the Competition Law of 2018, but adjusted relationship between economic subjects to against unfair competitive practices. From another perspective, the Intellectual Property Law 2005 (amended and supplemented in a number of articles in 2009 and 2019) also recorded acts of infringing upon rights to business secrets but has not gone into detail to correct the problem that the author is studying. Clause 2, Article 23 of the 2012 Labor Code (nowadays the 2019 Labor Code) allows employees and employers to agree on issues related to the protection of business secrets and public secrets. turmeric. However, the aforementioned provision does not recognize other types of anti-competitive agreement and is still very general in nature. This has made it difficult to interpret and apply the jurisdiction of the trial and does not create a solid legal basis for employers when negotiating with workers. On the other hand, the process of globalization takes place strongly, followed by the continuous transformation of the economy, especially in the current context, Vietnam has become member of the ASEAN Economic Community (AEC) and In many other international organizations, the competition between employers is becoming increasingly fierce, leading to more and more disputes related anti-competitive agreement in labor relations.

## **2. Method**

Specific methods used to study the topic of completing the current legislation on labor restriction agreement in the labor market follows:

### *- Method of interpretation*

This method is applied to research the basic theoretical issues controlling the anti-competitive agreement.

### *- Methods of analysis, comment*

This method is applied to present specific provisions of the international legal system as well as the Vietnamese legal system on anti-competitive agreement.

### *- Method of comparing jurisprudence*

This method is also used to study the provisions of international law, to study international case law and to compare with the laws of Vietnam to evaluate the compatibility, conformity. In this case, it is necessary to draw experience and specific solutions in the laws of other countries, based on which the proposed solution to improve Vietnam in this regard.

### *- Systematization and synthesis method*

This is the research method used to generalize and draw conclusions and basic proposals about the author's new contributions to the improvement of Vietnamese law on control of anti-competitive agreement.

## **3. Results.**

### **3.1. Research question**

**Question 1:** Inadequacies in the regulations of current law on anti-competitive agreement

**Question 2:** Complete the regulations of current law on anti-competitive agreement

### **3.2. Research results**

#### *3.2.1. Inadequacies in the regulations of current law on anti-competitive agreement*

Inadequacies related to anti-competitive agreement mainly stem from the absence of a complete regulatory regulation. These inadequacies also come from subjective will of the parties, mainly employers when establishing anti-competitive agreement. Identifying the arising inadequacies and their causes is important in perfecting the provisions of the law as well as helping the parties avoid many risks in the process of applying anti-competitive agreement.

3.2.1.1. Firstly, many legitimate benefits of employers are not regulated by the law as an object protected by anti-competitive agreement.

The labor law stipulates that the subjects protected by anti-competitive agreement include business secrets and technological secrets. Meanwhile, there are many other legitimate business interests of workers. be protected. Although the law has not specified yet, in a number of existing anti-competitive agreements, there exist restrictions to protect

benefits that are not business secrets or technological secrets. For example, Labor regulations of Tan Tao group stipulates : *“During the period of two (2) years after the termination of the employment contract, the worker, within the scope of the Company's operations, will not: (i) bid, accept or accept offers or offers. inviting business of the Company's Customers or the Related Companies, or assisting any individual or legal entity in this or (ii) contacting the Company's Customers or the Related Companies to prevent doing business with or negotiating with the Company or the Company concerned, or hindering any person or entity from doing so.”* This causes inconsistencies between applicable laws and practices. At the same time, it shows that the current provisions of the law are not sufficient to meet the needs to protect the legal rights of workers in reality.

3.2.1.2. Second, the law and the parties have not specified the objects protected by anti-competitive agreement.

This problem is caused by both the absence of legal provisions detailing the subject matter protected and the subjective will of the parties when no specific agreement is need security.

Legally, there are two objects, which are protected by anti-competitive agreements: business secrets and technological secrets. Regarding technology secrets, currently there is no specific law, so if the parties only agree on a general agreement, it is difficult to determine. For business secrets, the Intellectual Property Law provides definitions as well as criterias to identify protected business secrets. Intellectual Property Law also does not specifically list information considered trade secrets. Moreover, business secrets are protected on the basis of fair use and without registration. This makes it difficult to identify information considered business secrets.

In fact, most anti-competitive agreements are built in a general way which is based on the provisions of the Labor Code but has not specified details yet, except for the issue of time limits and compensation levels.<sup>1</sup> It causes a lot of difficulties for the parties when implementing anti-competitive agreements. In this agreement, the parties have opposite rights and interests. Employees tend to narrow the scope of information that needs to be kept confidential while employers want to expand these objects to the maximum extent. When disputes occur, it is difficult for the parties to reach agreement. If the matter is resolved at the proceedings, the determination of the object to be protected will depend greatly on the will of the agency.

3.2.1.3. Thirdly, the legal rights of Employees are not guaranteed

In labor relations, employees are always considered disadvantageous due to their dependence on employers during the labor process. Therefore, labor laws always tend to protect the rights and legitimate interests of workers. However, at present, when establishing an anti-competitive agreement, employers do not specify the benefits that workers enjoy or have but are not commensurate with the restrictions that Labor must enforce. To increase employee responsibility for an anti-competitive agreement, employers also set a huge

---

<sup>1</sup> <http://luatsuhcm.com/nghien-cuu-an-pham/Bai-viet/Thoa-than-han-che-can-h-paintings-in-spirit-labor-dong-phap-luat-and-thuc-tien-82/> (accessed on 20/20/2020).

compensation or penalty. It is worth mentioning that despite anticipating the disadvantages they suffered when establishing anti-competitive agreements, many workers still "voluntarily" signed. This is considered a "passport" for them to get the job they dream of.

An anti-competitive agreement is inherently restricting workers' freedom of employment and freedom of business to protect legitimate business interests of employers. Compensation for restrictions that employees must enforce is one of the employers' natural obligations. The absence of specific regulations and guidelines has created conditions for employees to take advantage of agreements on restricting competition and infringing upon their legal rights.

3.2.1.4. Fourthly, the law does not have any provisions on dispute resolution mechanism related to anti-competitive agreements

One of the issues causing quite a lot of controversy in reality today is whether the dispute related to anti-competitive agreement is labor dispute or not. It directly affects the determination of the authority of the procedure, judicial position as well as applicable law.<sup>2</sup> In a recent dispute practically related to the anti-competitive agreement, there were many different views on the authority to resolve disputes. The content of the case is summarized as follows<sup>3</sup>:

Company Limited X has signed an information security agreement and is not competing (hereinafter referred to as NDA) with Ms. Do Thi Mai T, of which Clause 1, Article 3 of the NDA has the following contents: *"During the process of an individual recruiting or working with Company X and within twelve (12) calendar months after termination of employment or termination of employment with Company X, irrespective of the cause of termination termination of employment or termination of employment, the individual agrees not to, directly or indirectly, and across the territory of the territory, perform the same or similar work on a job basis in any job. any business competing with Lazada.vn (...), currently or in the future will compete with the business of Lazada.vn, Recess and / or its affiliates and partners X Company "*. The parties also agree that if a dispute occurs, it will be resolved by arbitration. Because Ms. T violated NDA, Company X sued Vietnam International Arbitration Center (VIAC) in Ho Chi Minh City to resolve.

In its ruling, the Arbitration Council has said that the anti-competitive agreement is an independent civil transaction with the Labor Contract, so the above dispute is not a labor dispute, the Arbitration Council is an the authority that has jurisdiction to resolve the dispute. Disagreeing with the decision of the Arbitration Council, Ms. T has sued the City People's Court. Ho Chi Minh requested to cancel this ruling because the anti-competitive agreement was not within the jurisdiction of the Arbitration Council. Although, the court still thinks that the arbitration council has jurisdiction, but the method of argument is different. Accordingly, the court does not assert this dispute is a labor or civil dispute but based on the applicant's litigant status "Pursuant to Clause 2, Article 2 of the Commercial Arbitration Law stipulates:" Jurisdiction to resolve disputes of Arbitration: Disputes arising between the

---

<sup>2</sup> Lac Duy (2018), "NDA dispute: Who voluntarily wears" her bracelet "?", Saigon Economic Times, No. 28, p. 58.

<sup>3</sup> See also Appendix: Decision 755/2018 / QD - PQTT on the request to cancel the arbitral award of the People's Court of Ho Chi Minh City on June 12, 2018.

parties in which at least one party has commercial activities ". Company X is a trader, has a business registration and has commercial activities under the 2005 Commercial Law. Therefore, the arbitration agreement is under the jurisdiction of VIAC and the arbitration as prescribed in Clause 2, Article 2. Commercial Arbitration Law. ”.

Through this case, we can see that the specific provisions on dispute settlement mechanisms related to anti-competitive agreements are very necessary. At present, this determination depends heavily on the opinion of the procedure and there is no consensus. Moreover, whether the dispute related to an anti-competitive agreement is a labor dispute or not also affects the interests of the parties, especially workers.

In labor relations, workers are considered weak parties, but if they are considered in commercial and civil relations, these are freely negotiated and equal relationships between entities.<sup>4</sup>

### *3.2.2. Complete the provisions of the law on agreements restricting competition in labor*

Based on the inadequate analysis arising from the competition restriction agreement, the author makes a number of recommendations to complete the provisions of the law as follows:

3.2.2.1. Firstly, the common ground rule is to identify the objects protected by anti-competitive agreements

Currently, most countries in the world, such as Germany, Italy, Belgium, and Norway, provide that objects protected by anti-competitive agreements are quite diverse including trade secrets, information and lists. customers, names, prestige, .. This makes protecting the legitimate interests of employers with anti-competitive agreements more fully and comprehensively. Meanwhile, the Labor Code 2012 only stipulates that the two objects protected by anti-competitive agreements are business secrets and technological secrets. Therefore, Vietnamese laws should refer to these regulations in order to further expand the objects protected by anti-competitive agreements.

However, if only these objects are listed, it is easy to lead to shortcomings, unintentionally setting unreasonable limits for legitimate business interests that need to be protected. Besides, depending on the different fields of production and business, there will be a need to protect different interests. The law should only stop at making general criteria for identifying objects protected by anti-competitive agreements. These criteria will have a guiding role for the parties as well as the dispute settlement body in considering whether information is subject to confidentiality by anti-competitive agreements. In order to do this, the criteria set must be specific, clear and reasonable. From the author's point of view, these criteria should be formulated on the basis of an assessment of the following:

(i) The origin and nature of the object is protected by an anti-competitive agreement. Subjects protected by anti-competitive agreements must be formed from the production and

---

<sup>4</sup> <https://phuoc-partners.com/vi/tranh-chap-thoa-thuan-bao-mat-va-khong-canh-tranh-ai-tu-nguyen-deo-vong-kim-co/> (accessed on 20/20/2020).



business process of employers. The information that needs to be kept confidential must be lawful, not violating the prohibition of law, and not contrary to social ethics.

(ii) The exclusive right of the employer to the protected subject matter. Accordingly, subjects protected by anti-competitive agreements are not common knowledge or issues have become common in certain professional fields. This must be information that only the employer possesses through his research, research and innovation. At the same time, employers have certain activities to protect this information such as the process of accessing information, management subjects, contacting and using information in the labor process.

(iii) The role of the protected subject to the production and business activities of the employer. Subjects protected by anti-competitive agreements must have certain effects on employers' business activities. That is, losing the monopoly advantage over the protected subject matter may reduce the competitiveness of the employer in the market or cause other damages to the business activities of the employer. The action is underway.

One of the basic requirements when formulating legal provisions on anti-competitive agreements is to ensure a balance of interests between employees and employers. Comprehensive assessment of the above-mentioned factors is very important in properly identifying the object to be protected in order to ensure the legitimate interests of the parties. The agreement on restraint of competition must also ensure that it does not infringe upon the public interests. When formulating criteria to identify the protected subject, this requirement must be taken into consideration to ensure that the grounds set by law do not infringe the common interests of society.

#### 3.2.2.2. Secondly, the provisions on ensuring workers' rights in anti-competitive agreements

When an employee is restricted from the right to freedom of employment and business to protect the commercial advantages of the employer, the compensation for the limitations to which the worker must enforce is utmost. necessary, needs. In reality, there are very few anti-competitive agreements stipulating what benefits workers have or what are provided but not commensurate with the restrictions on freedom of employment and business of worker. Therefore, the current indispensable requirement is that the legal intervention regulates this issue so that workers' rights are one of the mandatory contents when establishing anti-competitive agreements, except for schools. where the parties agree otherwise. In other words, the provision of workers' rights is an effective condition of the anti-competitive agreement. In the absence of this provision, the anti-competitive agreement will be invalid.

Some countries in the world also forced the parties to agree on the rights of workers when establishing anti-competitive agreements. In Belgium, for example, the law mandates compensation for workers, even the law is based on the current salary of workers to consider setting up a competition restriction agreement. In other countries such as Spain, USA, and Canada, compensation for workers is one of the mandatory factors to check the validity of anti-competitive agreements as well as determine principles. balance the interests between the parties.<sup>5</sup>

---

<sup>5</sup> Vũ Đình Khôi (2011), tldd 2, Appendix 04: Summary of laws of some countries in the world adjusting to agreements restricting competition in the field of labor.

However, it is still not enough to only stipulate agreement on workers' rights in anti-competitive agreements. The law should set criteria to determine if the level of compensation agreed by the parties is reasonable. Accordingly, a compensation agreement is considered to be reasonable when it is commensurate with the limitations on the freedom of employment and business freedom that workers have to enforce.

This correspondence is calculated on the basis of the legal benefits that employees lose when implementing anti-competitive agreements such as job seeking opportunities, professional development, income, etc.

3.2.2.3. Thirdly, there are specific provisions on the dispute settlement mechanism related to anti-competitive agreements

In fact, there are different views on the authority of the procedure-conducting agencies as well as the law applicable to the settlement of disputes related to anti-competitive agreements. This proceed from the main reason for the inconsistency about whether these disputes are labor disputes or not. In the opinion of the author, because the anti-competitive agreement is a labor agreement, disputes related to an anti-competitive agreement are considered labor disputes. Therefore, the provisions of the labor law are applied to resolve these disputes.

Regarding the procedural authority, it can be seen that the competition restriction agreement dispute is a dispute between the employee and the employer. This is considered an individual labor dispute under the provisions of Clause 7, Article 3 of the Labor Code 2012. Based on the provisions of Clause 1, Article 32 of the Civil Procedure Code 2015, this dispute will be under the jurisdiction of the court. This is also the opinion of proceedings of many countries in the world such as France, India and Japan. Currently, there are two different principles in the laws of other countries when resolving disputes related to the validity of an anti-competitive agreement: "blue pencil" and "red pencil". Accordingly, the "blue pencil" gives the dispute settlement body the right to modify a competition restriction agreement. Meanwhile, the "red pencil" only allows the procedural agency to declare its validity on illegal or unreasonable provisions without being allowed to modify the anti-competitive agreement. This is also one of the issues that Vietnamese laws need to consider specific regulations to clarify the authority of the procedural agency.

The law should also have the regulations of the legal means that the parties may require the court to apply in order to protect their rights when a dispute occurs such as request for invalidation, claim for damages, request for the application of temporary emergency measures [7]. Outside the court, in cases where the parties agree to select a commercial arbitration to resolve the dispute, the commercial arbitration may still have the jurisdiction to settle if at least one party to the dispute has commercial activities (Clause 2, Article 2 of the Commercial Arbitration Law 2010) and this subject is usually the employer.

In addition, the author also suggested that the provision of Clause 2, Article 23 of the Labor Code 2012 should become an exception of Clause 3, Article 50 of the Labor Code 2012. While Clause 2 of Article 23 allows the parties to establish non-competitive agreements, the provisions of Clause 3, Article 50 exclude the non-competitive agreement in the labor law. This affects the purpose as well as the ability to protect employers of anti-competitive agreements.

Moreover, some previous studies mentioned some recommendations on specifying content of anti-competitive agreements, including regulations of workers' restrictions and rights. In general, the limitations of space, time and scope of work must ensure two basic principles: the balance of interests of participants and the guarantee of common interests of the community. There is also a view that it is necessary to limit the objects of implementation of anti-competitive agreements only to specific workers who are directly working with business secrets and technological secrets. However, a distinction must be made between a non-disclosure agreement and a non-competitive agreement. If the anticompetitive agreement only requires employees not to disclose confidential information without limiting the right to freedom of employment and freedom of business, it should apply equally to all employees working in enterprise.

#### **4. Discussion and conclusions**

An agreement to restrict competition between employers and employees is no longer a new issue in Vietnam. Some countries in the world also forced the parties to agree on the rights of workers when establishing anti-competitive agreements. Currently, most countries with complete Competition Law around the world stipulate that objects protected by anti-competitive agreements are quite diverse including trade secrets, information, customer lists, name, prestige,... That makes the protection of legitimate interests of employers with anti-competitive agreements more fully and comprehensively. Meanwhile, the Labor Code 2012 only stipulates that the two objects protected by anti-competitive agreements are business secrets and technological secrets. Therefore, Vietnamese laws should refer to these regulations in order to further expand the objects protected by anti-competitive agreements.

Based on the analysis of inadequacies related to the competition restriction agreement, the author makes a number of recommendations to improve the provisions of the law on controlling competition restriction agreements in labor as follows: providing a common ground for identifying subjects protected by anti-competitive agreements; provisions on ensuring the rights of workers in anti-competitive agreements; specific provisions on dispute settlement mechanism related to anti-competitive agreements.

#### **5. References**

1. National Assembly, Labor Code 2012, 2019
2. National Assembly, Competition Law 2017
3. National Assembly, Law on Intellectual Property 2005 (amended, supplemented in 2009, 2019)
4. Nguyen Thi Bich (2013), "Discussing some provisions on signing labor contracts in the Labor Code 2012", *Journal of People's Court*, (13)
5. Doan Thi Phuong Diep (2015), "Terms of confidentiality - restricting competition in labor contracts", *Journal of Legislative Studies*, (24)
6. Le Thi Thuy Huong, Nguyen Ho Bich Hang (2015), "Obligation to protect business secrets in labor relations", *Journal of Legal Science*, (06/91)

7. Vu Dinh Khoi (2011), *Developing a legal framework for anti-competitive agreements in the field of labor*, Master thesis, Ho Chi Minh City University of Law
8. Nguyen Loc Phuc (2016), *Legal issues on terms of competition restriction in labor relations*, Master thesis, Ho Chi Minh City University of Law
9. Luong Minh Son (2014), "Protection of workers' freedom of employment in agreements to restrict competitive labor", *Proceedings of the Workshop on "The implementation of human rights under the Labor Code 2012"*, held in 6/2014 at Ho Chi Minh City University of Law.

# IMPROVING SOCIAL SECURITY POLICIES IN VIETNAM

*Do Van Hai*

*minhtuyenpro85@gmail.com*

*Faculty of Political Economy, Political Academy, Ha Noi, Viet Nam*

## **Abstract**

*Social security is a system of policies and solutions to ensure income security and protect the lives of people of all strata from unexpected risks and impacts in life; arousing the spirit of solidarity and mutual assistance in social community; contribute to hunger eradication and poverty alleviation, ensuring social justice. Social security is both a stable factor and a driving force for national development. In this article, the author presents some solutions to perfect social security policies in Vietnam in the coming years.*

**Keywords:** *Social security, policies, Viet Nam.*

## **1. Introduction**

In Vietnam, ensuring social security is always considered a regular task of the State and the whole society. With the goal to 2020, to basically form a social security system covering the entire population with the following requirements: ensuring people to have jobs, minimum income; participate in social insurance and ensure timely support for people in extremely difficult circumstances (children with special circumstances, elderly people with low incomes, people with severe disabilities, the poor...), contributing to step by step raise incomes, ensure a safe, equal and happy life of the people. In particular, Article 34 of the 2013 Constitution officially declared the social security rights of the people.

The current social security policy system in Vietnam consists of four basic groups: (1) Group of employment policies to ensure minimum income and poverty reduction: support people to actively prevent risks through join the labor market to get good jobs, minimum income and sustainable poverty reduction; (2) Group of social insurance policies: assisting people to minimize risks when they get sick, labor accidents, old age... through participating in social insurance to proactively compensate for the lost or loss due to the above risks; (3) Group of social assistance policies, including regular and irregular allowances. (4) Group of basic social service policies, helping people access basic services in education, health, housing, clean water and information and communication.

## **2. Method**

In this article, the author uses qualitative research methods. Based on secondary data from the Ministry of Labor, Invalids and Social Affairs, the Ministry of Home Affairs, the Ministry of Finance, and Vietnam Social Insurance, the author conducts an assessment of the current situation of the social security system in Vietnam. On that basis, the author points out some challenges and proposes some solutions to perfect social security policies in Vietnam today.

### **3. Results**

#### ***3.1. Social security concept in Vietnam***

In a narrow sense, social security includes monetary benefits, pensions, allowances and others for people with meritorious services and those in especially difficult circumstances. In broad terms, social security includes narrow social security and poverty reduction programs, labor market regulation programs and other programs.

Some authors argue that "social security" is essentially "social insurance" and may be interpreted as "a guarantee to replace or partially offset an employee's income when they are reduced or lost. income due to illness, maternity, labor accident, occupational disease, end of working age or death, on the basis of contribution to the social insurance fund". The Law on Social Insurance of Vietnam stipulates two forms of social insurance: compulsory social insurance organized by the State that employees and employers must participate; Voluntary social insurance organized by the State but the participants are allowed to choose the level and mode of payment in accordance with their income.

The law stipulates that the State has a policy to support social insurance contributions for participants to enjoy retirement and survivorship benefits. The Social Insurance Law (2014) stipulates that compulsory social insurance includes 5 regimes and the form of voluntary social insurance includes 2 regimes. Compulsory social insurance includes: (i) Sickness, (ii) Maternity, (iii) Labor accident, occupational disease, (iv) Retirement, (v) Death. Voluntary social insurance includes: (i) Retirement, (ii) Death benefit. Thus, with the Law on Social Insurance, Vietnam has instituted 5 social security regimes, far exceeding the norm of 3 minimum standards in 9 social security regimes prescribed by ILO Convention 102 specified in 1952.

#### ***3.2. Achievements of the social security system in Vietnam today***

Regarding job creation: The national target program on employment and vocational training each year creates jobs for about 320,000 people; Many people with disabilities, ethnic minorities and people in areas with agricultural land use purpose have been borrowed to develop production and business and create jobs. In 2018, jobs were created for 1,625,000 people (1,510,000 domestic jobs and over 110,000 jobs abroad with definite term); The proportion of labors in agriculture-forestry-fishery decreased to 42.54%; The unemployment rate in working age remained low, at 2.31% (in urban areas it was 3.29%; for young people it was 6.85%).

Social insurance and unemployment insurance: By the end of 2018, 12,166,000 employees (accounting for 24.1% of the labor force) participated in social insurance, of which compulsory social insurance had 11,912,000 people and voluntary social insurance have 254,000 people. The total number of people enjoying monthly social insurance benefits is 2.8 million. By the end of 2018, there were 10,185 thousand people participating in unemployment insurance, accounting for 20.2% of the labor force. The Unemployment Insurance Fund has spent VND 4,800 billion for more than 600 thousand people.

Regarding social assistance for people in extremely difficult circumstances: in 2018, monthly cash benefits and health insurance cards for over 2,643 thousand subjects (37,348 orphans, 88,594 single people raising children from poor households, 1,480 thousand people over 80 years old, 896,644 people with disabilities, 69,257 families, individuals taking care of social protection beneficiaries in the community, 8,185 people living with HIV in poor households). The government has provided more than 31 thousand tons of rice to relieve hunger for nearly 2.1 million people in 21 provinces, concentrated in Nghe An, Quang Ngai, Thanh Hoa, Binh Dinh, Quang Binh. Currently, the country has 408 social assistance institutions nurturing and caring for 41.4 thousand subjects, of which the number of people with disabilities and mental accounts for 56.5%. Overall, about 3% of the population receives social assistance, while the need for social assistance accounts for 20% of the population.

*Regarding ensuring access to basic social services:*

Regarding education: By 2018, the rate of 5-year-old children attending preschool will reach 97.93%; children under 4 years old attending preschool reached 86.61%; going to primary school at the right age reaches 98.69%, attending secondary school at the right age reaches 90.89%; high school level is 62%; 60% of children with disabilities go to school; the ratio of students per ten thousand people reaches 250 people; the rate of literate people aged 15 and over reaches 99%. By the end of 2018, the whole country had 1467 vocational training establishments (190 vocational colleges; 280 vocational secondary schools; 997 vocational training centers and more than 1 thousand vocational training institutions); enrollment of nearly 2 million people; support about 550 thousand apprentices. The percentage of trained workers reaches 51%, of which vocational training reaches 38.5%.

Health: By 2018, 98.4% of communes have health stations; 96.0% of villages have health workers, 80% of communes have doctors, 50.0% of communes meet national benchmarks for commune health; over 95% of communes have obstetrics-pediatrics assistant doctors or midwives; Health insurance paid for pregnant women to have prenatal care and give birth at health facilities. The malnutrition rate among underweight children is about 14.1%; stunting reduced to 24.2%; The maternal mortality rate decreased to 58.3 per 100,000 live births, the infant mortality rate decreased to 14.7 ‰. The rate of women giving birth at least 3 times of antenatal care is over 90%, the rate of women giving birth by trained medical staff reaches 98%, the proportion of mothers and newborns taking care of the first week after giving birth reached 81%. By the end of 2018, there were nearly 70 million people participating in health insurance, accounting for nearly 76% of the population, of which, the number of poor and ethnic minority households was 11,796,000 people, the number of near-poor households was 2,992,000 people.

Housing: by 2018, the State has supported 7,600 poor households to build houses to prevent floods and storms in 7 provinces in the North Central and Central Coast regions; The social housing development program for industrial zone workers has built 28,550 apartments and is continuing to build 69,300 apartments; The social housing program for low-income

people in urban areas has built 25,850 apartments; Continue to build about 61,290 apartments; The housing program for students invested by government bonds has arranged housing for 200,000 students, reaching an average rate of 80% of the need.

Ensuring clean water: By the end of 2015, more than 1,000 concentrated clean water works have been built, increasing the proportion of rural population using hygienic daily-life water to 86% and using clean water up to standards of Ministry of Health reaches 45%.

Information security: After more than 3 years of implementation, the percentage of communes with public telephone access points is 97%; 96% fiber optic cable to commune; copper cable transmission line reaches 90%. The postal network is maintained with about 16,000 transaction points, including 7,640 commune post and cultural points. The program of strengthening information and communication contents about mountainous, deep-lying, remote, border and island establishments has broadcast 4,195 radio and television programs; ordering publishers to compose, publish, print and distribute 1,327,631 thematic books to provide and promote to the communes; organization of composition, publication and printing, distribution and promotion of 1,378,933 media to disseminate knowledge about agriculture and health care; setting up 7 external information clusters at the international border gate area; Providing 24 kinds of newspapers and magazines for free of ethnic minority, mountainous and extremely difficult areas with over 40 million publications for free.

### ***3.3. Challenges to social security in Viet Nam today***

*Firstly*, along with the economic transition, many emerging and pressing socio-economic issues have not been comprehensively answered in both theory and practice. The system of policies and laws on social security under the welfare state model has not kept up with the requirements of the market economy and international development trends.

*Secondly*, the risks of economic, social and environmental risks are increasing. In particular, global climate change with rising sea levels poses new challenges in social security.

*Thirdly*, the aging trend poses challenges to the sustainability of the current social security policies.

*Fourthly*, there are many inadequacies in the level of benefits among population groups, especially for the poor and ethnic minorities living in remote areas. Social service system is still weak and unsustainable.

*Fifthly*, the right to benefit from people's welfare policies, especially the vulnerable groups, has not been guaranteed.

### ***3.4. Some solutions to perfect social security policies in Viet Nam***

#### ***3.4.1. Continue to improve policies, laws and social security solutions***

Continue to implement the Target Program on hunger elimination and poverty reduction; promoting the implementation of socio-economic development programs associated with job creation and income generation for the people is a positive, effective and sustainable social security solution.



Develop synchronously, diversify, expand and modernize to improve the quality of the insurance system, and at the same time have appropriate support policies for the most active participation of the people, especially the poor, near poor and children. policy and social protection beneficiaries ...

Complete policies to support people participating in health insurance: continue to improve the payment rate, enjoy health insurance to ensure the ability to balance the health insurance fund; increased access to health insurance services; improve coordination efficiency between health insurance implementing agencies; towards universal health insurance.

Continue to improve and implement well preferential policies for people with meritorious services; implementing and perfecting social support policies, improving social welfare and minimum basic services of the people. Improve access to basic social services for specific people and regions.

#### *3.4.2. Building and perfecting the apparatus for social security work*

Enhancing the effectiveness of coordination between State management agencies and organizing the implementation of social security policies from the central to local levels; reviewing and strengthening the system of agencies implementing social security work at all levels, especially the grassroots level; improve the quality of the staff working in social security.

Improve the effectiveness and efficiency of state management in the implementation of social security policies. The state needs to focus on renovating and synchronously building the legal system as a basis for the management and implementation of social security policies; strengthen the state management apparatus; improve the quality of the contingent of cadres and civil servants implementing social security policies; strengthen inspection, examination and supervision; prevent and fight against corruption and waste; administrative reform, establishing financial mechanisms for social security policies are implemented smoothly and effectively.

Promote the role of community. The State needs to promote the socialization of social security policies, thereby creating a competitive environment among organizations, arousing creativity, initiative and activeness of the community, and encouraging private sector participation. Implementing social security policies. Diversify the provision of public services, meet the needs of the people, and reduce the burden on the state budget.

#### *3.4.3. Strengthen inspection and supervision of the implementation of social security*

Strengthen the periodic or irregular inspection, supervision and supervision of the implementation of social security policies at all levels, sectors and mass organizations from the central to local levels and grassroots levels; review, review and review the implementation of social security tasks and objectives; building databases to facilitate monitoring and evaluation; establish and issue a system of criteria for managing and monitoring activities of organizations and units providing social security services, including consideration of participation in the implementation of social security policies.

3.4.4. *Increase investment, do well socialization, mobilize the participation of the whole society to implement social security*

Strengthening the State's investment to ensure resources and financial mechanisms for implementing social security on the basis of gradually expanding coverage to reach the entire population, strictly managing social security funds. Establish contingency funds and timely support mechanisms for people when there are unexpected risks.

Encourage diverse development, social security models, charitable activities, community-based volunteering, support the development of community groups (local mass organizations, interest groups, unions, family...) become a fulcrum to support risks for poor and near-poor households, specific target groups ...

Encourage community participation in the provision of public services; mobilize the whole society to participate in the movement of "giving back to gratitude", "solidarity", humanitarian activities such as days for the poor, building gratitude houses ...

Encourage the support of the overseas Vietnamese community; strengthening international cooperation, taking advantage of the support of the international community in ensuring social security.

#### **4. Discussion and Conclusion**

In the context of international integration today, each country has many opportunities to develop, and at the same time, facing many great challenges, the lives of people always contain unexpected risks. Therefore, the construction and improvement of the social security system is an urgent requirement to ensure the current socio-political stability and national development. With the leadership of the Party, the State's management and the determination of the whole society, with practical and timely solutions, the social security system will be increasingly improved, contributing to improving the material life, the spirit for the people to bring the country to develop quickly and sustainably, actively and proactively integrate into the world.

#### **5. References**

1. Carroll, Archie B (1991), *The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders*, Business Horizons 34 (4): 39-48, ISSN 0007-6813;
2. Sheehy, Benedict (2015), *Defining CSR: Problems and Solutions*, Journal of Business Ethics 131 (3): 625-648, ISSN 0167-4544.
3. Pham Van Duc, Dang Huu Toan and Nguyen Dinh Hoa (2010), *People's and harmonious social issues*, Social Sciences Publishing House, Ha Noi, 2010, p.83.
4. Le Duc Dung and Giang Thanh Long (2016), *Gender differences in prevalence and associated factors of multi-morbidity among older persons in Vietnam*, International Journal on Ageing in Developing Countries, 1(2): 113-132.
5. Ronald Lee, Andrew Mason và Daniel Cotlear (2010), *Some Economic Consequences of Global Aging - A Discussion Note for the World Bank*. Washington D.C: World Bank.
6. Nguyen Trong Dam (2016), *Ensuring the right to social security for people*, Electronic Communist Review, July 22, 2016.

# TRAINING AND FOSTERING THE OFFICIAL STAFF AT HANOI UNIVERSITY OF HOME AFFAIRS

**Vu Ba Anh Tung**

*anhtung2112@gmail.com*

*Organization and staff Office, Hanoi University Of Home Affairs.*

## **Abstract**

*The educational officer as a provider of public services in the field of education and training. They are indispensable workforce in the implementation of the work of the unit or organization, and, they are also the people who directly implemented the obligation of state management in the field of education and training. Hanoi University of Home Affairs with its own special university specializes in training the officers and human resources to meet the requirements of the interior industry in particular and for society in general according to the direction of the Ministry of Home Affairs. Therefore, training and fostering the officers staff of the school is one of the urgent requirements in the phase of promoting construction, developing high quality staff to serve the education and training career of the country's home affairs and industry. The article discusses the contents of the training of officials in the universities, directly researching at University of Home Affairs and suggesting some solutions and effective tools to perform this work effectively for the university.*

**Keywords:** *Education, training, fostering, officer, lecturer, management officer, university, Hanoi University of Home Affairs.*

## **1. Introduction**

In the process of building and developing of social economy today, for every agency and organization, human resource is always a decisive factor. In educational institutions, that resource is the team of officials.

Officials in the institutions of high education (university) have an important role in education and training, contributing to build universities to become strongly, meeting the requirements of training human resources of the country. For a higher education institution that focuses on training high quality officials, fostering the talents, developing quality, molarity and self-study ability, self-knowledge accumulation ability, lectures, leaders and management officers' creation capacity at higher education institutions, determining the training and fostering to improve the capacity of teaching officials and management officers of higher education institutions should be valued because this is a decisive factor of the quality of tertiary education of the country in the new period.

Hanoi University of Home Affairs (HUHA) with its own characteristics as universities specializing in training officials and human resources to meet the human requirements of Home Affairs sector in particular and society in general under the direction

of the Ministry of Home Affairs and Ministry of Education and Training. Let the quality outputs (educated human resources) of the university to meet those expectations, the expectations of society, agencies and organizations as the direct employers, HUHA always appreciated the issues of training, fostering professional team for the officials of university, identified the training and fostering of staff in the emergency activity and it becomes the leading strategy of HUHA in this period.

## **2. Methods**

To achieve the research objectives, the article focuses on solving the following tasks with instrumental methods of research:

Clarify the theoretical basis of training, fostering the staff at the university.

Surveying, analyzing of the status of training, fostering officials at HUHA in the period 2017 - 2019, basing on research methods such as:

*Method of dialectical materialism:* Basing on the perspective of dialectical materialism to conduct a review, calculation, interpretation and evaluation of matters relating to the training, fostering the officials of the university in a reasonable manner.

*Statistical Methods:* The method is based on the available data to conduct comparative with the relative, absolute number and the average number of employees as the scale, the proportion of employees,... size of the average employees, the cost of training and retraining of the average ...

*Societal research methods:* As investigated through the questionnaire asked to get the opinion of faculty, of specialist departments. This quantitative derived data source is combined with other sources of identification resources to help the thesis obtain a clear, precise and accurate assessment and analysis.

*Synthesis methods, statistical analysis methods:* Synthesize the specific content, each heading from the figures that the units in the university is provided to interpret the volatility and give the cause of fluctuations in the training and fostering the staff of HUHA.

## **3. Results**

### ***3.1. Theoretical basis of training and fostering official staff in university***

#### ***3.1.1. Some concepts related to training and fostering official staff in universities***

*Officials:* According to the article 02, Officer Law of Vietnam No. 58/2010/QH12: The officer is a Vietnamese citizen employed by the position of employment, working at a career unit according to the working contract regime, entitled to salary from the wage fund of the organization (public career unit) as prescribed by law.

*Education Officer:* Education Officer is a staff who are working in the universities. In the university there are two main officials: one is the lecturer staff and other is the executive of the Administration, management in university:

*Lecturer staff:* Lecturers are teachers who are professional officers responsible for the teaching and training in a university or in a college.

*Administrative officer:* The administrative officer who is a working person with the administrative, technical, professional service for the leader and professional officials.

*Training:* Training is an activity to provide knowledge to students systematically to improve capacity, expertise, and afford independent work, as required by assigned tasks. Training is the process of impact on human beings, to make the person to the meeting and master the Knowledge, skills, skills... A systematic way of preparing for that person to adapt to life and the ability to receive a certain labor allocation, contributing to the development of society.

*Training and fostering:* According to decision No. 490/QĐ-BNV of the Ministry of Home Affairs, 22/3/2016 on the regulation on training and fostering public officials, officials and employees of the Ministry of Home Affairs: : “Training is the process of transmission, receiving the system of knowledge, skills in accordance with the level of study, education, associated with the level of Vietnamese law recognized” ; “Fostering is an updated activity, enhancing knowledge, working skills”. Fostering is the process of updating new knowledge, adding the missing knowledge, backward to improve the level, capacity or qualities, strengthening professional skills.

### *3.1.2. Contents of training and fostering of official staff in universities*

#### *3.1.2.1. The mission of training and fostering of educational official staff*

To raise awareness about the role of training and fostering activities; responsibilities of agencies, units which is using officials in ensuring the quality, effectiveness of training and fostering officials. Try to arrange the system of the schools to ensure training and fostering the officer in a streamlined manner that fits the functions, duties and scale, the form of training and fostering officials.

*Building a teaching staff:* Lecturers in university must have appropriate professional qualifications, at least 05 years of experience and qualified teacher.

Universities have to build team visiting lecturer; guaranteed after 2020, lecturer in charge of 50% or more of the duration of the training program that the training facilities that perform.

#### *3.1.2.2. Purpose of training and fostering educational officials*

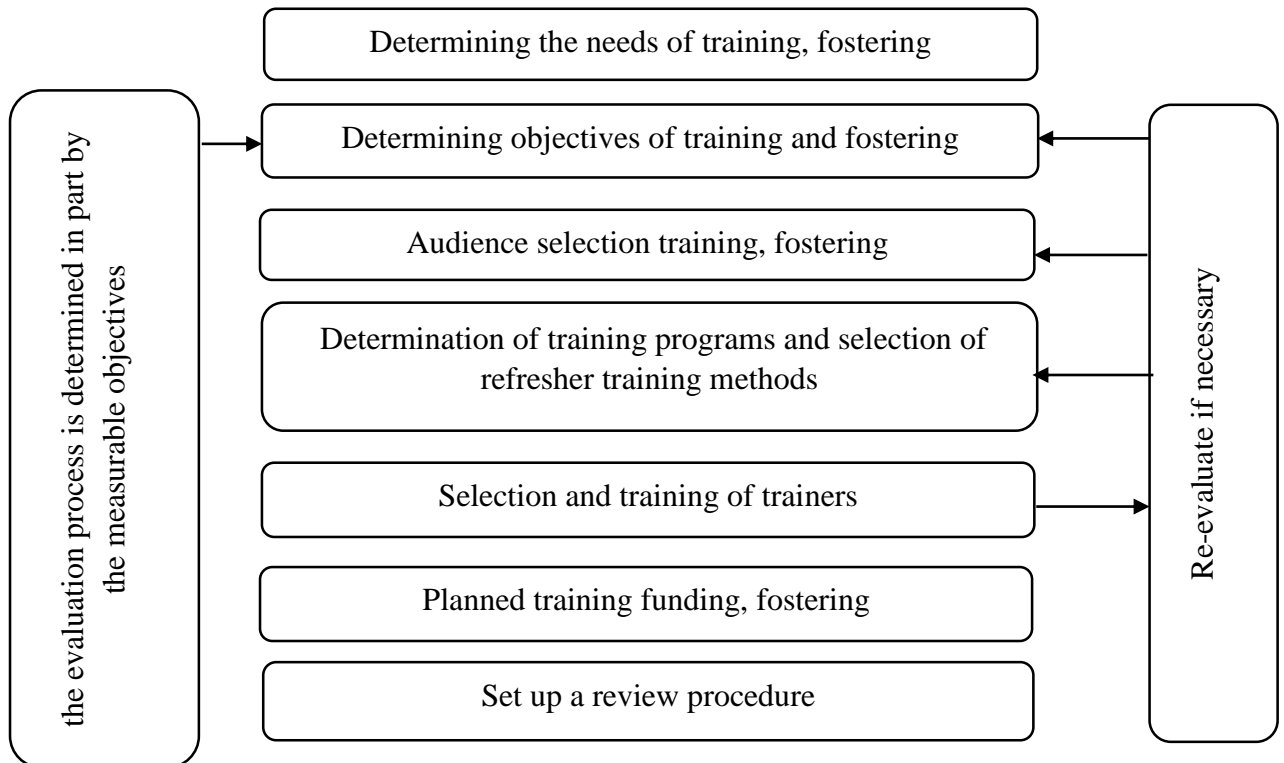
Creating a powerful transformation of quality and effectiveness of training and fostering. Contributing to build the team of professional staff who are qualified, morality, skills meeting the requirements of international integration.

Building a unified institutional system, to synchronize for training activities, to fostering the e officials, in accordance with the conditions of Vietnam and the need of international integration; the policy system encourages academic and self-learning officials to continuously improve the level and capacity of execution of assigned tasks; carry out the management system and training facilities compact, scientific, in accordance with the objectives, requirements of training and fostering the officials and their duties.

### 3.1.2.3. The process of training and fostering of educational officials

Training and fostering officials are a very necessary activity for each organisation. This work need to have a specific procedure:

**Diagram 1. Training process, general manpower fostering**



Based on the diagram above, we see the main activities in training and fostering the staff at the university including the following main activities:

**(1) Determining the needs of training, fostering officials:** determining the needs of training, fostering is determining when, in which parts need training, training any skills, for which parts, to whom and for how many people. Training needs are determined based on analysis of the organization's training needs, knowledge requirements, skills required for the implementation of the work and level analysis, knowledge, existing skills of officials.

**(2) Determining objectives of training and fostering officials:** the objective of Training officer is to prepare officials for the knowledge, skills to perform the job; In particular, providing the basic knowledge, reasoning, skills, manner and attitude of implementation of the work to show enthusiasm, responsibility of the team of officials. Requirements when establishing a training goal, fostering the officer needs to be clear; objectives must be specific; objectives must be measurable; objectives must be realistic; objectives must have a specific deadline.

**(3) Audience selection training, fostering officials:** Selecting the training people, fostering which audience is determined, how many people need to be trained for each training course. The selection criteria include: The age of the officer, the ability to study, i.e. the ability to collect skills knowledge, the needs of the school, the position planning.

**(4) Identifying content, training programs, fostering officials:** According to the Pursuant to Circular No. 19/2014/TT-BNV dated 04/12/2014 of the Ministry of Home Affairs, guiding the training and fostering officials, including programs and refresher curriculum on political reasoning; Professional and professional training programs; Training programs, fostering international integration knowledge such as foreign language, information and other knowledge... Building content, training programs must base on training objectives; The perspectives, orientation, policy, development strategy of the State as well as the organization. From there to build appropriate training program content and ensure the objectives.

**(5) Selection of forms and methods of training and fostering officials:** According to the 5<sup>th</sup> article, the Education Law and Article 13 of Circular No. 19/2014 / TT-BNV of regulations, guidance on training and fostering officials issued by the Ministry of Home Affairs stating: There are 4 forms of training, fostering officials, including training forms, focus fostering, training forms, semi-centralized fostering, medium-to-work forms, distance training form.

**(6) Selection and training of trainers:** It is possible to choose lecturers from people in the organization's payroll or outsourcing. To design the content of the training program most suited to the reality of the school, it is possible to combine outsource instructors with people who have long experience in the organization. This combination allows the student to access new knowledge, while not far away from the organization's practices.

**(7) Planned training funding, fostering:** Training funding is the source of service charge for the training process. The cost of training involves: the cost of learning; the cost of hiring teachers; the cost of examination and test organization; opportunity cost: The cost of paying the student's wages during the study, the cost of overcoming the unsatisfactory work, the organizational value can be achieved if they do not take the course...

**(8) Assess the results of training, fostering:** assessment of training results and fostering is an assessment of whether the training is achieved by achieving the objectives of the Organization; Compare the benefits and costs of the training program as a basis to develop the next semester training plan. The assessment of training results may be based on the following objectives: Training objectives have been achieved; Economic effectiveness of training; Results of training; The satisfaction of the student with the training program; Ability to apply the skills knowledge of the training program to the job; The change of behavior in labor...

### **3.2. Results of training and fostering officials staff at Hanoi University of Home Affairs in 2017-2019**

#### **3.2.1. Some basic information of Hanoi University of Home Affairs**

Hanoi University of Home Affairs - the predecessor to the high School of Stationery Archives was established under Decision No. 109/BT on 18/12/1971 of the Minister of the Prime Minister with the task of training the professional high school staff of the Document and Achieve Sector in the state agencies. Initially, the school located in Thanh Tam commune, Me Linh district, Vinh Phuc Province.

In 2011, the university officially upgraded to Hanoi University of Home Affairs at the discretion of the Prime Minister's 2016/QĐ-TTg. After 50 years of development, the

school has continuously expanded its industries and training. With 3 undergraduate majors; 11 undergraduate degree and 4 colleges to meet demand for high quality human resources for society, especially for the state management system. The number of officers and officials has also increased by the year (*currently more than 500 officers and officials*). In addition to the school's main training office located at 36 Xuan La, Tay Ho District, Hanoi, the university also has 2 branches, one in Ho Chi Minh City and one in Danang city.

### 3.2.2. Organizational structure at Hanoi University of Home Affairs

Qualifications of the school's staff are rated through professional qualifications, experience, information, English, qualifications, academic functions.

**Table 2. Degree of level, academic function of the officials in Hanoi University of Home Affairs pin 2015-2019**

Level	2015		2016		2017		2018		2019	
	Number of officials (persons)	Ratio (%)	Number of officials (persons)	Ratio (%)	Number of officials (persons)	Ratio (%)	Number of officials (persons)	Ratio (%)	Number of officials (persons)	Ratio (%)
Intermediate	<b>06</b>	3,1	<b>06</b>	2,5	<b>06</b>	2,0	<b>06</b>	1,8	<b>06</b>	1,3
College	<b>12</b>	6,3	<b>12</b>	5,0	<b>10</b>	3,3	<b>10</b>	3,0	<b>08</b>	1,7
University	<b>57</b>	29,7	<b>75</b>	31,0	<b>97</b>	32,1	<b>103</b>	30,7	<b>151</b>	32,2
Master	<b>104</b>	54,2	<b>132</b>	54,5	<b>165</b>	54,7	<b>184</b>	54,9	<b>256</b>	54,7
Doctor of Philosophy	<b>11</b>	5,7	<b>15</b>	6,2	<b>20</b>	6,6	<b>28</b>	8,4	<b>42</b>	9,0
Prof.- Assoc. Prof.	<b>02</b>	1,0	<b>02</b>	0,8	<b>04</b>	1,3	<b>04</b>	1,2	<b>05</b>	1,1
<b>Total</b>	<b>192</b>	100	<b>242</b>	100	<b>302</b>	100	<b>335</b>	100	<b>468</b>	100

(Source: Office of Staff Organization)

According to the figures in the table 3.1, we see the rate of undergraduate and master levels rising by year. From 2015 to 2019, university degree officials increased from 57 people in 2015 to 151 people in 2019: An increase of 94, corresponding to the percentage increase of 2.9%; Master level officials increased from 104 people in 2015 to 256 people in 2019: An increase of 152, corresponding to the percentage increase of 0.5%; Doctorate degree officials increased from 11 people in 2015 to 42 in 2019: Up to 31 people; The academic officer Prof- Assoc. Prof has also increased from 2 in 2015 to 5 people in 2019. Lower levels such as intermediate and college are increasingly trending down both in quantity as well as the density. High levels of higher level while low levels do not increase the evidence that the school has an improvement in the issue of training, fostering human resources in general and the school officials in particular.

### 3.2.3. The results of training or fostering the officials

#### 3.2.3.1. Objectives of training and fostering officials of the school

Performing training and fostering officials under Decree No. 29/2012/ND-CP dated 12/4/2012 of the government on recruitment, use and management of officials; Circular No. 20/2013/TT-BGDĐT on 6/6/2013 of MOET regulations on fostering professional trainers



for higher education establishments; Circular No. 19/2014/TT-BNV dated 12/04/2014 of the Ministry of Home Affairs and the Decision 89/QĐ-TTg of Minister of Home Affairs signed on 18/01/2019 has approved the project to improve the capacity of the teaching staff, management officials at the university institutions meet the comprehensive fundamental innovation requirement education training in the period 2019-2030; Decision No. 64/QĐ-ĐHNV on 16/01/2014 of Hanoi University of Home Affairs to issue the regulations on training and fostering public officials and officials of Hanoi University of Home Affairs, the school aims to the following objectives: To create a strong transformation of quality and effectiveness of training and fostering, contributing to the team of professional officials who are qualified, qualified and qualified, meeting the requirements of the People's service, the development career of the country and international integration.

+ Guaranteed up to 2020 years, at least 60%, and by 2025, 100% of the officials were refresher to the professional job title standards at the school.

+ By 2020, at least 70% and by 2025, 100% of officials in management were fostering managerial skills before their appointment at the school.

+ Annually, at least 60% are refresher for professional ethics; updated to improve knowledge and skills of professional career at the school.

### 3.2.3.2. Training and fostering officials of the university

Training and fostering advanced professional qualifications and business:

In fact, the Ha Noi University of Home Affairs, 2017-2019 has been training and fostering professional and professional services as follows:

**Table 3. The results of training and fostering the professional qualifications of HUHA's officials in 2017-2019**

No.	Content	Number (person)		
		2017	2018	2019
1	Post-graduate	20	28	42
2	Master	19	15	20
3	University teaching career	20	40	40
4	Professional organization	10	5	10
5	Professional inspection, testing	20	20	20
6	Professional office	100	100	55
7	Accounting profession - finance	5	15	20
8	Fostering job placement	250	250	250

(Source: Office of Staff Organization)

Through the table 3.2 above, we see that:

*Professional enrichment:* The total number of officials in post-graduate (till 31/12/2019) is 42 people. In that year 2017 the school decided to study for 8 people. In 2018, he went to 14. In 2019, the school decided to dispatch 15 post-graduate school officials as

per the management requirements of the Ministry of the Interior. Master's Degree: 54 students are masters of the year in 2017 to 19 Masters in the school.

*On professional fostering:* In 2017-2019, the school opened a total of 15 classes of professional training for 480 officials including: training in university teaching; Organizational business; Inspection and inspection services; Office business; Accounting and financial services. The total number of elected officials participating in professional, job-placement professional classes 2017-2019 is 750 people.

• ***Training and fostering under the title:***

In fact, 2017-2019 schools have opened a lot of refresher classes according to the job title for officials.

**Table 4. The results of training and fostering in accordance with the title of Hanoi University of Home Affairs in 2017-2019**

No.	Content	Number (person)		
		2017	2018	2019
1	Fostered knowledge Defense Security (3)	50	50	80
2	Fostering knowledge of state management	20	20	30
3	Fostering the senior political reasoning-administration	5	3	5
4	Fostering the title of Vice President of the Office, Deputy Office and equivalent	26	50	60

(Source: Office of Staff Organization)

• ***Other fostering content:***

Other fostering content is also provided by HUHA in the period 2017 - 2019 as follows:

**Table 5. HUHA's other fostering result for the official in 2017 - 2019**

No.	Content	Number (person)		
		2017	2018	2019
1	IT: office IT, applied IT, advanced IT...	20	26	30
2	Communication skills	20	15	19
3	Scientific research methods	14	15	20
4	Leadership and management skills	10	11	12
5	Planning skills and analysis of state policy	13	10	14
6	Writing skills of scientific research articles	20	20	15
7	Presentation skills	6	8	9
8	Administrative reform	15	14	17
9	Management of training and career	5	7	7
10	Scientific and technological management	1	3	3

(Source: Office of Staff Organization)

## • Training and fostering abroad

The training and fostering of overseas for the officials has also received great attention from HUHA. Over the years, the university has sent a number of management officials, lecturers, specialists to participate in training courses, international workshops,... specifically: In the year 2017 the HUHA elected 1 officer to participate in the short-term refresher program in India. In 2018, he was nominated for 1 conference in Thailand and 1 post-graduate in Japan.

### 3.2.3.3. Some limitations and exist in training and fostering officials in HUHA

*Firstly*, the content of training and fostering is mainly focused on raising the level of expertise but only in terms of theoretical approach. Hence there are a lot of instructors (*mostly young instructors, new recruitment*) in non-cohesion teaching work with practice. The most foreign language level is English of many officials who have not met the school's requirements in the context of competitive and regional and international education.

*Secondly*, the work of determining the needs of training and fostering the school is not really interested in the need to register the training of the officer directly in training.

*Thirdly*, the performance evaluation, quality inspection has not been taken seriously, accurately and superficial in the examination.

*Fourth*, the school's training objectives are primarily directed at training, raising the level of expertise that are less focused on fostering other skills.

*Fifth*, fund for training is also quite limited. Many training content such as master training, foreign language training... Officials must give themselves money to go to school.

## **3.3. Solutions to improve the effectiveness of training and fostering officials of HUHA**

### *3.3.1. Completing the determination of the needs of training, fostering*

The needs of training and fostering the officials are spreading and sporadic. Many thematic only one or two subscribers should not be able to open the class in accordance with the needs of the official. There are still phenomena of young officials who have a training need but are not dispatched while long time officials have experienced on the list of training and fostering officials.

Derived from these limitations and exists above, the first step that the school's board of directors need to do is to properly identify training needs, avoid case-driven training, not close to actual demands, and cause wastage in resource use.

### *3.3.2. Innovating of training, fostering programs and selecting teachers*

The training program that HUHA is using needs to be renovated towards fostering a focus on the professional job title and development towards professional, intensive; each title, each job position is fostering appropriate, practical knowledge and skills with the job in mind. It is necessary to research and propose to departments and experts to build short-term fostering programs to participate in training, fostering masters levels for some majors.

### 3.3.3. *Balancing fund for training and fostering*

Funding resources for training and staff of the school are quite large. However, it is not enough to meet all of the needs of the officer's training registration. Therefore, HUHA needs to balance the funding for training and fostering officials. To balance the fund to avoid waste in the using the fund, ensuring the source of funds are spent properly, sufficient, timely spending, the school board directing the office of the officials to build funding resources for training , thorough fostering. HUHA needs to clarify the following expenditures: Training costs include salaries for teaching teachers, equipment and instrument machinery for learning and teaching; the cost of learning includes tuition, documentation, travel expenses.

## **4. Discussion and Conclusion**

Human resource is the most important resource for determine the existence or and development of every organization. To get a good human resource needs to plan training, fostering and developing in a specific and scientific way. Therefore, the training and fostering human resources always takes an important role and need to receive the interest of its importance. In the past years, Hanoi University of Home Affairs has been particularly interested in training and fostering officials to meet the requirements of training high quality human resources for society. The university is increasingly expanding and enhancing teaching quality with the aim to bring the school to become a prestigious top university in the region and around the world for training human resource for Home Affairs sector. This objective will not be achieved if HUHA lacks the strategy of training, fostering capacity, expertise, ethics to have a team of enthusiastic officials, qualified and dedicated to the education career training of schools and the country.

## **5. References**

1. Ministry of Home Affairs (2012), *Circular No. 19/2014/TT-BNV on the guidance on training and fostering officials.*
2. The Government of the Socialist Republic of Vietnam (2012), *Decree 29/2012 ND-CP on recruitment, use and management of officials.*
3. Tran Kim Dung (2009), *Curriculum for human resource management*, Statistical Publishing House, Hanoi.

# COMPLETING THE PROVISIONS OF VIETNAM'S CIVIL CODE 2015 TOWARDS SUSTAINABLE DEVELOPMENT

*Dr. Kieu Thi Thuy Linh*

*kieulinh.hlu@gmail.com*

*Faculty of Civil Law, Hanoi Law University*

*LLM. Deo Thi Thuy*

*deothuy@utb.edu.vn*

*Faculty of Law, Tay Bac University*

## **Abstract**

*The paper focuses on analyzing connections as well as aspects that need to be revised, amended, or supplemented in civil law that its basis is the Civil Code, to create a legal framework to regulate social relationships in private life to aim sustainability in the development process. The current Civil Code of Vietnam has achieved specific goals, but there are still many inappropriate points which need to be further improved.*

**Keywords:** *Vietnam's Civil Code, sustainable development, amendment, supplement, provisions.*

## **1. Introduction**

Sustainable development is a requirement for every country in the current period, including Vietnam. For sustainable development, besides using useful natural resources, a right socio-economic development plan, and suitable policies of State, operating well of administrative mechanism agencies, the perfection of the legal system is one of the most critical requirements.

In the legal system, civil law with Civil Code - the main document - stipulates the most common principles and the most fundamental issues in private life. In order to foster private socio-economic relations, these civil regulations play a crucial role. Improving the law and having good privacy laws is always an urgent requirement of countries, including Vietnam.

The current Civil Code in Vietnam is the Civil Code 2015, which still has many provisions that are not suitable, incompatible, and not yet a driving force to utilize all resources for the national economy. It also leads to adverse effects. Many personal rights are still general. It is challenging to exercise these personal rights in reality. Some rights to property have not recognized as assets, so they have not used the full advantage of these rights. Regulations on secured transaction methods are not comprehensive, so these measures have not become a shield to protect the right holders.

In conclusion, completing provisions of the Civil Code is considered one of the ways to sustain Vietnam's sustainable development. All the research to give recommendations on this issue will be a positive contribution to the implementation of the above goal.

## **2. Methods**

To achieve the research result, the authors use the following research methods:

*Analysis method:* The authors will analyze the nature and requirements of sustainable development, the content and apply the contents of provisions of the Civil Code and the meaning of these regulations. From the above analysis, essential content and the effects of the Civil Code in regulating socio-economic relations in detail and the sustainable development in general.

*Comparison method:* Comparing provisions in the Civil Code with each other regulations, with international law as well as the civil law of other countries, is a way to evaluate compatibility, modernity, and following the general development trend of the world. This method allows us to have a comprehensive view of the civil law framework and will be the basis for making recommendations to complete the law.

*Inductive method:* After analyzing issues, the inductive method helps the authors draw the main ideas. These ideas will serve as a basis for making recommendations to contribute to finalizing provisions in Vietnam's Civil Code, aiming at sustainable development of the country.

## **3. Results**

For this subject, some questions need to be answered and clarified, including:

The first question is how the legal regulations and provisions in the Civil Code are in the process of sustainable development. Answering this question helps to find a connection and mission of legal regulations, including The Civil Code, in implementing sustainable development.

The second question is what issues in private relationships need to regulate in order to use all potentials in the socio-economic and social life towards sustainable development of Vietnam in the present and future. Answering this question helps to define critical issues for studying and giving recommendations to complete legal regulations.

The third question is what civil law's main issues must complete in order to guarantee sustainable development for Vietnam. Answering this question helps to define the basis for recommendations for each issue.

## **4. Discussion and Conclusion**

### ***4.1. The role of legal regulations and the Civil Code in the implementation of sustainable development***

The law is a state management tool. Governments can only manage and orient the development of relations in socio-economic-social life through legal regulations. Therefore, the first and most crucial issue for all countries today is to perfect their legal system to serve the development orientation of that country. Exploiting and using natural resources lead to dangerous environmental pollution. They also decline environmental quality. Human resources have not been using effectively. Science and technology have

not fully promoted their role in production. The core of sustainable development is the task posed to each country despite its development-developing or underdeveloped, for each region and the entire world economy.

Along with the role of legal regulations in general, civil law, which underlies the Civil Code, contributes to the sustainable development of each nation. If the provisions of civil law are appropriate, they will promote socio-economic relations in the private sector. In Resolution 10 - NQ / TW affirmed in Vietnam: "*For developing economy, the private sector becomes an important driving force of the socialist-oriented market economy*". This guideline is a concretization of the role of the private economy that countries around the world recognize. According to Fortune Magazine, in 2018, the 500 largest economic corporations in the United States have a total turnover of 12.8 trillion USD, contributing 2/3 of GDP and employing 28.2 million workers worldwide<sup>1</sup>. In Vietnam, "*private economic groups are increasingly affirming their role and making great contributions to the economy, becoming a spearhead in several investment sectors such as tourism, food processing, and telecommunications technology, etc.*"<sup>2</sup>. Therefore, Prof. Dr. Nguyen Mai has affirmed: "*in the process of development of economic groups, there also arise many requirements that require appropriate legal corridors to both comply with the Party's guidelines and create a premise for more powerful corporations to achieve regional or global level*"<sup>3</sup>. In other words, the rule of law in general and civil law, with the Civil Code, is the fundamental law, particularly the legal framework to promote the private sector in the nation's economy actively, outstandingly.

#### **4.2. Main issues of civil law serving the goal of sustainable development of every country, including Vietnam**

With the mission of creating a legal corridor to promote the development of economic relations in general, especially economic relations in the private fields, creating sustainable development in the context of exhausting increasingly potential natural resources and environmental pollution, civil law must recognize the following essential issues to promote sustainable development:

Firstly, civil law must recognize and confirm the existence of natural persons or legal entities in socio-economic life. The law notes existence, subjective capacity, the scope of rights and obligations of each subject, and the mechanism of participation in each subject's social relations. The provisions on subjects will create a legal framework to define social relations groups, how to enter and exercise their rights and obligations in this relationship.

Secondly, civil law recognizes and promotes the human rights and personal rights of each individual. The individual is the first and the most crucial subject in social relations. Individuals are also the primary labor force, creating directly or indirectly assets in society. The economic activities of individuals create material values for the whole

---

<sup>1</sup> Tham khảo "Vai trò của kinh tế tư nhân ngày càng được công nhận" tại <http://tapchitaichinh.vn/su-kien-noi-bat/vai-tro-cua-kinh-te-tu-nhan-ngay-cang-duoc-cong-nhan-314386.html> (ngày đăng: 23/10/2019, ngày truy cập 1/6/2020).

<sup>2</sup> Nguồn đã dẫn.

<sup>3</sup> Nguồn đã dẫn.

society. Therefore, protecting human rights and recognizing the personal rights of individuals have a significant meaning in protecting the labor force and protecting human resources in sustainable development.

Thirdly, civil law regulates the civil transactions that subjects are allowed to enter. Civil transactions are the basis for forming legal relationships between subjects in the society to serve daily needs, production, and business demands and aim to exchange assets between them. Thus, the civil transactions are ultimately the foundation for establishing all legal relations in the economy of humankind today. Regulations on civil transactions, including unilateral legal acts and contracts that create a legal framework to promote the formation of legal relations to meet the needs of human life, for production, goods circulation and naturally leading to the sustainable development of the economy.

Fourthly, civil law regulates property and the type of property. The property is the main object in property relations - it is also the leading relations in civil relations. Accurate and appropriate recognition of asset types, especially new assets arising in the context of current and future development of science and technology, will ensure to exploit the asset and its role in the physical life of people, promote the exchange of property. They are also the main lifeline to promote the development of property relations in social life. The assets exist in many forms, tangible or intangible, existing assets or properties formed in the future, objects or money or valuable papers or property rights. Therefore, the property regulations which are not appropriate will not promote and make full use of all types of assets in human economic life.

Fifthly, civil law recognizes the obligations of the parties arising not based on their agreement. The case is regulated by law. Obligations of the parties are defined when they perform their unilateral legal acts. The law must regulate these situations, the obligations of related subjects because they will help minimize damage or affect rights and interests, legal benefits of other subjects (such as promises of rewards, prize competitions). This recognition creates a legal framework to protect the rights and legitimate interests of the subjects as well as ensure social stability and justice. When the society is stable and fair, of course, the development also becomes more sustainable.

Sixthly, civil law must recognize the subjects' self-responsibility in case of their acts or acts of a principal who are represented by them to cause damage to others. In thousands of years, the civil rule of responsibility has set. According to the rule, civil subjects must be responsible for their actions or the person they represent. The subject will pay compensation to compensate for the damage as well as clearly show the principle of fairness, must be responsible for all subjects in society. As far as society develops, this principle must be maintained to create a balance and protect the interests and legal rights of social subjects when others violate their interests.

#### ***4.3. Some main contents of the current Civil Code need to be revised, amended or supplemented that towards the goal of sustainable development for Vietnam.***

With 689 Articles, Vietnam's Civil Code 2015 divides into six parts: general provisions, ownership rights, and other rights over property, obligations and contracts,



inheritance, and legal applications to civil relations that have foreign elements and implementation provisions. However, in order to achieve sustainable development, many provisions of current civil laws need to be amended and supplemented to be more suitable. The amendment and supplementation must ensure the protection of the fundamental rights of human rights, fully record all types of assets, and provide more detailed and appropriate regulations on civil transactions, especially the regulations for contracts and security measures. Aiming to maximize the role and meaning of assets, promote transactions following the technology era, the borderless economy. Above all, they will protect the rights of the subjects in society. Some issues that need to be corrected, supplemented, and recorded in civil law as follows:

***Recognizing some fundamental human rights and completing the legal framework to exercise these rights***

Vietnam's Civil Code 2015 has revised or amended several provisions on human rights, including rights to change the family name, surname; the right of an individual over her/his picture; rights to protection of honor, dignity, reputation; the right to private life, personal secrets, family secrets, and personal rights in marriage and family. The Civil Code has supplemented new regulations on gender reassignment. The new amendments and supplements show recognition, protection, and assurance of the implementation of the fundamental rights of individuals - the essential subjects in civil relations.

However, in these amendments and additions, civil law still needs to be more specific, transparent, and complete so that the implementation will be more effective as follows:

(i) Confirming gender reassignment is a personal right and establishing the full legal framework to exercise this right

Article 37 of Vietnam's Civil law confirms: *“The reassignment of gender must comply with the law. An individual whose gender has reassigned has the right and obligation to register for change of her/his civil status by the law on civil status, and has her/his rights suitable to the gender reassigned under this Code and other relevant laws”*.

This Article 37 emphasizes that individuals have the gender reassignment right. After reassigning gender, individuals have the right, the obligation to register for civil status change and personal rights following the new gender. However, all issues related to gender reassignment must comply with the provisions of the Civil Code and other relevant laws. The biggest problem is that the current Civil Code has no other regulations to guide this content. Other laws or legislative documents on gender reassignment are not yet issued. Therefore, the gender reassignment recognized in the Law is in the section on personal rights but can not implement in reality. Moreover, the resolution of gender reassignment is still not specific, so it is not easy to implement in reality.

The law should be improved in the following directions to complete the regulations:

First, it is necessary to affirm that gender reassignment is an individual's right. Individuals are allowed to live with their desired gender, compatible with their needs and dreams.

Second, it is necessary to enact laws or bylaws on the implementation of gender reassignment. In this document, essential conditions for people who want to reassign gender must regulate, such as the conditions of desire, physicality, and counseling of the Medical Council for people who want to reassign gender and health facilities— being allowed to perform gender reassignment, gender reassignment steps, medical care, post-gender reassignment psychosis.

Third, the registration of civil status change must carry out according to the same procedure as changing the family name and surname of an individual. In particular, each individual is currently defined by citizen identity, so gender change does not significantly affect the management of citizens and affect the exercise of rights and obligations associated with gender as before changing.

(ii) Recognize the right to marriage for people of the same sex

Article 39 of the Civil Code 2015 recognizes the right to marry, divorce, and other rights in the marriage relationship between husband and wife. The exercise of the rights must follow the Law on Marriage and the Family as well as other relevant laws. In the Law on Marriage and Family 2014, Article 8, affirms: "1. Man and woman getting married must comply with the following conditions... ". Accordingly, the marriage relation is only for one man and one woman. Thus, people of the same sex cannot make marriage. In other words, Vietnam has not yet recognized the same-sex.

In a sustainable development society, people and human rights must be respected. The only limitation of human rights is not to be exercised if it affects the rights and interests of the nation, people, community, or any other subject. Recognizing same-sex marriage expresses the state's respect for one's desires and natural sexual orientation and does not affect the aforementioned interest groups. Therefore, in a civilized society that respects human rights, same-sex marriage should be recognized. The recognition of same-sex marriage allows the protection of human rights, makes individuals more active, and more devoted to society and the community.

#### ***Expanding the scope of transactions of usufruct and surface rights***

From Article 245 to Article 273 of the Civil Code, lawmakers recognized three other fundamental rights to property: easement rights, usufruct, and surface rights. In particular, the rights to adjoining immovable property are amended and supplemented based on the restricted use right of adjoining immovable properties under the new regulations. Usufruct, surface rights are entirely new rules.

Subjects who have usufruct, have the right to exploit the utility of, use natural product, and profits of property that are owned by another subject for a fixed period. The usufruct right is established by law, by agreement, or by will. The usufruct right is guaranteed to exercise without being influenced by any subject, including the owner. "*The usufruct right is a right; the usufructuary has the right to hold directly, dominate the property to exploit the utility, enjoy the yields and profits from the property under the ownership of another*

*subject under the Ministry's regulations, civil law, other relevant laws that do not depend on the will or behavior of the property owner.*"<sup>4</sup> In other words, the owner or the State or any other subject must respect and ensure that the usufruct right to exercise their rights shall not be terminated when the tenure period has not expired. The usufruct right may lease the usufruct right to the properties. Currently, usufruct right is not allowed to be mortgaged at credit institutions as a security right.

Surface rights are the rights of an owner to the ground, water surface, space on the ground, water surface, and underground that the right to use that land belongs to another entity. Surface rights are seen as a right formed based on law, agreement, or will. Surface rights shall be terminated only when the time limit expires, or the person with surface rights waives his / her rights, the land use right is revoked or as agreed by the parties or the law. Accordingly, surface rights are not automatically terminated by unilateral termination of land use rights. The surface right is recognized as a right. There is an absolute implementation in comparing the rights of the tenant in the land use right in the lease contract or the borrower in the borrowing contract.

Usufruct and surface rights are recognized by many countries in the world and not only recognize the implementation mechanism is the exercise of natural rights, but also are recognized as a guaranteed right. This acknowledgment is perfectly reasonable for the following reasons: 1. The usufruct right and the surface right allow the owner the absolute right to perform by his / her acts for exploitation and use. Therefore, he is not affected and influenced by other subjects, including the owner of the property. Therefore, if it becomes a security object, it also allows the secured party to exercise the corresponding right on behalf of the usufruct right and surface right within the term of the right; 2. Usufruct rights, surface rights are usually for a relatively long term, for example, the usufruct can extend from the time of establishing the right to the death of the individual or 30 years if the beneficiary is a legal person. Therefore, for this long period, if being used as a security, it allows the rights of usufruct and surface rights to maximize the economic benefits of these two rights as well as make full use of financial resources from another subject; 3. The typical countries of the Civil Law system, such as Germany, France, and Japan, all allow usufruct rights, surface rights as security rights<sup>5</sup>. As a security right, the owners have the right to use, surface rights to maximize the benefits within the time limit they have this right and, of course, increase economic efficiency. If there is a risk, the secured party may exploit the usufruct right and the surface right until the expiry of the term of which the owner of the usufruct right or surface right terminates.

---

<sup>4</sup> Nguyễn Hồng Hải (2017), *Vài nét về quyền hưởng dụng trong Bộ luật Dân sự năm 2015*, Vietnam Law and Legal Forum, No273/May 2017 (tại đường link: <https://thongtinphapluatdansu.edu.vn/wp-content/uploads/2018/10/QUY%E1%BB%80N-H%C6%AF%E1%BB%9ENG-D%E1%BB%A4NG-TRONG-B%E1%BB%98-LU%E1%BA%ACT-D%C3%82N-S%E1%BB%B0-N%C4%82M-2015.pdf>).

<sup>5</sup> Nguyễn Minh Oanh (chủ biên), *Vật quyền trong pháp luật dân sự Việt Nam hiện đại*, Nhà xuất bản Công an nhân dân.

### ***Expand the object of security measures***

Objects of currently recognized security measures include assets, prestige, and performance a work. In particular, most of the security measure objects are assets. Only the measure of trust has the object of prestige, and the guarantee can have the object of performing the work that must be implemented by a secured party.

As analyzed in the previous section, if the usufruct and surface rights are recognized as a security object. The object of the security measures may extend these rights. This adjustment will ensure logic with recognition of the scope of rights of usufruct and surface rights.

### ***Improve the law on some security measures to strengthen the function of these measures***

Functions of security measures that guarantee the performance of an obligation are to raise the awareness of the obligor in performing his/her obligations as well as to compensate for the breached rights of the securing party. Nine measures that are being recognized by the law include Pledge of property, mortgage of property, deposit, security collateral, guaranty, escrow account, retention of title, Pledge of trust, a lien on the property, one has not yet been shown its functions. It is the lien on the property.

The lien on the property that is formed upon by law, without the consent of the parties, allowing the obligee (called the liener) to legally hold the property to be the subject of the bilateral contract. A case of seizing property in the event the obligor fails to perform or improperly fulfills his/her obligations (Article 346 of the Civil Code 2015).

The fact that the obligee may retain the property when the obligor fails to perform his /her obligations in the bilateral contract is a way to pressure the obligor to perform. However, within the scope of the rights of the lienholder, this person has the right to hold the property only, but in parallel with it, it is not allowed to use the property, exploit the property, and preserve the property until the lien ends. It means that, if the obligor in the bilateral contract refuses to perform its obligations, the obligee may only "waiting" at a time when the obligor performs it. The right holder cannot do anything to the object of the lien. The lien does not guarantee to do the obligations as well as the rights of the property holder.

In order to ensure the nature of a security measure, the regulations on lien should be amended in the following direction:

First, the holder may not exploit the property for a specified time. This time shall be determined following the value of the obligation, the object, and the obligation of the obligor. In the case of an indefinite period, it is after 01 (one) year from the time of holding assets.

Second, the property owner is allowed to exploit the property following the nature, characteristics, and utility of the property to make up for the infringed right. In case of improper use, which leads to damaged properties, properties must be compensated, repaired, and remedied. In particular, if the severe violation continues, the property owner may retain the right to sue the property.

Third, in case that a certain period after the exploitation of the property has been used and is unable to offset half of the value of the violated obligations, the law should allow the

holder to auction collateral. If the auctioned property has a price higher than the obligation, the holder must return it to the higher property owner. If the property's value is not sufficient to compensate for the infringement of the rights, the insufficient amount shall be considered an insecure debt of the obligor. Naturally, the liener has the right to request the obligor to pay this deficiency and may sue the Court to force the obligor to perform. The law can set a period if the parties do not have any agreement after 03 (three) years from the date of holding, the lienor has the right to auction the property. This period is relatively reasonable to assess the capacity as well as goodwill to perform obligations. At the same time, the obligee incurs certain losses from breaching the obligations of the obligor.

Only this amendment allows the lien on the property to bring into full play its performance in securing the performance of the obligation and forcing the obligor to be conscious of the performance of its obligations.

### ***Distinguish between work performance contracts and service contracts and completing service contract regulation***

In the Civil Code, the service contract is regulated from Article 513 to Article 521. Article 514 recognizes the service contract's object as "*a performable task which neither violates prohibitory provisions of law nor contravenes social morality*". So, all works once agreed and became the object of a contract that it is a service contract. However, the theory of service birth shows that service is a part of work, but this work is born in the context of a division of social labor, which performs a specialized job, is trained, and operates as a career. More importantly, services are a commodity traded on the market. Service providers are allowed to collect service charges, including the cost of performing the service and certain profits. Karl Mac said: "*Services are the offspring of a commodity-producing economy, when the commodity economy thrives, requiring a smooth and continuous circulation to satisfy the higher demand of people, so the service grows more.*" It shows that it is impossible to treat every job as a contractual service, and that contract is called a service contract.

In the context being a member of WTO and many regional and global economic organizations, Vietnam has also signed many free trade agreements with countries and regions, so Vietnam must have a proper perspective, especially services because it is considered as a specific commodity, an economic sector plays a crucial role in the non-border service market. Comparison with the European Union provisions on service contracts called the Principles European Law - Service contracts (PEL SC), the legislators consider the service as professional performances. So PEL SC has specific provisions on pre-contractual obligations such as pre-contractual obligation (Article 1: 103) and cooperative obligation (Article 1: 104) or the provision of conditions for the performance of the service (Article 1: 105), the general standard of the service (Article 1: 107), etc., These are obligations only to the service provider.

From a legal perspective, especially considering the nature and characteristics of non-service work and services, the Civil Code must have separate provisions between these two contract groups. If the contracts have non-service work, the parties may agree, and its

nature is pure. Even we only need a norm that defines the type of this contract is the basis for the parties to determine the type of contract, self-agreement of rights, and obligations. Furthermore, for contracts with a service object, the law has more specific provisions, especially on the supplier's obligations and the customer, which shows the differences between professional performers.

Therefore, in order to complete the legal provisions on this issue, the Civil Code should complete in the following directions:

First, the law must specify the independent existence of service contracts and non-service contracts (or non-service contract) by defining the contract statute. In particular, for the subject of the contract, it is required that the work is done by a professional, organized, performed as a professional (if the supplier is an individual), and business lines (if the supplier is a legal person).

Secondly, it is necessary to supplement many provisions on the obligations of the parties, especially service providers. When they are professional suppliers, receive a service fee from customers, have expertise and experience, and perform as experts, experienced people, they must have specific obligations than others not. Typically, the obligations of service suppliers must be amended are pre-contractual obligations such as warning about risks that may occur to customers, providing multiple service execution options for customers to choose, confidential information, etc. Furthermore, customers should also be supplemented with the provisions of abnormal warning obligations for service providers.

Thirdly, lawmakers should supplement service standards, especially if they do not have an agreement and must obey the law. Service standards must be defined with some contents such as: "*service providers must perform their jobs with necessary professional conditions, suitable to the circumstances of service implementation*"; and "*the service provider must comply with certain conditions if the law specifically requires specific services*", defining "*service standards in the event the provider promotes the service with standards higher than the standard*" should follow this published standard; service standards when a service provider is a member of a group of suppliers for one or specific services.<sup>6</sup>

Fourthly, lawmakers need to supplement regulation on performing service. The provision must respect the discussion rule. However, in this case, without discussion, service only is implemented when the service provider collects enough information and prepares all conditions for the service.

These primary obligations show differences between the implementation of service and non - service. It helps service providers who must enhance their responsibility. The services will be implemented better, more correctly, as well as clients heighten their rights. When the economy is non - border one, service is the first thing to be added to the non - border list. For example, Facebookers in Vietnam have the right to sign contracts with Facebook owners who are in the United States.

---

<sup>6</sup> Kiều Thị Thuỳ Linh (2017), Luận án "*Hợp đồng dịch vụ theo quy định của pháp luật dân sự Việt Nam hiện hành - Một số vấn đề lý luận và thực tiễn*", Đại học Luật Hà Nội, trang 141.

### *To define nature of cooperation contracts and complete the legal regulations on the contract*

Cooperation contract has regulated as a common contract for the first time in the Civil Code 2015 of Vietnam, from Article 504 to Article 512. However, this is not a newly recognized contract. It has been inherited from the contract form, which is a basis for establishing cooperative groups - one of the civil subjects. More specifically, the separation of cooperation contracts as a common contract shows two issues: First, recognizing the cooperative nature of the cooperative group is contractual relations. Subjects must use the basic principles of the contract adjusting relations between members of the cooperative group to ensure the true nature and true nature of the relationship; Second, regulations of central issues of cooperation contract make a legal framework for all cooperation activities in socio-economic life, especially the private sector. Many cooperative activities exist between social actors aiming at economic activities, seeking benefits, and sharing these benefits. However, in fact, there were no regulations on this type of contract until having the Civil Code 2015.

However, the provisions of the 2015 Civil Code still reveal many inappropriate points related to cooperation contracts. Some regulations that clearly show inappropriate points include:

Firstly, considering the nature of cooperation contracts is not accurate, many of the terms used in the contract are not appropriate. For example, lawmakers use the term "members" of cooperation contracts, "joining" cooperation contracts... The term "member" or "joining" is for organizations, not suitable for the contract.

Secondly, the subject of the cooperation contract has not been clearly defined. Currently, the object of cooperation contracts has not been regulated in the law. Meanwhile, cooperation activities will only be active if the parties identify the object of the cooperation contract.

Thirdly, legal regulations on cooperation contract form are not appropriate. Currently, the Civil Code 2015 stipulates that cooperation contracts must be documented in all cases. However, many cooperative activities that are taking place in the socio-economic life may be worth small cooperation assets or quick implementation, so many subjects choose only to engage in verbal form. If we look at the provisions of the law, these contracts violate the provisions on formal conditions. The provisions of Clause 2, Article 504 of the 2015 Civil Code are not appropriate and do not create flexibility in applying to subjects.

Fourthly, provisions on pre-contractual obligations in cooperation contracts have not been regulated in detail. The pre-contractual obligations for the parties to the cooperation contract comply with the general principle for all contracts when they enter into the contract. Meanwhile, many obligations of the parties must be well implemented before the cooperation contract is signed in order to create success in the contract performance. In many cases, such as making a prestigious contribution, there must be a mechanism to ensure credibility during the previous period when implementing cooperation contracts<sup>7</sup>.

---

<sup>7</sup> Trường Đại học Luật Hà Nội (2018), Đề tài nghiên cứu khoa học “Hợp đồng hợp tác trong Bộ luật Dân sự năm 2015” (do TS. Kiều Thị Thủy Linh chủ nhiệm đề tài), trang 132 - 138.

For carrying out the cooperative activity effectively for sustainable development in the future, the regulations on cooperation contracts need to be amended and supplemented to be more suitable. Specific recommendations include:

Use the terminology to match the nature of the cooperative contract. The nature of cooperation contracts combines the nature of the contract, the free will, and the cooperation contract's nature. Therefore, the cooperation contract must be an agreement of the cooperating parties whereby the parties may contribute their efforts and assets to perform particular works and enjoy the benefits or are jointly responsible under their discussion scope. Therefore, some terms that must be amended. For example, "cooperative members" will be "cooperating subjects", or "cooperating parties," "joining cooperation contracts" will be "signing in cooperation contracts" or "concluding cooperation contracts" will be "withdrawing from cooperation contracts"; Lawmakers should amend "terminating cooperation contracts". The exact terminology will reflect the nature of the contract.

Next, it is necessary to supplement the regulations on the object of a cooperation contract, precisely the object of a cooperation contract must be a collaborative work. Accordingly, the subject of a cooperation contract may be recorded as "a cooperative work selected and agreed upon by the parties in a cooperation contract and performed based on the contribution of assets and efforts"<sup>12</sup>. When the parties contribute their efforts or assets or are directed towards a specific task, a specific cooperative activity should identify the subject of this contract.

An issue to be finalized in the form of a cooperation agreement. The form of the contract should be revised in the direction that gives the parties the freedom to agree upon the choice of form. Several separate, essential, and complex separate cooperation contracts are assigned in the form of documents. Recognizing the freedom to choose the form of contract allows the entity to perform flexibly, quickly and effectively. Certain collaborative activities in essential areas may be subject to formal regulations and noted in specific laws.

Lawmakers need to improve the content of pre-contractual obligations for the parties to the cooperation contract, especially prestigious and labor-contributing members. Upon signing the cooperation contract, the parties agreed on the value of prestige, or convention of the amount of effort contributed to the cooperation activities, so these subjects must be obliged to ensure the prestige and labor. his actions. In particular, where the parties cause damages due to their failure to ensure the prestige and efforts, they must be responsible for compensation for damages to other cooperating parties as well as to the third party - those who are damaged.

---

<sup>12</sup> Nguồn đã dẫn, trang 133.



## 5. References

1. Tạp chí Tài chính (2019), *Vai trò của kinh tế tư nhân ngày càng được ghi nhận*, trên trang điện tử tại đường link: tapchitaichinh.vn.
2. Nguyễn Hồng Hải (2017), *Vài nét về quyền hưởng dụng trong Bộ luật Dân sự năm 2015*, Vietnam Law and Legal Forum, No273/May 2017 đăng trên trang điện tử tại đường link: thongtinphapluatdansu.edu.vn.
3. Nguyên tắc Luật Châu Âu về hợp đồng dịch vụ (Principles of European Law - Service contracts), nguồn tại:  
[http://www.sgecc.ous.de/media/downloads/sgeccservices\\_contracts.pdf](http://www.sgecc.ous.de/media/downloads/sgeccservices_contracts.pdf).
4. Kiều Thị Thùy Linh (2017), Luận án “*Hợp đồng dịch vụ theo quy định của pháp luật dân sự Việt Nam hiện hành - Một số vấn đề lý luận và thực tiễn*”, Đại học Luật Hà Nội.
5. K.Marx, Ph.Angghen (1995), Toàn tập, Phần II, Nhà xuất bản Chính trị quốc gia.
6. Nguyễn Minh Oanh (chủ biên), *Vật quyền trong pháp luật dân sự Việt Nam hiện đại*, Nhà xuất bản Công an nhân dân.
7. Trường Đại học Luật Hà Nội (2018), Đề tài nghiên cứu khoa học “*Hợp đồng hợp tác trong Bộ luật Dân sự năm 2015*” (do TS. Kiều Thị Thùy Linh chủ nhiệm đề tài).

# STATUS OF ECOLOGICAL ETHICS OF NEU'S STUDENTS AND SOME RECOMMENDATIONS

*Master Le Thi Hong Thuan*

*thuanlth.neu@gmail.com*

*Master Nguyen Thuy Linh*

*thuylinh.hg1988@gmail.com*

*Master Nguyen Thi Mai Lan*

*mailan78neu@gmail.com*

*Faculty of Political Theory, National Economics University, Hanoi, Vietnam*

## **Abstract**

*Students are a unique, quintessential social force in the youth class and a major force to complement the intellectuals. Students are also the main force contributing to the sustainable development of the country in the future. Ecological ethics of students have both immediate and long-term benefits, so it is considered to be the most effective, profound and lasting. In addition to professional qualifications and ethical qualities in general, ecological ethics in particular is one of the criteria to assess the capacity of students when they graduate and join the human resources for national development. Students of the National Economic University will become economists, business administrators in the future, directly participating in the process of industrialization and modernization of the country associated with sustainable development, so ecological ethics is even more necessary. This article focuses research on the status of the ecological ethics of NEU's students in present about consciousness, standards, behavior, thereby giving some recommendations in order to improve more and more ecological ethics for students, the most important of which is due to the student themselves.*

**Keywords:** *ecological ethics, ecological ethics of students, students of national economic university.*

## **1. Introduction**

### **Ecological ethics concept and contents**

Ecological ethics is a new term appears, has been a controversial issue, so far there is no unified conception. Each different tendency has a different interpretation and scope such as the moralism of living things, the ecological ethics of the West, the concept of the Heaven - Earth - Human unity of the East. Thus, there have existed many different ecological ethical views both in the West and in the East, showing different levels of society in each historical period. According to K. Marx and F. Engels, human beings must have a dual relationship, that is, to survive and develop, they must not only establish relationships

between humans and nature but also must establish relationships between human. In the relationship between human and nature, it is necessary to create a harmonious and sustainable development for both human and the natural world - that is the ecological ethical relationship. It is not simple to have a complete definition of ecological ethics. According to author Vu Trong Dung:

*Ecological ethics consists of a system of points of view, concepts, ideas, emotions, principles, rules, norms, etc. that regulate human behavior in the process of natural transformation and improvement, in order to serve human life, the existence and development of society in ecological conditions that still have special characteristics* (Dung, Vu Trong, 2009).

Ecological ethics is formed during the time when human impact on the nature, taking from it the things necessary for their existence and development. This is a realistic process, which has occurred since humans separated from the animal world and continued according to the historical process, was carried out in the development and mutual replacement of specific economic - society forms. When the productive force develops, the relationship between human and nature also changed. That is reflected in the change from human's conception, affection, behavior towards nature. Moreover, how people treat nature depends on the nature of the social regime and on the dominant production relations.

However, the protection of nature is not limited to the direct relationship between human and nature, but also the relationship between humans. Therefore, ecological ethics is not only limited to the direct relationship between human and the natural environment, but also expressed in the relationship between humans. In the relationship between human and nature, ecological ethics require that to ensure their development, human must cherish, protect nature and respect biodiversity. However, in order to protect nature, human must adequately solve the socio-economic issues, the relationships between humans manifested at all levels: community, ethnic group and humanity in terms of economic development, transformation and using of clean technology, prevent war, protect peace... related to ecological ethics.

### ***Contents of ecological ethics of students***

#### ***Ecological ethical consciousness***

Ecological ethical consciousness is a field of dialectical relationship between nature - man and society. Ecological consciousness can be considered as “*a person's self-conscious consciousness of the relationship between human, social and nature and the methods of consciously controlling those relationships to create a real harmony between society and nature, creat conditions for long-term development of society*” (Tram, Pham Thi Ngoc, 1997). The ecological ethical consciousness of students includes a sense of truth (rightness), kind (goodness), fine (beauty) and will practice a culturally conductive lifestyle towards nature. The consciousness of ecological ethics includes the knowledge, affection, beliefs and wills.

Ecological ethical knowledges: This is the basic and core element, the mode of existence of ecological ethics. It is the understanding of the good, evil, beauty, ugliness; the

right and wrong way of dealing with nature. Only nature can provide man with all that necessary material. The relationship between man and nature is an organic, close relationship. Students need to be aware of their position and role in relation to nature. Only when students understand the true values of the natural environment in their lives, then they will not use natural resources in an arbitrary, wasteful, pragmatic manner but follow the rules of nature.

**Ecological ethical emotions:** It is an essential character of human in general and ethical character in particular. This is a delicate field of the human soul. Emotions of ecological ethics are generated in specific, extremely rich and diverse situations of social ethical life and in the communication and behavior between human and nature. Ecological ethical emotions is a student's emotional attitude towards their own and others behavior in relation to nature, express their feelings, vibrations before the beauty and value of nature. Therefore, ecological ethics is not only a student's perceived state with nature, but also the capacity of consciousness in the exploitation, using and protection of the natural world for human life.

**Ecological ethics belief:** This is one of the factors determine the ecological ethical behavior of students, is the basis for revealing ecological ethical qualities such as: resolute action to fight against back to the bad habits of their and others behavior to the nature. In the ecological ethics of students, belief has a huge role because when there is faith in nature, students will be more active, more direct, trust in their own cognitive abilities, and make the right decisions for each of their behaviors toward nature.

**Ecological ethical will:** It can be said that all students' behavior towards nature comes from the ecological ethical emotions of students. Without ecological ethical emotion, it is difficult for students to have the will and conduct ecological ethical behavior. Ecological ethical emotions are created by ecological ethical will and they are closely related. If the ecological ethical will is right, it will pave the way for the right ecological ethical behavior, the deep ecological ethical emotions will be the manifestation of the sharp ecological ethical will. When having an ecological ethical will, students will be determined not to act that harm the natural environment and will resolutely fight to prevent activities of exploiting forests, minerals and land, animals and plants cause crisis and environmental pollution.

#### *Ecological ethical standards*

Ecological ethical standards are the ones that meet social development requirements, create the good character of each human and humanity. Therefore, it has been evaluated, acknowledged and generalized into ecological ethical models for people to self-consider, self-assess and adjust their own behaviors to respond general requirements of social ecological ethics. The ecological ethical standards govern and determine the behavior of students, it suggests, telling students what to avoid in dealing with the natural world.

Ecological ethical standards and behaviors of students depend on students' level of awareness about the natural world (ecological ethical consciousness, conception, emotions, etc.) and also depend on the interest relationship (ecological ethics) of students in relation to nature.

Some basic ecological ethical standards for students can be drawn as follows: Saving in consumption, voluntarily complying with the requirements of environmental protection in consumer activities; Respecting, protecting of life and biodiversity; Actively in propaganda about environmental protection, educating and mobilizing all social forces to participate in environmental protection.

#### *Ecological ethical behavior*

Ecological ethical behavior is the highest manifestation of ecological ethics, which is the synthesis of all the constituent elements of ecological ethics. Ecological ethical behavior is understood as an act of self-discipline motivated by an internal motive that means ecological ethics. They are often expressed in the behavior of students towards the natural world, in the ecological and cultural lifestyle of students, it should be reflected in the practice of ecological ethics in their daily activities. Ecological ethical gestures and acts are always rooted in pure emotions, not because of the selfish, trivial calculation of individual students.

Students who have ecological ethics often do good things such as preserving, cherishing, using natural resources effectively and economically, because that is the impulse from the bottom of their hearts to the desire to make their relationship and nature become better and better.

#### *Literature reviews*

There are many papers on ecological ethics. Some typical papers such as "*Ecological ethics from theory to practice*"; "*The problem building ecological ethics in condition of the market economic*" by Pham Thi Ngoc Tram; "*Ecological ethics - issue that need attention*" by Tran Sy Phan; "*Some theoretical issues about environmental ethics*" by Vu Dung. Directly related to ecological ethics is the article "*On environmental ethics*" by Ho Si Quy. The Japanese researcher Tomnobi Imamichi has the article "*The concept of ecological ethics and the development of ethics ideology*", the translator Nguyen Thi Lan Huong.

The research paper has focused on clarifying the concept of ecological ethics, the constituent elements of ecological ethics, the factors affecting the ecological ethics in general. Although there are still different notions about the concept of ecological ethics, these works are generally united in the assumption that ecological ethics is formed in the process of human impact on nature, it is a system of views, concepts, thoughts, feelings, principles, rules, norms ... regulating and adjusting human behavior in the process of natural gender transformation to serve the human life, ensuring the development of both human beings and the natural world.

Ecological ethics is formed and developed mainly by two paths: spontaneity and self-awareness through education. In recent years, the study of ecological ethical education has attracted by many researchers. Among the works related to this issue, there are some typical projects such as: "*Ecological ethics and ecological ethical education for key officials at district level in the northern provinces in our country today*", Ministry-level scientific project in 2003-2004, Ho Chi Minh National Political Academy; "*Ecological ethicaleducation for key officials*" by Le Binh (Journal of Party Construction, No.7, 2005);

*"Educating ecological ethics and building a cultural environment in the twenty-first century schedule"* by author Do Huy (Political Theory Journal, No.2, 2007) ...

The above works all affirmed the goal of ecological ethical education, the need to educate ecological ethics in the present conditions, to show what is the content of ecological ethical education, the status of ecological ethical education and how to educate ecological ethics most effectively.

Recently, researching on ecological ethics in students has attracted more attention of researchers, including the National Conference on *"Environmental Education in Schools"*, Research Center Natural Resources and Environment with Hanoi National University to coordinate implementation; In particular, in 2009, the National Political Publishing House published a monograph *"Ecological Ethics and Ecological Ethical Education"* by Vu Trong Dung. More concretely, some works focused on studying the ethical education in specific scope and subjects such as: master's thesis in Philosophy *"Environmental ethical education for students of Resource and Environment College of Central in current"* (2014) by Mai Thi Thu Hang; Master's thesis in Philosophy *"The issue of ecological ethical education for students in colleges and universities in Hung Yen in the current period"* (2013) by Nguyen Cong Cuong, University of Social Sciences and Humanities, Hanoi National University.

In the above works, the authors also assessed the situation, analyzed achievements, limitations in ecological ethics of students in Vietnam today. With evidence of serious environmental degradation in many urban areas, cities, craft villages, rivers, and coastal areas, the authors have shown weaknesses in ecological ethics and ecological ethical education in schools. The solutions to improve ecological ethics proposed by the authors are quite comprehensive and feasible; based on relatively focused theoretical research, based on fairly comprehensive assessments and international experience references... The above mentioned ecological ethical researches achievements have the scope of research at the social level, national level. Only in certain specific cases, ecological ethics in schools were mentioned as an example.

In the current situation, facing climate change is increasingly unfavorable for humans, ecological ethical education becomes inevitable, is the educational objects of many ages, including students. However, the issue of ecological ethics of students in current has not been specifically studied, especially ecological ethics of NEU's students.

## **2. Method**

The authors use some basic methods in research such as analysis, synthesis to clarify the theoretical and practical basis of ecological ethics of NEU's students today.

Based on the theoretical framework of ecological ethics identified above, especially on the contents of ecological ethics, the authors designed a survey form for National Economics University students from Courses 58 to 61.

The ecological ethical criteria for this survey form were developed by the authors based on the ecological ethical theory framework. The questionnaire is designed according to the level from 1 to 5. Students who answer the questionnaire will

give points for assessing the ecological ethical status of NEU's students in 5 levels: with level 1, completely disagree ; with level 2 is disagree; with level 3 is no idea; with level 4 is agreed; with level 5 is completely agree.

The number of students surveyed in courses is 329. The time of the survey was from May 2019 to September 2019. From May to June, 2019, taking surveys for students of courses 58, 59 and 60. In September, 2019, taking surveys for students of class 61.

### **3. Results**

#### *The status of ecological ethical awareness*

The awareness of ecological ethics is considered the first factor that helps shape ecological ethics, the formation of the right ethical consciousness will help create the right ethical standards and ethical behavior. Ecological ethics consciousness includes elements: knowledge, emotion, beliefs and will.

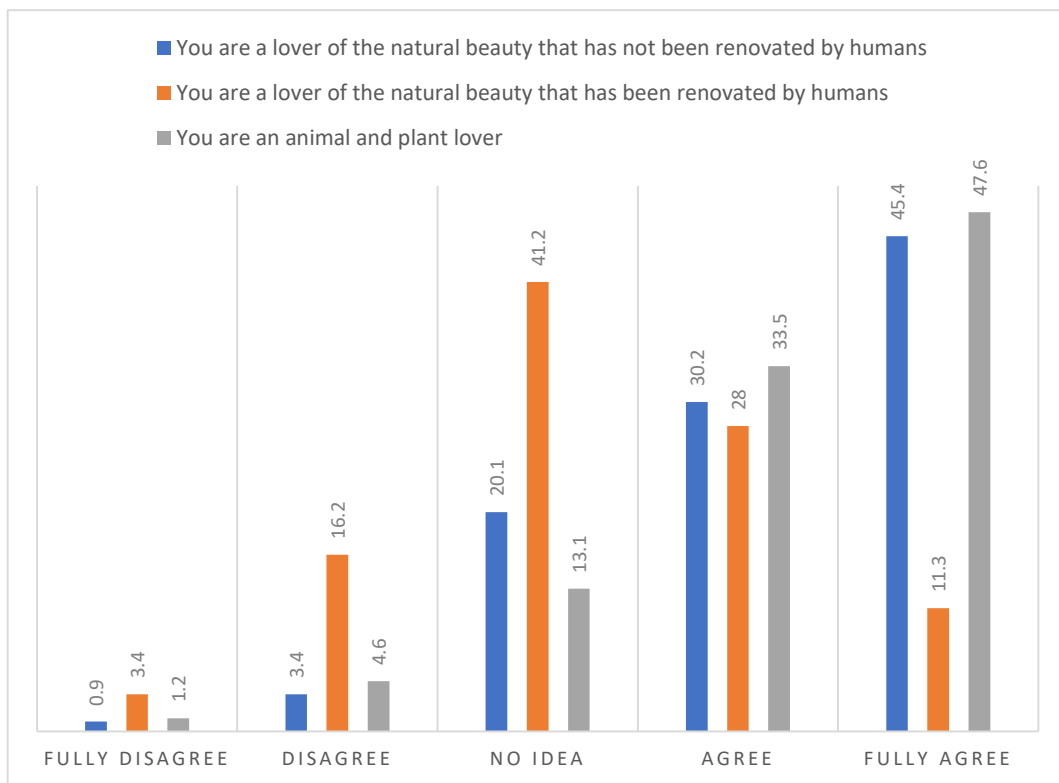
*About ecological ethical knowledge:* The survey results show that most students of the National Economics University have correct ecological ethical knowledge. This is reflected in students' awareness of the role of the ecological environment to human life, the relationship between human beings and the natural world, and the human impacts on nature. Up to 98% of the students surveyed said that the ecological environment is very important to human life. The right awareness is the most prerequisite for establishing the right behavior. With a clear awareness of the importance of the ecological environment, the majority of students have right awareness of the relationship between humans and the natural world. The human is part of the natural world and he must live in harmony with nature and cannot give himself the privilege of dominating the natural world. Having 57% of the students said that human do not have the right to dominate the natural world. And up to 91.4% of students think that human and nature have a harmonious relationship, interacting with each other.

Students also realized that human impacts are factors that cause negative changes in the ecological environment, in which the objective impact of economic development activities has destroyed the ecological environment, but most importantly due to human consciousness. Having 84.4% of students agree or strongly agree with the view that the ecological environment is destroyed mainly due to human consciousness. It is human activities that have devastated the natural world, caused negative natural changes, and want to protect the ecological environment must also start from the human consciousness.

However, besides the majority of students who have true ecological ethical knowledge, there is still a small part of students have not really accurate perceptions. Some students still believe that humans have the privilege to dominate the natural world (16.2%) without realizing that humans are only part of the natural world and must live in harmony with the natural world. Some students were still not aware of the role of human self-consciousness in affecting the ecological environment, up to 12.5% had no idea when asked about the environmental issues. The state of destruction is due to

human consciousness. Many students realize that protecting the environment is a necessary but consider it a macroeconomic work, a duty of the government, of large organizations without being aware that big changes must start from small actions of ourselves. If each of us does not voluntarily change our daily routines, do not join to save our common home, the earth will be destroyed.

*About ecological ethical emotion:* Emotion is a delicate field of the human soul. The love of the ecological ethics expresses the students' emotional attitude towards their own behavior and the behavior of others in their relationship to nature, expressing their feelings and vibrations in front of natural beauty. The survey results showed that the majority of students love the natural beauty that has not been rehabilitated (75.6%), and most students also love animals, or plants of the natural world (81.1%). However, when asked about the "delicate" part of each person's soul, there is still a part of students who are not fully aware of their own feelings: 20.1% of students have no idea about the opinion "You are a lover of the natural beauty that has not been renovated by humans"; in the opinion that "you are a lover of the natural beauty that has been renovated by humans" is 41.2%; and in the opinion that "you are an animal and plant lover" is 13.1%.



(Source: The authors synthesized from the survey results)

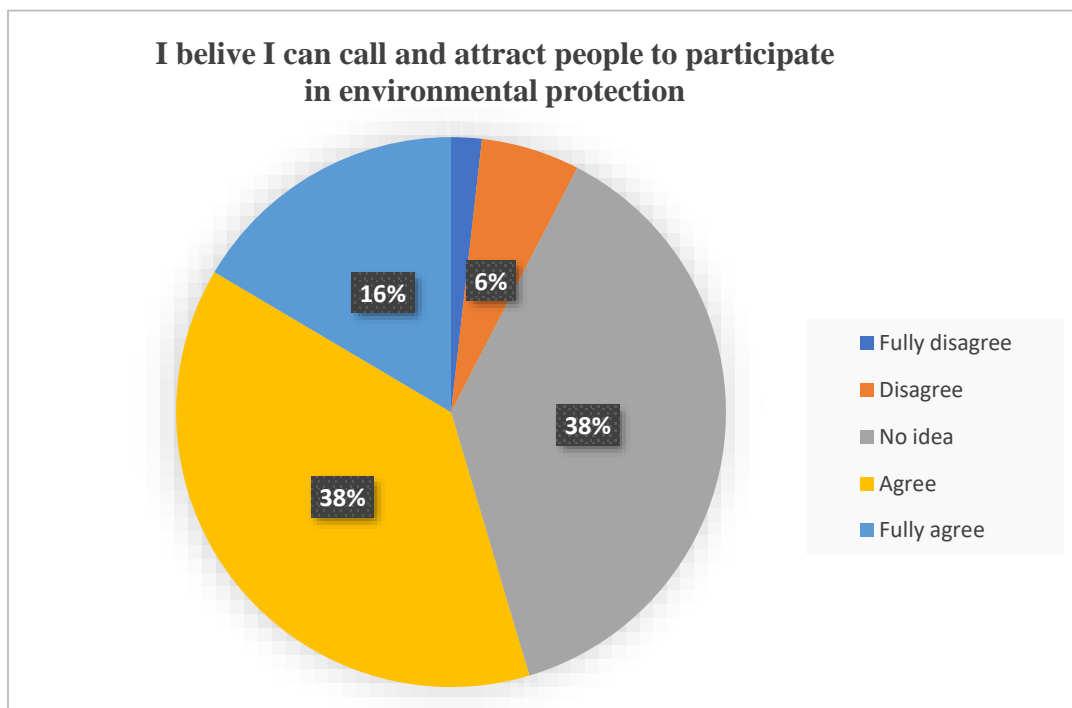
**Figure 1: Survey results about students' ecological ethical emotion**

*About ecological ethical beliefs:* From the right knowledge to the right emotions will form the right beliefs. And ecological ethical beliefs are the factors that determine the ecological ethical behavior of students. The survey results show that the majority of students believe that their own actions will help protect the environment, this belief is really "strong" when 48.5% fully agree, and 36.9% agreed with the statement that "you believe your actions



can contribute to the protection of the natural environment". While most students believe that their own actions will help protect the natural environment, beliefs with common awareness and actions that human will change to protect their own environment is somewhat wavering. When asked about their comments: "You believe that human will change to protect their own environment" with 22.6% no ideas, 8.2% disagree and fully disagree. In fact, the change of an entire community, a nation, or the change of all humanity starts from the change of each individual. Students' beliefs about contributing to their own actions to protect the natural environment will create spillover, make a bigger change, not only on campus. However, to create that spread, it also needs confidence and determination in drawing people to participate in environmental protection. And apparently, the belief that "I can call and attract people to participate in environmental protection" is not really strong.

In fact, the change of an entire community, a nation, or the change of all humanity starts from the change of each individual. Students' beliefs about contributing to their own actions to protect the natural environment will create spillover, make a bigger change, not only in schools. However, to create that spread, it also needs confidence and consistency in attracting people to participate in environmental protection. And apparently, the belief that "I can call on and involve people in environmental protection" is not really strong.



(Source: The authors synthesized from the survey results)

**Figure 2: Survey results about students' ecological ethical beliefs**

*About ecological ethics will:* Ecological ethical will is a factor that helps students overcome all difficulties and determination to prevent activities that harm the ecological environment. The majority of students are determined not to commit acts that harm the

natural environment (73.2%); and within their ability, students are also determined to prevent behaviors harmful to the natural environment (74.4%). Besides students are active in preventing behaviors that cause harm to the environment, still having a part of the students showed indifference, hesitant when between 22% and 38% of the students asked did not express their views on this issue.

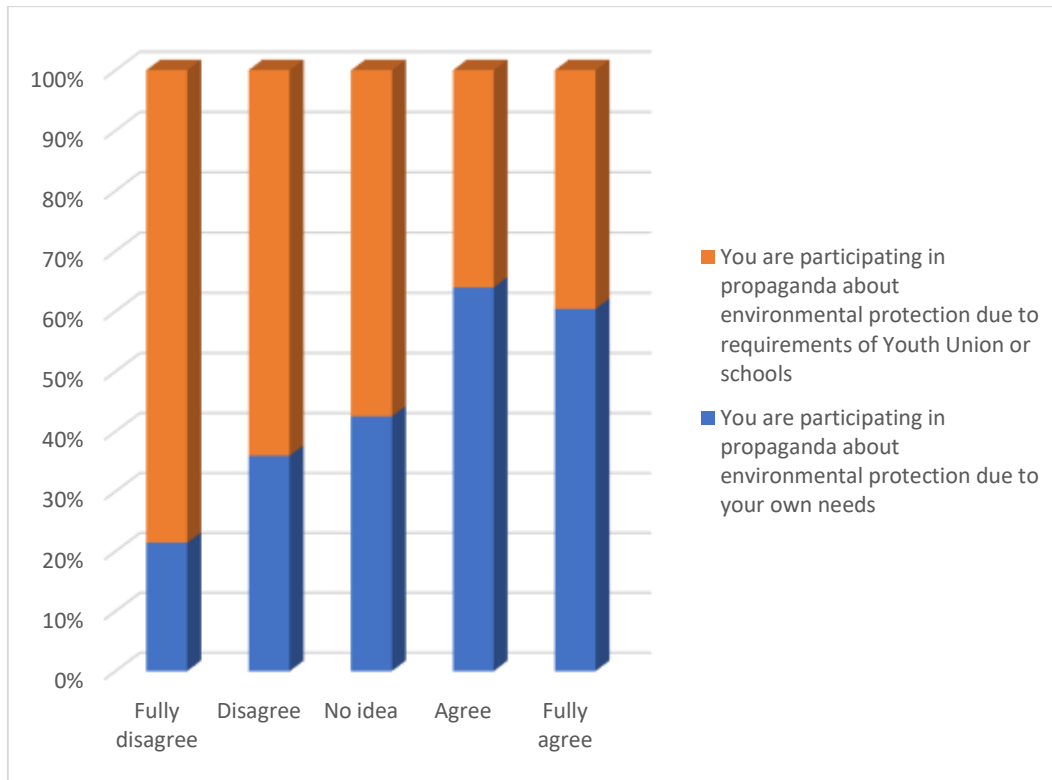
### ***The status of ecological ethical standards***

Ecological ethical standards represent a measure of each person's ethical and ecological behavior. As with ethical standards in general, ecological ethical standards are expressed in many levels and forms. For students it is manifested in very basic issues such as saving in resource consumption, respecting and protecting biodiversity, actively promoting environmental protection ...

The survey results show that the majority of students are conscious of saving and practicing saving resources in daily activities (75%), the number of students not aware of saving resources resources for only a very small portion (4%). Students also changed their daily lifestyle when consciously choosing green consumer products, towards sustainable consumption. The students also paid attention to and implemented restrictions on plastic waste.

In ecological ethical standards, respecting for, protection of life and biodiversity is a core content. For students, respecting for biodiversity is evident in the protection of plant and animal species, condemning the hunting and using of rare plants and animals. The majority of students oppose the use of products from rare plants and animals (85.7%), only a small percentage of students (4.6%) did not oppose the use of rare animal and plant products; and 9.8% did not comment on this issue.

The ecological ethical standards also show in the positive of students participating in propaganda about environmental protection, educating and involving people to participate in environmental protection. About 51.5% of the students surveyed participated in the campaign to protect the environment, the majority of which participated in the movement was due to their own needs, not the requirements of the groups such as Youth Union, or Student Association. This clearly shows that students have been proactively and actively participating in the propaganda about environmental protection voluntarily, have been aware of the importance of propaganda about environmental protection. The propaganda on environmental protection is carried out regularly by students, and the object of the propaganda is also family, friends and relatives: About 70.8% of the students surveyed confirmed that they have propagated their knowledge about environmental protection to friends and family. However, the surveyed results show that the rate of students participating in propaganda about environmental protection is not high, especially, the number of students who have unclear views, showing the indifference is quite high (39% have no opinion when asked about participating in environmental protection activities).



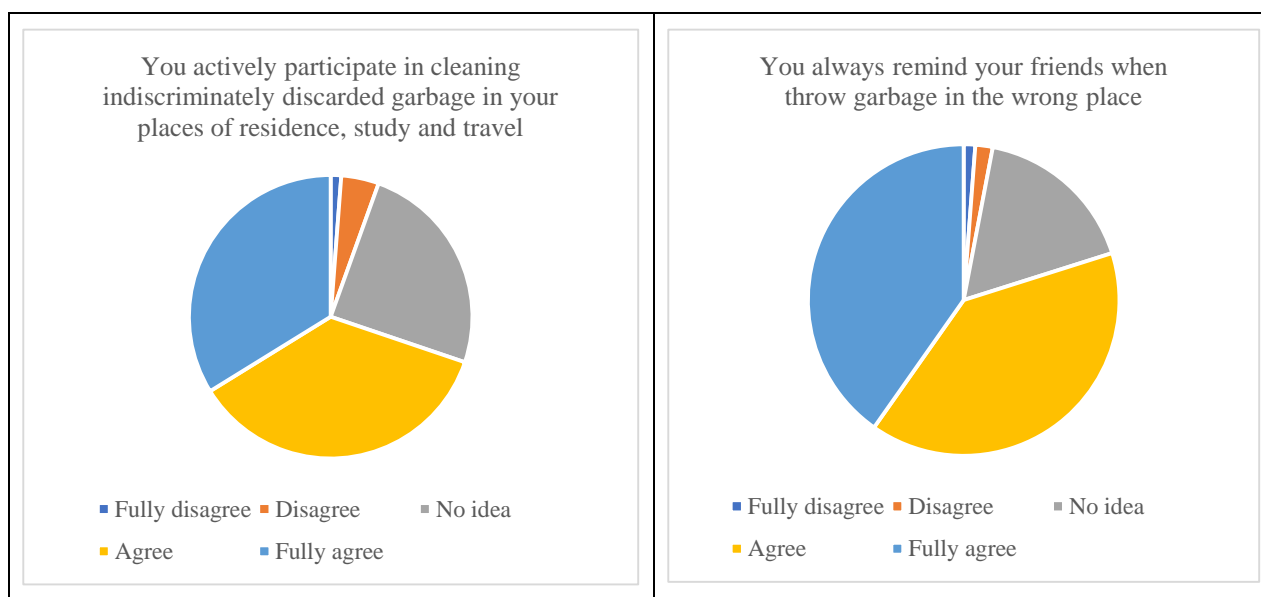
(Source: The authors synthesized from the survey results)

**Figure 3: Survey results about students' ecological ethical standards**

***The status of ecological ethical behavior***

Consciousness and norms of ecological ethics must be expressed in concrete actions (ecological ethical behavior) to bring real benefits to society. The ecological ethical behavior of students is manifested in students' conduct towards the natural world, in the ecological and cultural lifestyle of students. Ethical behavior is manifested in very specific and daily problems of life such as throwing waste in the right place or strictly abiding by the regulations on environmental protection. Most of the students have behaved rightly and are very aware of their behavior.

The survey results showed that 89.7% of students always throw waste in the right place, 91.8% always obey the regulations on environmental protection. Only a small proportion of students still behave improperly. Students also actively participated in cleaning indiscriminately discarded garbage in their places of residence, study and travel. These actions are all self-conscious actions, derived from the awareness and needs of the individual, it shows the responsibility of young people with their own lives and the future of humanity. Not only regulating their own behavior, the students also actively reminded to correct the wrong behavior of their friends. About 79.8% of students say they always remind their friends when throw garbage in the wrong place. It is these seemingly small actions that will create a strong spread so that gradually change the behavior of a whole generation.



(Source: The authors synthesized from the survey results)

**Figure 4: Survey results about students' ecological ethical behavior**

The change in student's lifestyle is clearly shown when the majority of students actively choose environmentally friendly products (85.4%), voluntarily restrict the use of products harmful to ecological environment (77.1%).

However, the study on environmental protection has not been really interested by the students, up to 31.7% of students asked did not comment on this issue.

Students also actively participated in environmental protection movements and propaganda on environmental protection organized by Youth Union, Student Union, or participated in non-profit organizations' programs. The Students' Union organized a 360 environment club. The club is home to many students who are conscious of protecting the environment. At the same time, this is also a place that causes many changes in students' perceptions and actions, drawing more and more students to participate in environmental protection activities. This creates dramatic changes in students' perceptions and actions as environmental protection movements become more and more popular and practical in life. Students have been conscious of changing from the smallest actions such as actively carrying water bottles to use many times instead of using plastic bottled water ...

However, there are still many students, although they are aware that their behaviors can harm the ecological environment but still have not actively changed their own behaviors. For example, the use of disposable plastic products, they all know that disposable plastic products such as bottled water, plastic cups, plastic straws, plastic bags... are very difficult to decompose products and cause terrible harm to the environment, but students still use these products daily as a bad habit that is hard to quit. The shops, service areas on the campus are still widespread use of disposable plastic products. This requires a drastic change in awareness from the students, as well as from the university to have stricter regulations on the use of disposable plastic products.

#### **4. Discussion and Conclusion**

##### ***The cause of the situation***

*The cause of the advantages:* The first is derived from the Party's guidelines and policies, the State's legal policies and the social concept of ecological ethics. The second is the policy of NEU and the activities of socio-political organizations such as Youth Union or Student Association. The third is from the student's own perspective on ecological ethics.

*The cause of the limitations:* Firstly, there has been no proper attention of the Government and other ministries on ecological ethics education for students. Secondly, the school does not really care about the ecological ethics of students; activities of Youth Union and Student Association in propagating and organizing to students participate in environmental protection activities have not been really effective. Thirdly, due to the content of the program, curriculum, and methods of ecological ethics education for students of the National Economics University. Fourthly, due to the students' self-awareness is not high.

##### ***Some recommendations to improve the ecological ethics of National Economics University students***

*Further enhance the awareness and responsibility of the school towards the ecological ethics of the National Economics University students*

For the school leadership: The school should promulgate specific regulations on ecological ethics practices in schools. Although there have been some regulations on protecting the school ecological environment, these regulations are quite general and limited. A set of standards should be developed for the practice of saving resources and protecting the ecological environment in the school while building a code of student conduct as well as developing a university cultural standard for the whole officials and lecturers. These regulations must be aimed at both lecturers and students. Regulations on ecological ethics practices must be closely linked to the inspection and supervision regime to ensure that the regulations are properly implemented.

On the side of mass organizations: Organizing clubs on environmental protection, propaganda teams such as environmental 360 degrees clubs with exciting and practical activities to attract students to participate. At the same time, participating in propaganda, advocacy and persuading local people to change behavior and living habits harmful to the environment. Organizing emulation movements among the federation of schools in the field of environmental protection. Thereby, building and scaling up models of environmental protection. In particular, with NEU's students, Youth Union, Student Association need to support and encourage entrepreneurship ideas, start-up and career models of students associated with environmental protection, building up Green economy model.

*Fostering teaching staff about ecological ethical education from different subjects*

In order to make ecological ethical education for students in accordance with current practical conditions, we need to foster lecturers of the subjects with integrated environmental education, especially ethics teachers, thereby supplementing them with more knowledge

about ecological ethics. Creating a change in the awareness of lecturers about ecological ethics and ecological ethical education for students must be considered as the first decision stage. Just like that, the introduction of content, the program of ecological ethical education into colleges, universities and education for students in a basic and systematic way is practicable.

The school should encourage and create favorable conditions for lecturers to be trained to improve their foreign language and IT skills to meet the requirements of ecological ethical education for students. To complement the teaching of lively and attractive lecturers, it is also necessary to enhance the fostering of practical experience for lecturers. Because only on the basis of rich and diverse practical experience, lecturers can have lively, attractive lectures with high results. Every subject needs to be tied to practice, but ethical ecological education for students needs to pay more attention to practicality, especially local practices, according to the motto of "global thinking, action local".

Regularly paying attention to the lecturers of study subjects, visiting fieldwork in localities, trade villages, factories, enterprises, cultural and historical relics...; At the same time, it is necessary to recruit and supplement qualified officials who have gone through practical work as a lecturer. In fact, in Vietnam today, because there is no subject of ecological ethics, it is not possible to train and foster experts who teach about ecological ethics. Therefore, in the immediate future, it is necessary to foster lecturers who teach subjects related to ecological ethical education such as lecturers of environment, geography, philosophy, revolutionary ways of the Communist Party of Vietnam, general laws, etc., in order to improve their professional qualifications, update their ecological ethics and occupational skills

#### *Innovating contents and diversification methods of ecological ethical education*

Regarding the content and program of ecological ethical education: Through practical research at the National Economics University in particular and universities and colleges across the country in general, there is no ecological ethics subject in the training program. Ecological ethical education is integrated into other subjects in a cross-disciplinary spirit. However, in order to eco-ethical education for students to be effective in these subjects as well as to meet the educational development strategy in a systematic manner, it is necessary to develop ecological ethical education program and content suitable for students.

The content and program of ecological ethical education are detailed, specific, systematic and continuous in the curriculum. In Vietnam, besides the curriculum issued by the State, in colleges and universities there are internal curricula prepared by the faculties, subjects to serve teaching in accordance with the different training forms.

However, the reality in our country today can't have an independent curriculum on ethics ecology. The development of contents, programs and methods of ecological ethical education need to be added to the educational levels, from the preschool level, especially the college and university level. However, in each different specialty, there must be practical and appropriate program content. In the immediate future, it is necessary to develop contents and programs of ecological ethical education with a reasonable duration, basic and necessary knowledge, and integrate it into other subjects suitable to the reality of education in our

country today. Can integrate according to the level: whole, part and contact depending on each subject accordingly.

About the method of ecological ethical education: To really stimulate the creative potential of students in ecological ethics learning, it is necessary to pay attention to teaching methods, step by step improve teaching and learning methods towards modernization, moving from the transmission of scientific information to organizing awareness and teaching processes that not only provide or "cram" information, but also direct and guide students to find new and expanded information, self-formed and developed their skills and techniques in accordance with the new situation today. The information explosion, the strong development of the media and the science - technology and educational methods must be transformed from announcement - transmission to teaching students to self-study methodically.

Focusing on continuous innovation and modernization of ecological ethical education methods. However, it is important to go through learning to practice, which means practicing in the educational environment and real life, focusing on practical operation methods, experiential learning methods.

Diversifying forms of ecological ethical education for students: Ecological ethics of students are expressed through lifestyle and actions and must be based on the self-awareness of each student. This self-awareness has been initiated, constantly developed and strengthened through various forms of ecological ethical education, from family to school and social education. Therefore, in order to improve the effectiveness of ecological ethical education for students we need to pay attention to some basic forms of education as follows: through different subjects in the school; through the forms of scientific research to carry out exercises, essays, research topics related to the environmental field; through extracurricular activities, sightseeing; combine family, school and society in ecological ethical education for students; through the Youth Union and Student Association; through the mass media.

*Promoting students' active, positive and creative roles in self-improvement of ecological ethics*

Raising awareness of students about the role of self-study and self-discipline in ecological ethics: In order to have a transition from ecological ethics knowledge, ecological emotions, ecological ethical will into ecological ethical behavior, which requires students to take the initiative in self-study. Self-study of students is an important part of the education and training process. That is the core element of learning activity, the internal force that determines the quality of learning. At the same time, it is also a requirement of cognitive development and ethical virtue training according to the defined training model.

Developing a plan and strictly implement the plan of self-study, self-improvement to improve ecological ethics: In order for the study to be effective, students need to develop a scientific study plan. In order to develop a self-study and self-training plan, each student needs to be self-aware based on their own work, thereby actively allocating time for self-study and self-training reasonably. Students must have learning, research plan in a scientific way, knowing the right combination of study and practice, research and rest accordingly.

Students' learning tasks are completed only when they know how to translate the defined plan into specific tasks.

Linking self-learning, self-discipline with ecological ethics with the implementation and solving problems posed by practice: The process of learning and self-training of students only really achieve high efficiency when students know how to associate learning with practice, theoretical learning must be compared with reality. This is the process of turning what is learned, perceived into reality, and the actual implementation of activities in selected ways, which shows the "ego" characteristic of individual students in learning.

## **5. References**

1. Dung, Vu Trong, (2009), *Ecological ethics and ecological ethical education*, Hanoi, Vietnam, National Politics Publishing House, pp.77.
2. Tram, Pham Thi Ngoc, (1997), *Ecological environment: Problems and solutions*, Hanoi, Vietnam, National Politics Publishing House, pp.121.



# SOME SOLUTIONS FOR SOCIAL SCIENCES AND HUMANITIES HUMAN RESOURCE DEVELOPMENT IN VIETNAM TODAY

*Hoang Thi Hai Yen*

*hoanghaiyentn123@gmail.com*

*Thai Nguyen University of Technology*

## **Abstract**

*Social sciences and Humanities (Social Sciences and Humanities) are responsible for studying the laws of formation and development of society and people, of the relationship between human beings, between humans and the environment and society. Therefore, Social Sciences and Humanities have an increasingly important role for the development and social progress of each country. In our country, Social Sciences and Humanities have the function of basic and comprehensive research on Vietnamese society and people, providing scientific arguments for planning guidelines, policies for national construction and development, and protecting national defense, contributing to improving the intellectual level, participating in the evaluation of programs and projects of socio-economic development, building and developing social sciences and human resources to meet the country's development requirements. . Therefore, in the task of promoting industrialization, modernization and international integration, human resources of Social Sciences and Human Resources plays an important role. However, the current situation of Human resources for Social Sciences and Humanities still faces many difficulties and limitations, requiring appropriate solutions to promote the efficiency of this human resource.*

**Keywords:** *social sciences and humanities, human resources, international integration.*

## **1. Introduction**

Among the resources of each nation's socio-economic development (capital, people, science and technology, economic structure, political institutions and state management), people or human resources is a decisive factor. Whether society develops rapidly and sustainably, it depends mainly on human resources (including quantity, quality and structure of human resources). The human being, with infinite source of intellectual potential, is the decisive resource, the goal and the motivation of development. In any era, people have always been the leading and leading production force of the whole society, holding a central position in socio-economic development. People have increasingly shown their role as the subject of all creation, all material and cultural resources, and all civilizations of nations. Therefore, countries increasingly realize that caring for human development is a strategic and effective investment, which is the most sure basis for rapid and sustainable development.

In human resource management, human resource training and development plays an important role. Training and developing human resources with a view to bringing into full play the potential of every human being, contributing to strengthening the strength and contribution of individuals to organizations and countries. Training and developing Human resources for Social Sciences and Humanities in our country today contributes to the formation of people and human resources as the subjects of society, with an educational level imbued with humanity and values. good culture, acquiring the quintessence of human culture, meeting the increasing requirements of the country's renovation cause.

The human resources for Social Sciences and Humanities are part of the general structure of Vietnamese intellectuals and an active part in the field of Social Sciences and Humanities . They have extensive knowledge about society and about people. By their creative labor, they participate in socio-political life and become an important intellectual resource that helps society to progress continuously. In recent years, thanks to the liberation of all development potentials, the majority of human resources for Social Sciences and Humanities have stepped over the threshold of stagnation, shortage and deadlock; proactively adapt to the market economy, quickly approach technological civilization and demonstrate the potential ability to go far and quickly in the country management and administration field and create spiritual values for society. At the same time, this human resource has affirmed its role and responsibility in the cause of innovation to develop and revive the country, making the Vietnamese people reach a high level of development in the coming years of the 21 st century, step by step on par with the region and the world. And only in terms of academically and theoretically, promoting the role of Social Sciences and Humanities intellectuals will make an important and decisive contribution to overcoming the backwardness of theoretical thinking and delay of the Social Sciences and Humanities compared to the rapid development of reality. Combining in both tradition and modernity, the human resources of the Social Sciences and Humanities have shown their prominent role in the renovation process for national development.

## **2. Method**

The main methods used in this report are statistical, descriptive, comparison, analytical methods to see the position and role of Human resources for Social Sciences and Humanities. The article mainly uses the content compiled from the Communist Party of Vietnam Document to analyze and evaluate the role of education and training, of human resources in general and human resources of Social Sciences and Humanities in particular. At the same time, the article also references some content from prestigious newspapers and magazines in the country such as Modern Education newspaper, Communist Magazine, Propaganda Magazine etc. as a database for the report. From the analysis and synthesis of achievements and difficulties of Human resources for Social Sciences and Humanities in Vietnam, the author offers a number of solutions to develop this human resource in the context of international integration.

### 3. Results

In the process of defending and building the country, our Party always considers the field of Social Sciences and Humanities as a sharp tool in cognitive innovation, innovative thinking methods, building social awareness and socialist personality. (Socialist).

The document of the 9th National Congress (2001) of the Communist Party of Vietnam affirmed: Education and training development is one of the important resources to promote the cause of industrialization and modernization. , is a condition to promote human resources - a basic factor for social development, rapid and sustainable economic growth. Taking care of human resources development is a great orientation in the country's development strategy in the period of industrialization and modernization. Going to the X Congress (2006) with determination to strive for education and training together with science and technology is really a top national policy. Focus on comprehensive renovation of education and training, revive Vietnam's education to develop high quality human resources.

The XI Congress (2011) of the Party has inherited and developed the viewpoint of human resource development from previous congresses, stating the overall objective: by 2020, our country will basically become an industrialized country towards modern. To achieve that goal, the Party has identified three strategic breakthroughs, in which rapid development of human resources, especially high-quality human resources, is confirmed as the second breakthrough. This is considered a right breakthrough and hit the human resource situation in our country today in the international integration, fierce competition and demands of the era of science and technology. This successful and right breakthrough has been focusing on improving endogenous strength - human resources, to exist and develop in a dynamic world, the world of science and technology. Therefore, the 11th Congress of the Party also determined that there must be a close link between human resource development with the development and application of science and technology. This is an important content showing the practicality of our country's rapid and sustainable development strategy in the present conditions. To implement this strategy, Congress XI also highlighted direct solutions to the strategy for human resource development, which are: building and perfecting the values and personality of Vietnamese people; fundamentally and comprehensively renovating the national education towards standardization, modernization, socialization, democracy and international integration, in which, renovating the educational management mechanism, developing the teaching staff staff and managers are critical; Develop and implement a national strategy for improving the health and stature of Vietnamese people.

XII Congress (2016), the issue of “comprehensive human development” has been identified by our Party as one of the general tasks of national development in 5 years 2016-2020, which is to build the Vietnamese people for development. comprehensively meet the requirements of the country's sustainable development and firmly protect the socialist Fatherland. This is an important step of our Party when not only attaching importance to the development of people in terms of awareness, but also turning that into a task and a practical activity that needs to be done simultaneously with the tasks. Another important factor in the

nation's development. It can be seen that scientific human resources in general and social science human resources in particular have a very important role for the socio-economic development of the country.

Compared with the natural sciences and technology, social sciences are unique. Social science is about people, society and culture. Or more precisely, people, society and culture are the object, the subject of social sciences and humanities. When studying his specific subjects, the social sciences and the humanities deepen the mystery of the human factor as the goal and the driving force of development. It is man and his free development that is the ultimate goal, keeping the position at the center of development. Today, social science affirms that the more people are intellectually exploited, the richer they become without limit, the more resources they exploit, the faster they are exhausted. and is always finite. Based on the achievements of quantitative research and a number of accurate sciences, social science provides theoretical tools to help governments choose the optimal option for development, avoiding pursuit at all costs. achieving the goal of economic growth but neglecting people. Social science advises who is the rightful and competent subject to effectively solve social problems. Issues such as oppression, injustice, war, conflict are the problems of social sciences posed for thousands of years. There is still no final solution. Relations between people and people on the economic, political, cultural and social aspects are increasingly more complex and are posing many pressing problems for social scientists. Rich people, strong countries, fair society, democracy, freedom and civilization are not only Vietnam's development goals but also the common development goals of humanity. But to achieve that development goal, every country must solve a series of problems, first of all social sciences, not natural science and technology. The resolution of a country's social sciences issues depends on the country's social sciences human resources.

In reality, the Social Sciences and Humanities (SS&H) have made great steps forward and contributed to the socio-economic development. It should be affirmed that, together with natural sciences, technical sciences, SS&H, has provided scientific arguments as the basis for the planning of guidelines and policies of the Party and the State; contributing to building the Party's Resolutions over the years. Since then, human factors have been promoted, creating rapid changes in economic growth, raising living standards, boosting production, gradually expanding markets and creating conditions for transferring new technologies. ... From the Sixth Congress of the Party to the present, SS&H have played a part in creating the premises for the takeoff of the country. SS&H have played an important role in providing scientific arguments for the country's comprehensive renovation toward socialist orientation. First of all, innovating theoretical thinking in all fields of politics, economy - society, culture - people, environment, national defense and security at each stage. Research results of programs and subjects (learned) have contributed to raising people's awareness about the path that Vietnam has chosen, about the cause of national renewal and development, creating high consensus in society.

In human resource training, most of schools, faculties or subjects about SS&H has increased rapidly (especially in the last decade of the 20th century to the present). Currently, our country has two universities of national level, many of regional one, almost every

province has a university, a system of key universities and pedagogical universities ... Besides traditional majors such as : history, literature, language, philosophy, journalism, law ... many new majors have been opened, such as Oriental Studies, International Studies, Political Science, Social Management, Tourism ... Many institutes, research centers also assume the function of undergraduate and postgraduate training; The system of private universities has also developed SS&H training program to meet the learning needs of current learners. Every year, the above training institutions have produced tens of thousands of bachelor's degrees in SS&H to serve the country's socio-economic development needs. The intellectual labor force is well-trained, knowledgeable and stable in terms of professional skills; have the ability to meet the requirements of society. A part trained at the post - graduate level, highly qualified; can undertakes the increasingly higher tasks of society, becoming the nucleus of universities or research institutes.

In the field of education and training, human resources for Social Sciences and Humanities are the forces with great responsibility for raising people's intellectual standards, fostering talents, creating an intellectual level for the people on a par with requirements of the new period. For more than two decades now, these forces have grown strongly in quantity and quality. Many officials have conditions to study abroad (short or long term), in many countries with different cultures, so the ability to update information is expanded, and conditions for contact with foreign scholars are favorable , the ability of foreign languages is becoming more and more proficient; And for the teaching staff which are trained in the country, have the will to rise up, overcome difficulties to improve their expertise and good use of foreign languages. This is a valuable resources for universities and also a basis for expanding exchanges and international integration. This force has promoted well in research, teaching and management activities. At universities, academies, research institutes, and Social Sciences and Humanities intellectuals, they have made great contributions to the training of a new class of intellectuals who are both “fresh” and “specialized” have good moral qualities and a high level of education and expertise, partly meet the requirements of the industrialization period. In major centers such as Vietnam Academy of Social Sciences, Ho Chi Minh National Academy of Politics, University of Social Sciences and Humanities (Hanoi and Ho Chi Minh City), research institutes social studies under Ministries or Branches, etc., research and training activities are carried out on a large scale and with higher and higher quality than before. Since then, many generations of bachelors, masters and doctors of Social Sciences and Humanities have matured and become an important nucleus of the Vietnamese intellectuals. It can be seen that Vietnam has a large team of social science workers; they have basic qualifications, political ideology, ethics, right lifestyle, high sense of responsibility for the country, they have been making great contributions to the development of the country. The achievements that the country has achieved during the recent renovation period, with the great contribution of the social science human resources. In the process of promoting industrialization and modernization and international integration today, human resources for social science are still actively contributing in renewing thinking and building scientific arguments for guidelines, guidelines, socio-economic development strategies and policies of the Party and the State; They are actively

contributing to the building of the cultural and spiritual life of the society, forming the right view of the world and human life, ethics and new lifestyles for everyone.

The Ministry of Education and Training has directed the building of a framework program to create the minimum foundation and level for the program design of each major at schools (officially announcing the framework program of a number of majors). The number of reference materials is increasingly being taught and more diverse. Therefore, it is required for the writer of the curriculum for the Social Sciences and Humanities that not only to absorb the achievements of mankind, researchers, gather and synthesize events that have taken place in the country and in the world, but also have to be creative, to find the connection between events, draw out the nature, point out the cause, make judgments ...

In the past years, the human resources of the Social Sciences and Humanities of Vietnam in the process of innovation have been increasing in number, diversifying in structure and maturing in terms of professional qualifications (foreign languages, information technology, researching capacity ...), able to grasp on the new knowledge of the world. In which appear many young intellectuals who are very promising parts for the future. They work at universities, academy and research institutes in the country to promote and carry out a series of bilateral and multilateral cooperation activities on education, training and scientific research with universities, research institutes, major organizations in the world. The main forms of cooperation are: scientific seminars, exchanges in undergraduate and postgraduate training, surveys, research, experience exchange ... Thereby, this human resource has been contributing to advertising, spreading information about Vietnam to the world. This is also a form of people's diplomacy in addition to the Party and State's official diplomacy.

When the economy has developed to a certain point, society certainly have need to develop Social Sciences and Humanities, because this is the cradle for the study of basic sciences and facilitate the application of scientific advances in practice. For example, for the history of science in the United States, the golden age of social sciences began after World War II and economics (microeconomics and monetary economics) was the earliest social sciences in the modern era. This shows the inseparable cohesion of social sciences and natural sciences. After all, technological science, technology created by humans and returned to serve human life, so the humanities factor is still the goal that should be considered top priority. If the development of technological science without respect for the values of Social Sciences and Humanities, the society will not have sustainable development.

In time of market economy, the majority of students choose to enter economics and technology majors to easily find jobs. But the fact that the recruitment of workers in recent years has shown that the Social Sciences and Humanities have always been respected and the recruitment door has always been open to this human resource. According to the survey results of the Center for Career Advice and Human Resource Development of Vietnam National University Ho Chi Minh City, about 350 units have a recruitment demand with more than 2,500 jobs per year for the major group of Social Sciences and Humanities. Thus,

the recruitment demand is quite high and the majority of majors such as anthropology, sociology, culture ... are inclined to provide basic scientific knowledge with a wide range, so, one can study a major but can work in many different fields. However, there is a shortage of experts and leading officials in the field of Social Sciences and Humanities .

Currently, the country is in the process of implementing the cause of industrialization – modernization, dynamic and sustainable development, social demand for social sciences and humanities is certainly not reduced but will require increasingly higher training quality. The labor force in this field must meet the requirements of scientific research, practical analysis, application of social and scientific knowledge in solving socio-economic problems of the country.

Besides the positive aspects, human resources for social science in Vietnam are still limited. Human resources for social sciences are still weak in terms of expertise and lack of quantity. The training of human resources in the field of social sciences and human resources has not been properly perceived; not attaching training to planning, using, remuneration, and evaluating human resources; financial and material conditions are not guaranteed for the training process; The process of international cooperation in human resource training has not commensurate with the requirements of the integration process. The shortage and the risk of shortage of leading cadres are becoming fierce (leading groups of experts are about to reach working age but the adjacent classes have not prepared for the succession); process of checking, evaluating, effectiveness of training process is still low; training quality is still inadequate, does not meet the needs of reality ... so in general, Vietnam's social science and human resources have not met the increasing demands of the country in the process of industrialization, modernization and international integration.

#### **4. Discussion and Conclusion**

To develop Vietnam's social science human resources to meet the country's requirements, several main solutions need to be implemented as follows:

*Firstly, it is necessary to improve the quality of education and training of social science human resources.* Want to train, develop human resources effectively, the first problem posed is quality. Training and developing human resources in the field of social sciences and human resources plays a decisive role to professional qualifications, scientific capacity - the most important factor that creates the quality of human resources. Implementing well the plan of human resource training and development for each field, unit and each stage of development; It is necessary to organize synchronous and broad-based training programs across the whole industry with specific objectives. Education and training institutions of high quality human resources, first and foremost, must have specific solutions, with a focus on building and fostering highly qualified teaching staff; increase investment in infrastructure on the basis of socializing education; training associated with employment and social needs. Therefore, the school needs to coordinate with businesses and socio-economic organizations to set up goals, content, training programs, listen, receive evaluation and suggestions from employers about your training product.

In addition, human resources for social sciences also need to be proactive in raising their foreign language proficiency, because weak foreign language ability is a huge barrier for international integration and acquiring new knowledge of mankind. At the same time, with the improvement of the quality of human resource training, it is necessary to regularly carry out the “succession training” method for human resources of Social Sciences and Humanities. Succession training is the most effective way to continue generation to generation, avoiding gaps and gaps between generations. This is a strategic issue in training and developing human resources in the field of social sciences and human resources, creating a generation class of quality researchers, lecturers and managers who meet the requirements of reality.

*Secondly, associating training with planning, use and remuneration in the field of social sciences and human resources. Training is only one step in human resource management.* Therefore, to want an effective training of human resources requires managers to associate training with the planning, use and remuneration of human resources. The current reality shows that the state management, especially the planning and plans to orient the development of Human resources for Social Sciences and Humanities of the sectors are still weak, quite fragmented and inadequate. The forecast of long-term SED needs for socio-economic development is also very limited, the structure of training by industries and training levels are not planned in the long term. Training institutions do not have enough information on labor supply and demand, so the construction of industries, targets and annual training levels are not realistic. Therefore, it is necessary to develop and plan a contingent of human resources in the field of social sciences and human resources of reasonable size, with a uniform structure of expertise, qualifications and age, gender ... to ensure the inheritance. and develop. The essence of using social science human resources is to create jobs or create jobs for social science human resources, in order to create a stable life for these human resources. Therefore, it is necessary to have policies to effectively use human resources in the field of social sciences and human resources after training so as not to lead to wastage in training. Our Party and State should conduct regular surveys on the current status of training and use of social science human resources so that an appropriate training strategy can be developed. It is necessary to identify more clearly the role of social sciences in the country, create conditions to attract the young and enthusiastic young people and use them most effectively with recruitment and attraction policies. talent.

*Thirdly, it is necessary to raise the awareness of managers about training human resources for social sciences and human resources.* The leaders and managers of social sciences and human resources should be aware of the need to invest in training human resources in the field of social sciences and human resources in a harmonious and balanced manner with the training of science and technology human resources. , see the role of Human resources for Social Sciences and Humanities in the country's socio-economic development. From the awareness raising, managers need to concretize by specific policies and actions for human resource training in this field. From developing training strategies to developing training content for each specific subject and implementing them in practice. In



the immediate future, it is necessary to focus on postgraduate training in order to create human resources for high-level scientific research and also to form a leading team of experts of Social Sciences and Humanities in the future. International quality is the leading standard of high quality human resources in the 21 st century. Want talent to serve effectively for the country, the quality of increasingly international parity more favorable. Efforts must focus on quality, from source creation to training content and training effectiveness towards standardization, integration and international integration.

*Fourthly, strengthening international cooperation in training human resources for social sciences and human resources.* In the context of the ongoing international integration, human resources for social science are facing new challenges, namely: social science human resources must quickly grasp the requirements. The new context sets forth, for example, the issues posed for development strategies, development models related to the country's sustainable development based on the harmonious development of economic and social pillars. , reasonable environment; Human resources for social sciences need effective connection and integration with the global social science and human resources network to effectively address issues raised in complex national relationships. with the international community in the context of globalization; Human resources for social sciences need to have a deep awareness of preserving and promoting the national cultural identity, thereby promoting the soft power of their national culture in connection with international community, harmoniously addressing the development of the nation and the common development of humanity

International cooperation in human resources training Social Sciences and Humanities is an effective way to improve the quality of human resources. We need to maximize internal resources and take advantage of the assistance of countries and international organizations in this issue of human resource training. Build universities and institutes in Vietnam to become advanced research places in line with the general trend of leading regional and world universities, in which the trend of publicizing internationalization will be strengthened. training cooperation; Attract more foreign teachers and students to study, research, teach, design more English training programs. The State needs to have a special policy with the leading scientific team so that they can contribute more and more effort and intellect to the process of innovation and international integration; attracting more international resources, including overseas Vietnamese experts and intellectuals; training the next team to follow in the steps of the ancestors ... Doing so will contribute to building the education, science of Vietnam in general and social science in particular for sustainable development.

Today, human resources are an important part of creating material values and cultural values, maximizing this internal resource, constantly expanding the quantity and improving quality to bring strength. for the nation is a very important job. In particular, the development of Human resources for Social Sciences and Humanities is indispensable. Our Party is always interested in the study of Social Sciences and Humanities in general and human resources of Social Sciences and Humanities in particular because it is the basis of thought directing the direction of social

development; is the creative application of Marxism-Leninism and Ho Chi Minh thought as a basis for ideology and a guideline for the Party's actions; It is a scientific basis to plan policies and guidelines of the Party on the way to socialism.

### **Acknowledgements**

The work described in this paper was supported by Thai Nguyen University of Technology for a scientific project.

### **References**

1. Communist Party of Vietnam, (2016), *Document of the 12th National Delegation Congress*, National Political Publishing House, Hanoi.
2. Ho Si Quy, (2017), *The role of social sciences and cultural development orientation*, Communist Review, October 2017.
3. Nguyen Thi Kim Chi, (2010), *Training and developing human resources in the field of social sciences and humanities to meet the requirements of innovation in our country*, Vietnam National University, Hanoi.
4. Nguyen Duy Quy, (2007), *Social Sciences and Humanities with a Innovation Career*, Journal of Philosophy, June 2007.
5. The Communist Party of Vietnam (2001), *Document of the 9th National Congress*, National Political Publishing House, Hanoi.
6. Vietnam Union of Science and Technology Associations - VUSTA (2011), *Some contributions of Social Sciences and Humanities in universities to the country's development*, June 2011.
7. Vietnam Communist Party (2001), *Document of the Tenth National Congress*, National Political Publishing House, Hanoi.
8. Vietnam Communist Party, (2011), *Document of the 11th National Congress*, National Political Publishing House, Hanoi.

# ASSITANCE OF JUSTICE OF SOCIAL BENEFITS IN THE MARKET - ORIENTED SOCIAL ECONOMY IN VIETNAM TODAY

*Dr. To Hien Tha*

*tohientha@gmail.com*

*M.A. Truong Tat Think*

*buithubvtt@gmail.com*

*Le Quy Don Technical University, Vietnam*

## **Abstract**

*Ensuring equality of "social welfare" will directly create motivation for socio-economic development, socio-political stability, create favorable conditions and opportunities for each person to develop comprehensively. Based on deep awareness and creative application of the views of Marxism-Leninism to the circumstances of Vietnam, our Party and State stated: "realizing social progress and social justice in every step and every policy, harmoniously developing material and spiritual life, continually improving the welfare of all members of the society in terms of food, accommodation, travel, study, rest, medication, and physical improvement, obligations to interests, dedication to enjoyment, individual interests to the benefits of communities and society. " The essay focuses on clarifying: The concept of social welfare, ensuring equality of social welfare and the position and role of ensuring equality in social welfare in the socialist-oriented market economy in Vietnam today.*

**Keywords:** *Social Equality; Social Welfare; Social Justice.*

## **1. Introduction**

Realizing points of views and policies of the Party and the Nation, many projects are being implemented seriously, efficiently, contributing to improving and enhancing the material and spiritual life of the people. The system of socio-economic infrastructure is invested; the poverty rate is reduced; education and health care are attended; social security is guaranteed; the quality of life of the people has been significantly improved. Ensuring the fairness of social welfare is also paid due attention, which gradually contributes to reducing the inequality in social life.

In addition to the achieved results, the implementation of social-welfare policies in general and ensuring equality in social welfare in particular still have some shortcomings and drawbacks. Awareness and responsibilities of participants in the social-welfare guarantee are still limited; social-welfare policy also has inadequacies; financial resources are limited, especially the socialization of resources to ensure social-welfare activities is low; qualification and capacity of specialized staff are still inadequate; The quality of organizing and implementing social-welfare policies still has many limitations. Because of that, the

applying social-welfare rate has been raised but remains slow and uneven. That situation imposes requirements necessary to raise the awareness of the participants in activities to ensure social justice in general, ensure the fairness of social welfare in particular, and the role of providing justice in social welfare needs a more proper orientation and approach, especially in the current socialist-oriented market economy in Vietnam today.

## **2. Method**

This paper uses an overall and comprehensive approach to collect and summarize the recent studies and reports which are related to this topic. All the data and figures are obtained based on the secondary data provided by some public organizations like the Communist Party of Vietnam; General Statistics Office of Vietnam; The Ministry of Labour - Invalids and Social Affairs, etc.

## **3. Results**

### ***The concept of social welfare***

Currently, there are many different definitions of social welfare in the world, which come from many different approaches that have mixed thoughts about social welfare. However, until now, most ideas agreed that *social welfare is a part of national income being used to satisfy the material and spiritual needs of members of society, mainly distributed in addition to income by labor and redistribute.*

*Regarding the goal of social welfare* is to reduce social inequality, to ensure to meet the essential needs of the people, to ensure that all people lead a clean and decent life, worthy of human dignity.

*The nature of social welfare* is to redistribute outside of labor distribution to meet the essential needs of members of society.

### ***The Communist Party's view on social welfare***

Throughout the process of leading the revolutionary cause of the nation, we have always been interested in taking care of the implementation of social welfare, gradually developing and perfecting the viewpoint of social welfare, increasingly emphasizing on improving the material life and people's spirit, in which the following principal contents emerge:

*Firstly, social welfare is both a goal and a driving force for national development.* Our Party has always determined that social welfare is a goal that needs to be fulfilled to build a progressive and fair country. Right from the 3rd Congress, Vietnam Labor Party has determined: " ... Improve the material and cultural life of the working people to another level, get our people well-fed, warm, healthier, to have more houses and education, expand public welfare career ..." [1]. In the Platform for building the country during the transition to socialism (addition, development in 2011), the Communist Party of Vietnam once again emphasized: "Social policies need to be right and fair for the human is a strong driving force promoting all creative capacities of the people in the cause of national construction and defense" [2].

*Secondly, closely associate the economic policy with social policy, economic development with improving the quality of life of the people, and ensuring social welfare.*

Our Party specifies, must closely link economic policies to Social Policies, "closely combine economic policy with social policy, economic development with enhancing the quality of life of the people, assure that people can enjoy better and better the fruits of the national renewal, construction and development "[3] [, p.136]. This policy aims to guide the State, all levels, and branches to create necessary premises for economic, technical, and socio-economic conditions, meeting the material and spiritual needs of the people, creating motivation for a society to develop sustainably. In particular, economic policies motivate economic development, creating physical resources to solve social problems, taking care of people's social sides. Accordingly, the beneficial distribution policy in our country must base on the principle of equity. This principle is a measure for dividing the common interests of society, realizing equality between people and people in the respective relationship between dedication and enjoyment, with the criteria of equal contribution, equal enjoyment, do less enjoy less, do none enjoy none for those who are still able to work. Those who are no longer able to work are still entitled to a certain amount of value from the social welfare fund. Implementation of this principle provides equal opportunity for each individual to have the freedom to choose to contribute to the development of society, as well as the right to have enjoyment commensurate with those contributions. Along with the implementation of the economic beneficial distribution policy, it is necessary to complete and strictly execute other social policy systems such as employment and working conditions, salary and income policies, social insurance policies, health, education-training, housing, and public welfare utilities.

In the opportunities and conditions for comprehensive development, our Party emphasizes employment opportunities and income conditions. This movement is entirely reasonable because only when there are jobs can workers participate in the operation of social production, have the context to develop themselves. So, "Create opportunities for people to get a job and improve their income. Ensure fair wages, salary, living conditions, and reproduction of labor-power "[4] [, p.136] is a pressing issue, upon which the whole society is currently concerned. In the documents of the Renewing era, the Party mentioned matters of employment wages and income to ensure fairness. The report of the 12th Congress emphasized the need to "create opportunities" for people to get a job and improve their profits; ensure salary, fair income. However, it is not enough, and for the vulnerable parts of society, who are unable to have a job or a working capacity, the State needs to pay attention to ensuring social security and social welfare to them. That is the humanitarian and humanistic expression of the socialist regime. Accordingly, it is necessary to continue perfecting the social security policies suitable to the socio-economic development process. Expand the target and improve the effectiveness of the social security system for all people; create conditions for practical assistance to disprivileged and vulnerable groups of people at risk in life.

*Thirdly, to build a diversified, increasingly expanding, and active social welfare system.* The Resolution of the Congress VI clearly stated: "Social policy covers all aspects of human life: working and living conditions, education and culture, family relations, class relations, close ethnic relations... Disregarding social policy means ignoring the human element in the cause of socialist construction "[5] p.76. Subsequently, *the Platform for*

*building a country during the transition to socialism* in 1991 continued to develop this concept and concretize the content of the concept of "social policy" in terms of economics and education. Education, health, housing in the Platform for national construction in the transitional period to socialism (supplemented and developed in 2011), Communist Party of Vietnam once again stressed: "develop the material life and the spiritual life harmoniously, constantly improving the lives of all members of society in terms of eating, staying, traveling, studying, resting, medication and improving physical, attaching meaning service with interests, dedication to enjoyment, individual interests to the collective interests of social communities" [6] p.740. At Resolution No. 15-NQ / TW of June 1, 2012, of the Central Party Executive Committee on "Some issues of social policies for the period of 2012-2020", it is required: to make sure people participate in social insurance; ensure support for people in especially difficult circumstances; regularly take care of and improve the material and spiritual life of the policy beneficiaries; ensure the people have access to a minimum of basic social services, contributing to ensuring the safe, equal and happy life of the people. To the XII Congress, our Party pointed out clearly: "While formulating and implementing socio-economic development policies, pay due attention to the strata and disadvantaged parts of society, ethnic minorities in highland and deep-lying areas, remote areas, overcome the trend of increasing rich-poor gap, ensure stable and sustainable social development" [7] [, p.135]. Therein, attach importance to "Renovating and perfecting mechanisms and policies on education-training and health service prices; developing high-quality medical education and training services, science and technology services, culture, information, sports and employment services" [8] [, p.94]. This policy aims to create a dynamic and flexible environment, ensuring that all people have access to the use of the system of education-training, health, science and technology, culture and communication services, information, sports, employment services, following the national reality and the process of international integration. Concerning people with meritorious services and disadvantaged members of the society, our Party has clearly defined guidelines to achieve social justice: "Implementing good policies to care for people with commendable services based on mobilizing all commune resources in association with State resources" [9] [, p.136]. Having policies and laws that prioritize people having contributed to the revolution is not only meaningful in terms of politics, economic and social aspects but also demonstrates the deeply human morals "When you eat a fruit, think of the man who planted the tree" of the Vietnamese people.

*Fourthly, building the social welfare system is the responsibility of both the political system and the whole society.* In the process of innovation, social protection is ultimately an area of state responsibility; after the renovation, policies have allowed many organizations and groups outside the State and private units to participate in this field. Following the procedure of socialization of social activities in the spirit of the Resolution of the Eighth National Assembly Congress of the Party, the Government issued Resolution No. 90-CP of August 21, 1997, on direction and policy of socialization of educational, healthcare and cultural activities and Decree No. 73/1999 / ND-CP of August 19, 1999, on policies to encourage socialization of businesses in the field education, health, culture, sports. Regarding

the general viewpoint of the "socialization" policy of health, education and cultural activities, the Government's Resolution No. 05/2005 / NQ-CP of April 18, 2005, on social promotion on educational, health, cultural and physical training activities to accomplish two critical goals: to promote the intellectual and material potential of the people, to mobilize the whole society to take care of education, health, culture, physical training, and sports; create conditions for the entire society, especially the policy beneficiaries and the poor to enjoy the educational, health, cultural and physical training achievements at a higher and higher level. Continue to renovate management mechanisms, promote the completion of policies; increase investment resources, and at the same time renew objectives, modes, structures, and capital sources; focus on priority objectives, national programs for the development of education, health, culture, and sport; support remote and isolated areas, areas of ethnic minorities; create preferential treatment for policy beneficiaries and assistance to the poor based on renewing the fee exemption and reduction regime in the direction of publicity, rationality and direct grant to recipients. To actively develop non-public establishments with two types: people-founded and private. Each non-public establishment may operate on a non-profit basis or a profit basis. Under the non-profit mechanism, in addition to the part used to ensure the reasonable interests of investors, the role of participating in the implementation of social policies of the Party and State, assistance to the poor, profit is mainly used for development investment. At the XII Congress, our Party stated: "Encouraging all economic sectors to vigorously develop health, education, culture, art, sports... services, exceptionally high-quality services on human resource training and health care " [10, p.228 ].

Thus, the Party determined, SOCIAL WELFARE is both the objective and the motivation of the rapid development, healthy secure and sustainability of the country; It is necessary to jointly combine the promotion of economic growth with the implementation of social progress and justice at every step and every development policy. Not waiting for economic development to be stable before solving social problems, but in every stage and throughout the development process, economic growth must always be associated with progress and social justice, helping everyone and every family progress to a prosperous, happy life, everyone has a job, food, clothing, everyone is educated and checked for health. Ensuring social welfare for more extensive and fuller parts will help society develop more thoroughly, the economy grows faster, more efficiently, and sustainably.

***Ensure fairness of social welfare in the socialist-oriented market economy in Vietnam today.***

Guarantee means to make sure it is possible to do it, making sure it is safe, definitely having what it needs. Accordingly, a guarantee is a commitment of responsibility and the process of fulfilling that commitment of the subjects to a particular object, job, or activity on the achieved result of that work or exercise, or about conditions that facilitate the action or business.

Stemming from the above approach, we can define: *Ensuring justice for social welfare in Vietnam is the harmony of the impact of the political system, the business community, and the people, making a part of national income used equally to satisfy the material and spiritual needs of people, mainly redistributed, apart from labor-based distribution.*

*The purpose of ensuring justice in social welfare* is to make justice among members in society on social protection follow the Party's line, views, policies, laws of the State, and the wishes of people. Thereby create consensus among the strata of people, between the people and the political system; show the progress and humanity in ensuring the social welfare of a State under the socialist regime; create motivation for people to participate in socio-economic development. The essence is to reduce social inequality, ensure that members of society can enjoy the "common" of the community. Ensuring equity of Social Welfare to reduce social inequity, makes the redistribution of external distribution according to labor is done the same way for those under the same conditions. Of course, ensuring this equality must be based on commensurating with the capacity, object characteristics and functional terms, thereby helping members of society to enjoy social welfare in a way that is compatible with conditions and skills of themselves, thereby reducing the gap in social welfare beneficiaries in the community.

***The role of ensuring social justice in social welfare in the market economy of socialist orientation in Vietnam today.***

*Firstly, ensuring fairness in Social Welfare will directly motivate the country's development.* Social welfare directly affects the interests of every human being, directly addresses the essential needs in the material and spiritual life of its members. Therefore, ensuring fairness in social welfare, adequately addressing interests, and ensuring benefits will directly and comprehensively affect the lives of individuals and communities. If the equality of enjoying social welfare is guaranteed, which is in a specific condition, the same object with the same ability and capacity, has the equal contribution will enjoy the social welfare as equally like one another, which will directly affect the motivation, attitude, and responsibility of individuals and the community, stimulate each member of society to continue trying to perform their social duties well and complete their work following their responsibilities; this will affect the implementation and contents of socio-economic development policies, contributing to the country's stability and development. The State uses the social strategy to realize the goal of effective and sustainable economic growth to ensure balanced and harmonious development among regions, creating equality and reducing the gap between regional disparities in resident groups, ensuring that people are free, happy, employed, well-paid, and comprehensively developed. Ensure fairness in Social Welfare is not just a target of socio-economic policies but also contributes to speeding up the realization of those objectives and contents. The social welfare system contributes to economic growth and social equity. The social welfare fund, including the social insurance fund, is a relatively large source of centralized financial income, used to pay workers and their families, and the idle part is invested in business activities to preserve and increase the fund, in terms of payment as well as investment growth, the operation of the social welfare fund contributes to promoting economic growth.

*Secondly, ensuring the equality of social welfare will immediately promote the potential and all resources of the forces in the process of construction and sustainable development.* Ensuring justice in Social Welfare requires promoting the synergy of these entities: the Party, the State, and the political system at all levels, cadres, Party members,



and people. Therefore, ensure fairness of social protection, first of all, make sure the policy system of our Party and State is wise, practical, and feasible. At the same time, it is the factor that directly promotes the role of the political systems at all levels, cadres and party members in improving responsibility, sticking flesh and blood to the people. That is a significant driving force promoting the sustainable development process and effective implementation of social justice. Therefore, ensuring the fairness of social welfare not only ensures the human rights of each member but also actively enhances the role of the subjects, promoting the potential and strengths, making the members of society equal in terms of rights and obligations, opportunities, and requirements for overall development. That process has created a factor of equity, ensuring democracy, and promoting social freedom. At the same time, providing the fairness of socialism will combine these factors to develop internal motivation to arouse the national spirit, a sense of self-improvement, and promote social responsibility in stabilizing life, protecting and improving the natural and social environment.

Ensuring the equity of social welfare has a direct impact on sustainable development because ensuring fairness in social welfare is to overcome the gap between the levels of socio-economic development, making the people more and more thoroughly enjoy the material and spiritual values. Accordingly, ensuring the fairness of social welfare and achieving efficiency, in reality, will contribute to reducing economic, political, cultural, social, and defense-security instability; thereby accelerating the process of achieving the goals of sustainable development. The State adopts social welfare policies to activate and direct sustainable social development. The implementation of social welfare policies contributes to creating social development conditions, demonstrating the close connection between rapid growth and sustainable development, considering sustainable development as a precise demand of the economic development process.

*Thirdly, justice in Social Welfare reflects the superiority of the Vietnamese regime's socialist and the essence of socialism, which is the basis for the social development of the Socialist and the nucleus of social progress.* Social justice is a fundamental value that guides the settlement of interpersonal relationships in all areas of social life. Social justice directly regulates relations in all economic, political, cultural, and social fields. Social policy is one of the fundamental pillars of the social policy system. It aims to ensure a minimum standard of living for people, protect fundamental values, and measure a country's development level in the process of development and integration. Correct the relationship between economic growth and social protection. Perform progressive, social justice, and environmental protection. Through the planning and execution of social policy, it allows governments to make effective and sustainable growth choices. A stable and wide-spread social welfare policy can help the State to redistribute social wealth to maximize the resources available to the population. Therefore, the effectiveness of the social policy will contribute to promoting or inhibiting the development of other factors in society.

Guarantee of social justice will create consensus, conditions, and opportunities for comprehensive development for all members; assure respect to promote the spirit of mutual

support, strengthen the national solidarity. The primary function of the policy system to ensure impartiality in social welfare is to achieve the goal of ensuring fairness, equality, stability, consensus, and social development. Agreement and social progress depend on providing the rights and opportunities for all members in practice. In the process, as long as inequity among members takes place, elements of sustainable development are not guaranteed. Therefore, prioritizing investment (creating conditions and opportunities) for members to gain equality is the right movement, an appropriate plan, and has a direct, decisive meaning to the efficiency of economic and social development in general and ensure fairness in social welfare. The social welfare system, including social insurance, strengthens the tight relationship between employees, employers, and the State. Workers, employers, and the State all contribute to the social insurance fund, contributing to stabilizing the socio-economy.

Sustainable development is not only related to socio-economic development or ensuring fairness of interests but also requires mutual respect in the relations between peoples, absolutely avoiding discrimination, disdain among peoples. That is a critical content associated with the implementation of social rights. Therefore, ensuring the fairness of social welfare is a factor that brings together members in building a new civilized life, advancing, preserving, and promoting the identity of a culture. Ensuring fairness of Social Welfare is an essential factor in promoting the spirit of solidarity, mutual assistance, and strengthening national unity bloc. Social welfare contributes to stabilizing the lives of workers. The social welfare system will help to replace or to partially compensate an income when an employee becomes ill, incapacitated, loses employment, or dies. Thanks to the timely replacement or compensation of income, workers can quickly overcome material losses and restore health. Social benefits ensure safety and stability for the whole economy and society. To prevent and limit damages, economic units must set strict labor safety regulations that must be followed by everyone. When there are risks, the welfare system quickly supports and creates favorable conditions for employees to stabilize their lives and contribute to socio-economic stability.

*Fourthly, ensuring the fairness of social protection will play an essential role in strengthening national defense and security, limiting problems, and failing all anti-sabotage activities of the enemy, building a famous solid battle.* Social justice is an essential factor in creating social consensus, political stability, developing social dynamism, and a foundation for maintaining social order and security. At the same time, it is a crucial factor in strengthening national defense and security, building a stable, popular position in the building, and defending the Socialist Fatherland.

All members of society have fundamental rights: freedom of residence, liberty of life, the pursuit of happiness, guaranteed minimum living conditions such as food, accommodation, travel, education, manufacturing.

#### **4. Discussion and Conclusion**

The guarantee of fairness in social protection will ensure the essential needs of the members in society, improve the living standards of the people so that they do not listen, do not believe, do not follow instigating from evil people, increasingly put more trust in the

leadership of the Party, local Government. And if those rights still hold inequality, it will lead to unpredictable consequences, affecting the natural and social environment, such as excessive mineral exploitation, shifting cultivation, land conflicts, and disputes among ethnic groups, raising complex issues, directly affecting national defense and security, hindering sustainable development. If there is no guarantee of fairness in social welfare or improper, lack of creativity, inequality, lack of respect among members will take place. The phenomenon of dispute, friction, the conflict will break out, or be taken advantage of by the enemy, provoked into a "hot spot," seriously affecting political stability and socio-economic development. In the political riots that occurred in the area, most of the people who were dragged and joined were in the extremely difficult communes and districts, the life was deprived, and the disparities among members were significant. In places where the socio-economic situation develops stably, people's lives improve, they are less likely to be taken advantage of, manipulated, or provoked. Therefore, ensuring the fairness of social protection will contribute to the failure of all anti-sabotage activities of hostile forces.

Indeed, ensuring fairness in Social Welfare in our country is to reduce inequity in society, ensuring that members of the community can benefit those "general" from society. To achieve that goal, various contents and methods need to be carried out, in which ensuring the fairness of policies and organizing effective implementation in practice of social insurance policies is particularly important, with the decisive significance for ensuring integrity in the enjoyment of social protection of the people. Ensuring equity in social security will create an excellent motivation for the socio-economic development process, as well as the comprehensive development of each individual.

Ensuring equity in social protection proves the unique and preeminent nature of the social system in our country. Thoroughly and strictly executing policies of the Party and State, the implementation of social policy in our country in recent years has gained significant results, contributing to improving and developing the whole life of the people, contributing to social and political stability, creating a premise for sustainable development of the country in new conditions.

## 5. References

1. Communist Party of Vietnam (2016), *Document of Congress visits nationwide*, Political Publishing House national, Hanoi,
2. National Assembly of the Socialist Republic of Vietnam, *National Defense Law*, No. 22/2018 / QH14, June 8, 2018.
3. The Ministry of Labour - *Invalids and Social Affairs*
4. General Statistics Office of Vietnam
5. Nguyen Thi Lan Huong (Editor) (2016), *Implementing social justice for economic sectors in Vietnam today*, Social Sciences Publishing House, Hanoi.
6. Phung Huu Phu et al. (2016), *Some theoretical and practical issues on socialism and the path to socialism in Vietnam through 30 years of innovation*, National Political Publishing House, Hanoi.

# THE INFLUENCE OF SOCIAL INSURANCE ON WORKERS' WAGES AND JOBS IN VIETNAM

*Assoc. Prof. Dr. Nguyen Vinh Giang*

*giangnv@neu.edu.vn*

*Mai Quoc Bao*

*maiquocbao@neu.edu.vn*

*Faculty of Human Resources Economics and Management,  
National Economics University*

## **Abstract**

*Based on the rationale and reality of social insurance in Vietnam, this paper points to the impact of increasing social insurance rate on wages and job of workers. And then, the study discusses and proposes some ideas to contribute to improve social insurance policy in Vietnam more and more reasonable and effective.*

**Keywords:** *Social insurance, Social insurance rate, Real wages, Jobs*

## **1. Introduction**

Social insurance is one of the social security policies that every country in the world applies (Mabbett, 1999). Depending on the circumstances of each country, the policies, regimes and insurance rates prescribed for organizations and individuals are different. This article does not elaborate on analysis and comparison of insurance policies and regimes in countries around the world, but only studies one aspect: compulsory social insurance for organizations and individuals, and the fact that the increase in insurance premiums in Vietnam in recent years will affect the real wages and employment of workers. Since then, discuss and propose a number of recommendations to contribute to solving the relationship between social insurance, wages and jobs in our country is increasingly rational and effective.

## **2. Literature review**

Social insurance is a replacement guarantee to compensate a part of income for employees when they lose or reduce income due to sickness, maternity, labor accident and occupational disease, disability, unemployment, old age, and survivorship, based on a financial fund contributed by the participants of social insurance, with the protection of the government in accordance with the law, to ensure the safety of life for employees' activities and their families, and contribute to social security (Law No. 58/2014/QH13, 2014).

The first social insurance system was in Prussia (now Germany) in 1850 (Hennock, 2007), spreading to Europe (in the UK; in 1991, Italy in 1919, France in 1918 to the Americas, Latin, USA, Canada after 1930, then formed in Africa, Asia after World War II. According to ILO Convention 102 on social security (1952), social insurance consists of nine regimes: health care, sickness allowance, unemployment, old age, and accident. Some

countries may only apply a number of regimes, but at least they must apply: unemployment benefits, old age, labor accident and occupational disease, disability or survivorship allowance (ILO, 1952).

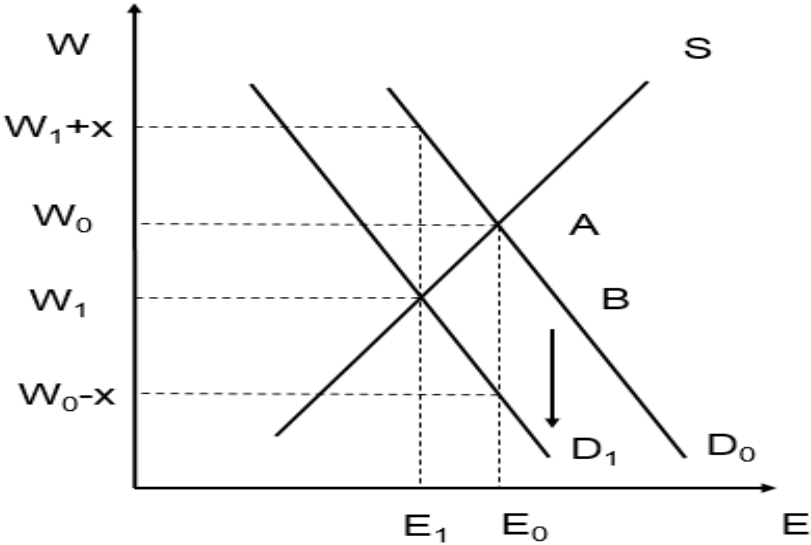
It can be said that social insurance is the main pillar in the social security system in each country, contributing positively to ensuring the safety of life for members and social safety (Agell, 1999). In contrast, the application of social insurance also causes negative effects, one of the effects is the reduction of wages and jobs of workers in the labor market (Feldstein, 2005).

**The influence of social insurance on workers’ wages and job in vietnam**

*Organizations and enterprises*

It is considered that social insurance premium prescribed for organizations and workers as a tax on wages (Agell, 2002). So how will the equilibrium of the competitive labor market impact and change, in particular, affects the wages and employment of workers when compelling business organizations (called being an employer) must pay social insurance.

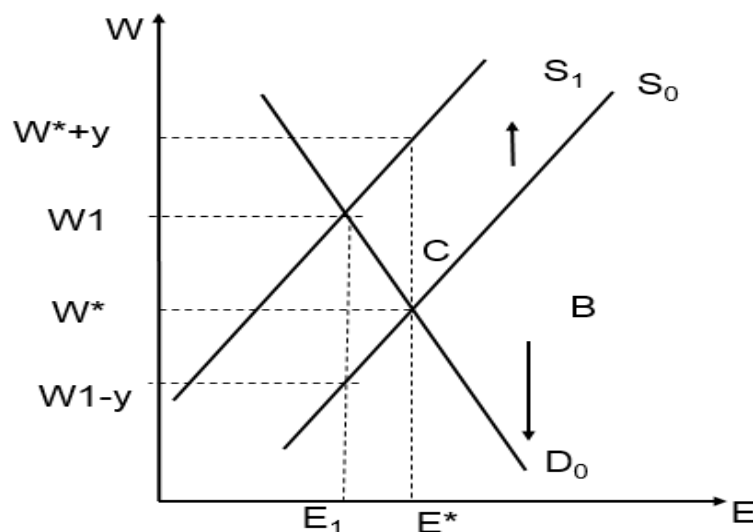
The government stipulates that organizations must pay social insurance and health insurance premiums (countries set different social insurance premiums: 13.35% in the US, 21.0% in Germany, 31.1% in Sweden, Italy is 44.3% in Italy, 21.5% in Vietnam). Assuming that organizations do not need to pay social insurance premiums, the equilibrium of the labor market is at point A. There are  $E_0$  workers hired at a wage of  $w_0$ . If the enterprise has to pay a uniformly distributed insurance premium for each worker  $X$  Vietnam dong, but the employer only wants to pay a total of  $w_0$  to hire  $E_0$  workers. At this time, they only want to pay a wage of  $w_0 - X$  to the employee to hire  $E_0$  and the profit is still the same. Therefore, social insurance premiums have shifted the labor demand curve parallel to the bottom and brought the labor market to a new equilibrium (at point B). There, the number of hired workers decreases (from  $E_0$  to  $E_1$ ), and the new equilibrium wage, which is the actual wage rate the worker receives decreases (from  $w_0$  to  $w_1$ ).



**Figure 1. The impact of social insurance premiums on labor demand**

### Workers

The government regulates that workers must also pay social insurance, health insurance, and unemployment insurance (actually 10.5% of the basic salary in Vietnam). Like the above example, if not paying insurance, the market equilibrium is at point A, where the worker is willing to provide  $E_0$  hours when the wage is  $w_0$ . Suppose the average premium is  $y$  per hour they work, but worker still want to receive a wage of  $w_0$  as their initial equilibrium. Therefore, the worker will demand that the employer pay  $w_0 + y$ . This will move the supply curve upward, adding  $y$  units. The equilibrium in the labor market has moved to a new equilibrium position (point B). There, worker received  $w_1$  wages and the total number of workers decreased from  $E_0$  to  $E_1$ . And because the worker has to pay an amount of money  $y$  for an hour of labor, the worker's salary is also reduced, in fact only received as  $w_1 - y < w_0$  initially.



**Figure 2. The impact of social insurance premiums on labor supply**

### 3. Method

The study is done primarily by qualitative research. The research is based on the theory of social insurance, and the theory of the effect of social insurance on wages and jobs. The authors summarize data on the level of social insurance contributions in the past years in Vietnam, and then draw discussion, conclusion and some recommendations.

### 4. Results

#### **The rate and level of payment of insurance premiums in Vietnam**

##### *The rate and deduction rate for social insurance*

In recent years, the level of compulsory social insurance for employers (organizations, enterprises) and employees has been adjusted from time to time and actual situation of economic development, but the Great is the upward trend. According to Decision

595/QD-BHXH signed on April 14, 2017, (effective from May 1, 2017, applied from January 1, 2018 to now - 2020):

For organizations and enterprises, the rate of payment of insurance premiums to the social insurance fund is 17% (3% for the sickness and maternity fund, 14% for the retirement and survivorship fund). In addition to the above 17%, enterprises also have to pay labor accident and occupational disease insurance which is 0.5% of employees' social insurance premium (According to Article 22 of Decision 595). Particularly, the rates of health insurance (health insurance) and unemployment insurance (UI) are 3% and 1% (Article 14, Article 18). In total, organizations and businesses must pay 21.5% of the costs of the business. (see table 2.1 below). Apart from the above-mentioned compulsory insurance premiums, the enterprise must pay additional trade union fee to the District Labor Union. Union fee level = 2% of salary fund as a basis for social insurance payment for employees. (According to Decree 191/2013 / ND-CP). (2% of this union fee, employees do not have to pay, but if they join the union will have to pay union dues.

**Table 1. The rate of deduction for insurance premiums implemented from 2018 to 2020**

*Unit: %*

Subjects of insurance payment	Social insurance	Labor accident and occupational disease insurance	Health insurance	Unemployment insurance	Total
	2018 - 2020	2018 - 2020	2018 - 2020	2018 -2020	2018 - 2020
Enterprise	17	0,5	3	1	21,5
Worker	8	0	1,5	1	10,5
<b>Total</b>	<b>25</b>	<b>0,5</b>	<b>4,5</b>	<b>2</b>	<b>32</b>

For workers, the social insurance premium rate is determined according to the following formula:

$$\text{Social insurance premium rate} = \frac{\text{Proportion of social insurance premium payment}}{\text{The monthly salary rate of social insurance premium}}$$

Inside: The rate of social insurance contributions for employees applied from January 1, 2018 to now (2020) has not changed with the total rate of employees' payment of 10.5% (presented in table 1 above), However, the monthly salary paid for insurance has changed (increased over time). Specifically:

***Monthly salary paid for insurance***

According to Article 6, Decision No. 595/QD-BHXH, applied from January 1, 2018, the monthly salary level for calculating insurance premiums is prescribed as follows:

For administrative and non-business sector: The monthly salary paid for compulsory social insurance is the salary based on rank and position allowances, extra-seniority allowances, seniority allowances. This salary is calculated on the base salary. (including the reserved difference coefficient as prescribed by the salary law) and there is a change from July 1, 2017 to now (2020) is presented in table 2 below. (Before July 1, 2017, the base salary was VND 1,210,000 / month (as stipulated in Decree 47/2016 / ND-CP of the Government - applied from May 1, 2016). From July 1, 2017 to the previous, the base salary increased by 7.44%, similarly, the base salary increased by 6.92% after July 1, 2018 and after July 1, 2019 is 7.19%

**Table 2. Base salary (common minimum wage) from 2017 to 2020**

	Unit: VND			%(+/-)		
	From 01/07/2017	From 01/07/2018	From 01/07/2019	2017/ 2016	2018/ 2017	2019/ 2018
Base salary	1.300.000	1.390.000	1.490.000	7,44	6,92	7,19

For the corporate sector: From January 1, 2018, the monthly salary on which compulsory social insurance premiums based is the salary, salary allowances and other additional payments as prescribed in Article 4 of Circular No. 47/2015 / TT-BLĐTBXH. Including items:

Salary: salary is calculated according to the time of the job or title according to the wage scale and payroll formulated by the employer in accordance with the labor law agreed upon by the two parties. For an employee receiving a salary based on a product or a fixed salary, the salary is based on time to determine the unit price of product or piece rate.

Salary allowances, including wage allowances agreed upon by the two parties, specifically:

+ Salary allowances to make up for difficult working conditions, complex jobs, limited living conditions, unsatisfactory level of labor attraction, etc. that is agreed upon in the labor contract. not included or incomplete.

+ Salary allowances associated with the work process and performance of the employee.

Allowances must be added to compulsory insurance: position allowances and titles; responsibility allowances; heavy, toxic and dangerous allowances; seniority allowances; regional allowances; mobile allowances; Attractive allowance and similar nature allowances.

And other additional payments: the additional amounts agreed by the two parties to determine whether or not the specific amount of money together with the regular or irregular pay agreement associated with the work process, the results perform work of workers.

From 2018, the monthly salary paid for compulsory social insurance shall not be lower than the regional minimum wage for the same period. The regional minimum wage has changed from 2018 to the present (2020) as shown in table 3 below:



**Table 3. Regional minimum wage from 2018 to 2020**

Region	Regional minimum wage from 01/01/2018(thousand VND/month)	2018/2017		Regional minimum wage from 01/01/2019 (thousand VND/month)	2019/2018		Regional minimum wage from 01/01/2020 (thousand VND/month)	2020/2019	
		+ Thousand VND	(+) %		+ Thousand VND	(+) %		+ thousand VND	(+) %
<b>Region 1</b>	<b>3980</b>	230	6,13	4180	200	5,02	4420	240	5,74
<b>Region 2</b>	<b>3530.</b>	210	6,32	3710	180	5,09	3920	210	5,66
<b>Region 3</b>	<b>3090</b>	190	6,55	3250	160	5,17	3430	180	5,53
<b>Region 4</b>	<b>2760</b>	180	6,97	2920	160	5,79	3070	150	5,13
Legal grounds	ND 141/2017/ND-CP			ND 157/2018/ND-CP			ND 90/2019/ND-CP		

From Table 3 above, the regional minimum wage is constantly changing over the three years 2018-2020, all in 4 regions in 2018 increased by over 6% compared to 2017, on average, all in 4 regions increased 6.49% compared to 2017. In 2019 and 2020, the minimum wage in all 4 regions increased by more than 5% over the previous year, if the average for the four regions in 2019 increased by 5.26% and 5.51% compared to the previous year. Moreover, from 2018, the law also specifies the minimum and maximum monthly salary used to calculate the regional premium for each type of employee working under different conditions.

+ Minimum monthly salary used to calculate social insurance premium:

- Not lower than the regional minimum wage for people doing simple jobs or titles under normal working conditions.

- At least 7% higher than the regional minimum wage for employees working for a job or a job title that requires vocational training

- At least 5% higher for people working in jobs or titles with hard, hazardous and dangerous working conditions; 7% for workers or titles with extremely heavy, hazardous or dangerous working conditions compared to the salary of a job or a title of equivalent complexity in normal working conditions. Specifically, from July 1, 2019 to June 30, 2020, the minimum monthly salary used to calculate the regional and each employee's premium payment is shown in Table as follows:

**Table 4. The minimum monthly salary under different conditions**

Region	People working in normal conditions	People who have passed an apprenticeship or vocational training	People who have passed an apprenticeship or vocational training working in heavy, hazardous or dangerous conditions	People who have passed an apprenticeship or vocational training in extremely heavy, hazardous or dangerous conditions
Region I	4.420.000	4.729.400	4.965.870	5.060.458
Region II	3.920.000	4.194.400	4.404.120	4.488.008
Region III	3.430.000	3.670.100	3.853.605	3.927.007
Region IV	3.070.000	3.284.900	3.449.145	3.514.843

The maximum monthly salary used to calculate the social insurance premium: stipulating the maximum monthly salary used to calculate the social insurance and health insurance premium must not be higher than 20 times the common minimum salary and unemployment insurance premium cannot be higher than 20 times the maximum salary Minor region. Thus, from 01/01/2020: Maximum monthly salary used to calculate social insurance and health insurance premium =  $20 \times 1.49 = 29.8$  million VND / month. The maximum monthly salary used to calculate the unemployment insurance premium does not exceed 20 times the regional minimum wage for each subject mentioned in Table 2.4 above.

However, from July 1, 2020, the base salary (the common minimum wage increased to VND 1,600,000 / month), so the minimum and maximum monthly salaries are used to calculate the insurance premium for each type. The number of employees also increased. Compared to 2019, the minimum, maximum and contribution rates for social insurance are shown as follows:

**Table 5. The minimum level of social insurance premium payment and the increase compared to 2019**

*Unit: VND/month*

<b>Region</b>	<b>2019</b>	<b>2020</b>	<b>Increase</b>
<b>People working in normal conditions</b>			
Region I	334.400	353.600	19.200
Region II	296.800	313.600	16.800
Region III	260.000	274.400	14.400
Region IV	233.600	245.600	12.000
<b>People who have passed an apprenticeship or vocational training</b>			
Region I	357.808	378.352	20.544
Region II	317.576	335.552	17.976
Region III	278.200	293.608	15.408
Region IV	249.952	262.792	12.840
<b>People who have passed an apprenticeship or vocational training working in heavy, hazardous or dangerous conditions</b>			
Region I	375.698,4	397.269,6	21.571,2
Region II	333.454,8	352.329,6	18.874,8
Region III	292.110	308.288,4	16.178,4
Region IV	262.449,6	275.931,6	13.482
<b>People who have passed an apprenticeship or vocational training in extremely heavy, hazardous or dangerous conditions</b>			
Region I	382.854,6	404.836,6	21.982
Region II	339.806,3	359.040,6	19.234,3
Region III	297.674	314.160,6	16.486,6
Region IV	267.448,6	281.187,4	13.738,8

**Table 6. The maximum level of social insurance premium payment and the increase compared to 2019**

*Unit: VND / month*

2019	2020		Increase	
	<i>From 01/01</i>	<i>From 01/7</i>	<i>From 01/01</i>	<i>From 01/7</i>
2.384.000	2.384.000	2.560.000	0	176.000

In summary, there are two factors that affect the employee's monthly social insurance premiums. It is the contribution rate and the monthly salary used to calculate the insurance premium. Only from 2018 to the present, while the social insurance contribution rate has not changed, the minimum and maximum monthly salary used to calculate the social insurance premium changes, namely increases, making the monthly insurance premium of workers increased

## **5. Discussion and Conclusion**

### **Discussion**

From the theory of social insurance and the social insurance in Vietnam mentioned above, some opinions can be discussed as follows:

Firstly, when applying the social insurance payment for employees or employers, the employees' wages and jobs are reduced by a certain amount, the extent of this decrease depends on the conditions. environment and closing rates.

Secondly, in the past 3 years in Vietnam, although the rate of social insurance contributions has not changed, the basic salary (the common minimum wage) and the regional minimum wage for workers in the different working conditions tend to increase (over 5% compared to the previous year). Since then, the social insurance premium of the employees has increased.

Thirdly, although the real wages and employment of employees are affected by many subjective and objective factors, the increase in insurance premiums will certainly reduce the real wages and employment of employees. workers in the market

Fourthly, changing the labor law when increasing the retirement age (men from 60 to 62, women from 55 to 58) makes the labor force in working age increase even more pressure and make wages and the employment of workers is further reduced, the number of unemployed will increase if not creating better jobs.

### **Recommendation**

Although the provision for employees and employers to pay social insurance makes workers' wages and jobs is lower because of the superiority of social insurance in particular and social security In general, we still have to apply for social insurance. It is required by law. Therefore, some recommendations are as follows:

Firstly, it is necessary to have close coordination between state management units on social insurance and salary and employment functions to propose reasonable social insurance policies to limit the decline in wages and employment affecting other socio-economic issues.

Secondly, it is necessary to have regular field surveys to study the fluctuation of wages and jobs under the impact of increasing insurance premiums for people in different regions in order to propose the policies, social insurance regime and reasonable wages and jobs.

Thirdly, on the basis of regular research on this interaction (combining other fields and factors) to identify appropriate social insurance regimes (especially the calculation of insurance premiums: deduction rates payment, base salary, regional minimum wage, etc.) for each regions, fields which help to maintain socio-economic stability.

## **6. References**

1. Agell, J. (1999). On the benefits from rigid labour markets: norms, market failures, and social insurance. *The Economic Journal*, 109(453), 143-164.
2. Agell, J. (2002). On the determinants of labour market institutions: Rent seeking vs. social insurance. *German Economic Review*, 3(2), 107-135.
3. Feldstein, M. (2005). Rethinking social insurance. *American Economic Review*, 95(1), 1-24.
4. Hennock, E. P. (2007). *The origin of the welfare state in England and Germany, 1850-1914: social policies compared*. Cambridge University Press.
5. International Labour Organization (ILO). (1952). ILO Convention 102 on Social security.
6. Law on Social Insurance (Law No. 58/2014/QH13). (2014).
7. Mabbett, D. (1999). *Social insurance in the transition to a market economy: theoretical issues with application to Moldova*. The World Bank.

# A STUDY ON GENDER-BASED VIOLENCE AGAINST FEMALE YOUTH IN VIETNAM

**Dr. Trinh Mai Van**

*trinhmaivan@neu.edu.vn*

*Research Management Department,*

*National Economics University, Hanoi, Vietnam*

**MA. Nguyen Van Dai**

*dainv@neu.edu.vn*

*Faculty of Planning and Development,*

*National Economics University, Hanoi, Vietnam*

**Trinh Nguyen Anh Khoi**

*khoitrinh2369@gmail.com*

*IBD student (IBD13.I), International School of Management and Economics,*

*National Economics University, Hanoi, Vietnam*

**Tran Minh Quang**

*tmquang.neu@gmail.com*

*Auditing Student (58A), School of Accounting and Auditing,*

*National Economics University, Hanoi, Vietnam*

## **Abstract**

*Gender-based violence has still become one of the debates among academics and policymakers. Studies in Vietnam on gender violence against women are still limited. This study aims to explore gender violence further among young women. The sample size is 650 for online surveys and 12 people in in-depth interviews. This study indicates that gender-based violence is prevalent and has both economic, physical and emotional consequences for victims. In addition, a part of the population advocates for this type of violence. This study also provides some policy recommendations to limit gender violence against young women.*

**Keywords:** *Gender-based Violence, Female, Vietnam, Youth*

## **1. Introduction**

Vietnam has become a typical example of inclusive economic development. Since the renovation (1986), the socio-economic achievements of Vietnam are highly appreciated by the international community, especially when the starting point of our country's economic development is relatively low compared to other developing countries. Vietnam has achieved important milestones in the process of socio-economic development, expressed in

the following aspects: i) Being one of the fastest-growing countries in the world during the period 1995-2014 (World Bank 2017); ii) Join the group of middle-income countries in 2009 (Giang and Le 2010); iii) Achieving many millennium goals (MDGs) by 2015, in which the gender equality goal has been completed ahead of schedule (Ngo et al. 2017).

The transition from a centrally planned economy to a market economy has brought about positive changes to the rights and position of women in Vietnam. Women in Vietnam are increasingly involved in economic, political and social activities. Women participating in the labor market are increasingly high at 48.21% of the total labor force aged 15 and over working in 2017 (Vietnam General Statistics Office 2017). The proportion of women participating in paid work is increasing, at 73.2% in 2017 (UNDP 2018). The income ratio of women was 83.74% compared to Vietnamese men in 2017. The proportion of women in the National Assembly increased from 3% (the 1st National Assembly) to 24.4% (the 13th National Assembly) and continued to rise, the level of 26.72% (Plan XIV). Especially, for the first time, the National Assembly of Vietnam has a female president. According to the 2016 SME survey, 25% of the leaders of small and medium enterprises in Vietnam are women (Le and Nguyen 2016).

However, gender barriers still exist among women. The influences of Confucian and Taoist elements have shaped and deepened gender stereotypes and prejudices that are detrimental to both men and women, especially women. The position of women is often placed lower than men in the family and social sphere. Strict customary laws such as "the three belongings, the four virtues" (Tam tong, Tu duc) or more recently the "Good in public work, diligent in housework"... are still promoted by large part of the population. These cultural factors have gradually restricted the rights and areas that women can participate. As a result, women still face many barriers to participation in economic, political and social fields. On the other hand, stereotypes and gender bias still prevail in the media in Vietnam. As reported by CSAGA and Oxfam in 2011, the media in Vietnam described bias and imposed gender roles. Women often appear and are promoted with the image of 'Interior Minister' as a housewife, keeping fire in the family, taking care of meals, health for family members. Moreover, the gender-stereotypical and stereotypical depiction of 'career dreams' of boys and girls also contributes to deepening and extending stereotypes and prejudices from this generation to future generation.

### ***Literature Review***

GBV has become a topic of debate and research on many levels in the world of research. In the CEDAW General GBV Proposal (GBV), GBV for women (GBV) is understood to be physical, mental, sexual, or threats to the safety and freedom of the GBV. female. Although becoming one of the priorities in development policies of international organizations and at the national level, GBV still exists in many different forms. Current GBV studies focus on the most vulnerable population groups, typically married women (Hamby and Turner 2013, Godbout et al 2017). A small number of recently published studies indicate a high risk of GBV in the general young population

(Finkelhor et al. 2007, Decker et al. 2015). The author's research on GBV perceptions will add to the theory of GBV among the young population from the perspective of GBV awareness of both men and women.

Recent studies in Vietnam show that gender barriers cause great damage to women in the context of economic development in Vietnam. Women have difficulty accessing capital when starting a business or running businesses because partners and public authorities have little faith in women (Poon et al. 2012). Instead of reducing the burden of housework, women entering the labor market, especially the group of businesswomen facing double burdens, spend more time on both types of work (Truong 2008; Zhu et al. the 2015).

Women are often victims of GBV with various forms of physical, mental and sexual violence, but research on GBV for women is quite limited in Vietnam. Research by Jansen et al (2016) confirmed that over 33% of women surveyed said they had experienced at least one violence, especially gender violence from relatives and partners. A 2014 International ActionAid study in Vietnam found that 87% of women surveyed in Hanoi and Ho Chi Minh City experienced at least one form of public sexual harassment in their lifetime. According to the Safe Cities Program in Ho Chi Minh City survey conducted by the Department of Labor, Invalids and Social Affairs and UN Women, 18.5% of women reported having experienced sexual harassment in the past public in the last 12 months (MOLISA HCMC, 2018).

Carlson et al. (2014) provide evidence that most respondents are not aware of (not understanding or not knowing) other forms of violence other than physical violence. Schuler et al. Found that victims of GBV often did not seek support from close relatives or outside the range of close relationships (Schuler et al., 2016). One of the reasons for the limitation of seeking assistance is that the victims of the GBV do not fully understand their rights to protection and are not confident that the violence will improve when there is intervention from the party. out. Very interesting research results of Krause et al. (2014) have shown the support of women, including victims of GBV, for some behaviors identified as GBV.

GBV losses for women in Vietnam were calculated by Raghavendra et al (2017). Accordingly, GBV for women caused losses equivalent to 0.82% of GDP (at market prices). This loss is reported differently by region and industry. For example, agriculture, manufacturing and retail are the ones that suffer the most from GBV for women at 39.5%, 16% and 14.5% respectively. Similarly, according to UN estimates, the economic damage caused by domestic violence in particular amounted to 3.2% of Vietnam's GDP in 2010.

Thus, a study on GBV for women is essential in the context that GBV is increasing in size and severity. Firstly, research on GBV against women will identify awareness about GBV as well as the forms of violence that women may have experienced. On the other hand, the results of the study are important implications for the policy making process of preventing and addressing GBV issues among young women.

## ***Objectives and research questions***

### *Research Objective*

This study aims to explore GBV forms among women in Vietnam, with a case study in Hanoi.

### *Research questions*

Based on the research objectives indicated above, the research questions of the topic include:

- 1) What is gender-based violence against young women?
- 2) What policy implications can be made to limit gender violence against young women?

### *Research subjects*

The subject of the research is GBV for women. The study will be based on the theoretical framework of GBV awareness for women to complement gender-based in-depth analysis of forms of violence against women.

### *Scope of timeline*

The study was conducted on female youth during August 10<sup>th</sup>, 2019 and May 2020.

## **2. Method**

This study is based on the world view of feminism. A gender approach is necessary and consistent with this study because: the behaviours and forms of violence between men and women often manifest based on gender factors (roles and gender awareness); Male perpetrators who cause GBV to women are often associated with perceptions of masculinity and gender behaviour. Therefore, this study will be designed according to a mixed research standard in which the qualitative research method will play a leading role. On the one hand, quantitative research methods will be conducted with some basic demographic analysis. On the other hand, qualitative research techniques (in-depth interviews) will be applied to in-depth analysis of GBV perceptions of women.

### *Mixed research on gender violence*

The methodology of the research review was applied to synthesize and analyse documents on laws, policies and current studies on gender, GBV. In particular, the legal framework of gender, GBV international and Vietnam is mentioned as an important reference platform, especially gender-related definitions.

The questionnaire survey method was used to collect data in this study. Online questionnaire surveys are considered as an effective and appropriate method to collect information from women due to the high proportion of Vietnamese women in general using the internet and social networks. According to a report of Pew Research Center (2018), the proportion of Vietnamese youth aged 18-29 using social networks is 91%. Therefore, the research team designed an online questionnaire to collect data for this study. The design of



an online response form facilitates data collection and helps the team track progress and preliminary results during each survey period.

Before the official survey was conducted, the research team designed an online test questionnaire during July 2019 with a sample size of 70 people. The feedback and answers in this pilot survey provide useful information for the research team to continue to revise and refine the survey questionnaire to ensure the questions will be more appropriate for the recipient characteristics, consciousness and psychophysiology of female age.

The questions in the survey are diversified in many different forms, including:

i) Closed question

The closed-form questionnaire is mainly used with questions related to classifications, concepts and expression of opinion (forms of violence, concept of domestic violence, expressing views about masculinity / femininity calculating ...)

ii) Mixed question

In many cases when the research team cannot be sure that the answers cover all possibilities in practice, the combined questions will be used. This allows for more information to be explored and to limit the difficulties women surveyed may encounter when responding.

The answers to some of the questions in this survey are modeled on the Likert scale. However, the team chose to apply 4 levels of responses in the scale instead of 5 levels, ie eliminating the level in the middle of the scale. This is also compatible with the United Nations study on men and violence as well as the use of gender equality measure GEM (Nanda 2011).

### ***Research techniques on gender violence***

#### ***In-depth interview on gender violence research***

In-depth interviews were selected in this study to find points and aspects that cannot be provided in quantitative descriptions. For example, how did the interviewee (female or male) relate their violent behaviour (if any) to what happened (past violence experiences)? The in-depth interview technique allowed the research team to delve into gender dimensions in more detail.

In-depth interviews are designed primarily as semi-structured (combined) questions and are followed by more specific questions in order to understand the reasons and ways that women or men receive them awake to violence.

In-depth interviews take place over a period of 30 minutes (including time for personal information) and are conducted in a place that is highly safe for participants. The team leader is responsible for asking the main, member of the recording team and observing the interview.

### ***Sampling***

Data used in this study include sources: First, secondary data from the report and previous studies will be used as additional data sources for analysis from primary data and comparisons needed. set in the subject. Second, the primary data collected from the

survey is used as the main data source for later analysis. Surveys include: in-depth interviews for women identified as subject to GBV in the most serious manner. The group discussion technique was applied to find out the similarities and contrast in GBV awareness among women.

Specifically, the research team conducted a sample selection in 2 tiers. The first sample of a large number of 650 women who acted as a large sample provided general information as well as preliminary findings on GBV status and related gender issues.

The second sample of 10 women was contacted and selected from 650 women who took the online survey in the first sample. The second sample also includes two young men who serve as the comparison group. These women were selected based on the results shown by filling out the online survey in the first sample group that met one of the following conditions: (1) underwent GBV in the form of physical violence or sex; (2) married; (3) survey results with the worst or best GBV awareness.

### 3. Results

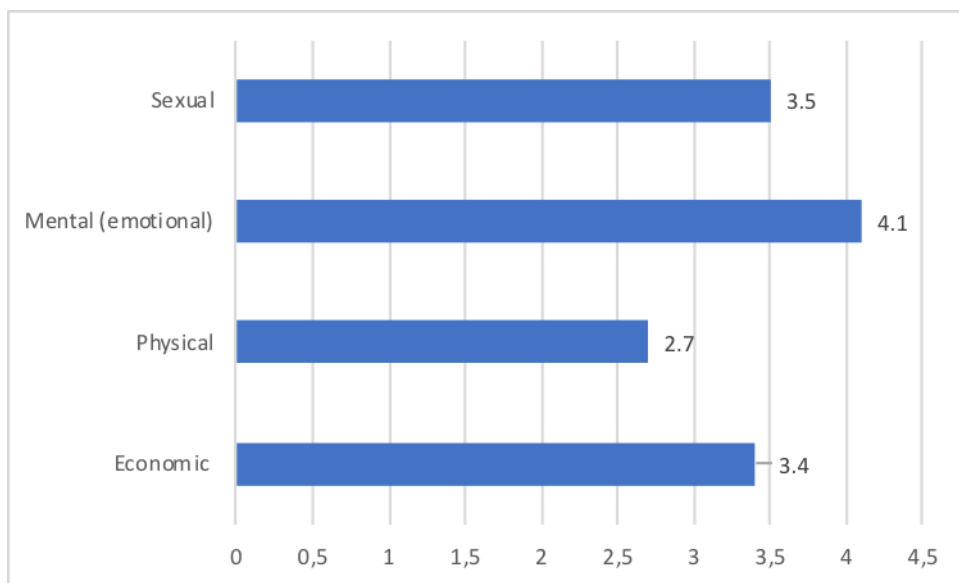
**Table 1: The experience of being the victim of gender-based violence**

	Being abused (within 1 month prior this survey)	Having ever been abused
Economic	14.7	30.6
Physical	18.3	31.6
Mental (emotional)	24.8	42.1
Sexual	15.4	37.4

In the online survey for women, the question of economic violence will be only for young women who have graduated and are employed. The results show that emotional violence is the most common form of female violence. The percentage of women who experienced emotional, physical and sexual violence in the past month were 25%, 10% and 5% respectively. Specifically, forms such as being scolded, cursed, criticized... targeted at women only because women have behaviours that are not 'suitable' to the common perception of society. Meanwhile, sexual violence here is understood as forms ranging from forced sexual intercourse, forced viewing of depraved cultural products... and physical violence includes forms such as slapping, jerking hair,... until burning.

This result is similar to the result of in-depth interview. In-depth interviews of interviewees 2, 4, 7, 10 show that men believe that behaviours such as tapping / touching women indicate normal jokes or the use of vulgar language. (e.g. assigning animal names to women) is also considered to be harmless (non-violent).

*"... I think touching the shoulders or even patting my butt is just a joke, but you guys didn't lose anything... As for sex, I didn't force my girlfriend, but your girlfriend must know something... sentences like profanity, men talk like mouth-to-mouth sentences, but they're actually not violent..."* (interviewee No. 3)



**Figure 1: Severity of gender-based violence**

Sexual violence was recorded as the least damaging of the survey group. This could be explained by the fact that the victim himself did not fully anticipate its effects and also depends on the form of sexual violence. The results showed that in the group who had ever experienced one of the forms of sexual violence, 62% were teased with erotic words, or had solicitation messages. Only 15% ever experience forced sex by a boyfriend.

Meanwhile, emotional violence is expressed as the form of leaving the greatest consequences for the victim is female. Having to listen to or witness different forms of mental violence such as verbal abuse, simile attachment to animals or even being abandoned ... causes bad effects according to women's assessment.

*"... I was blamed by an old lady selling iced tea on the sidewalk just because I wore clothes on my knees. At that time, I still compared and said that this kind of person is damaged. I feel angry and angry but I do nothing because I don't want to get any more complicated..."* (Interviewee No.06)

#### **4. Discussion and Conclusion**

In terms of the practice of GBV, according to WHO estimates (2014) based on international comparative data, about 35% of women experience at least one of the GBV forms while 70% of women in many countries suffer from violence by partners and loved ones. GBV exists in many forms in Vietnam today. According to updated studies and reports, over 33% of women surveyed experienced at least one violence (Jansen et al 2016). On the other hand, awareness of GBV among young populations in Vietnam is limited because the majority of respondents only recognize the most basic forms of GBV (UN Vietnam 2014, Carlson et al. 2015).

Moreover, research by Krause et al. (2016) shows that instead of responding to GBV forms, some women directly or indirectly "support" GBV in Vietnam. In addition, policy gaps in Vietnam not only have a weak impact on GBV's improvement, but are not preventive

in many forms of GBV. For example, despite a wide range of laws and policies enacting marriage and family, gender equality, human trafficking, and sexual abuse, Viet Nam lacks policies and programs of action towards awareness. gender equality, especially among young people (United Nations Viet Nam 2014).

Based on the findings and findings from this study, the authors make the following suggestions:

*Firstly, better integrate gender equality issues into schools*

Access to gender equality and GBV content in schools is currently very limited. Lectures and content on gender equality do not have specialized teachers to convey. On the other hand, knowledge and skills related to gender equality have not been paid enough attention in the national education system. Integrating strategically and early in life is important because gender stereotypes and stereotypes will form and develop from the moment boys and girls are instilled with negative perceptions about gender.

*Second, continue to develop and develop gender training programs in the long term with wider coverage*

This study found that participation in gender training programs significantly improved the perceptions of women participating in this survey on gender and GBV. Maintaining training and increasing the participation of Vietnamese women in gender training is needed in the current context to raise awareness and understanding of this group on gender issues. In addition, gender training programs also need to pay more attention to the ability to change perceptions and views on aspects related to sex - the hard-to-influence aspect of gender issues.

*Thirdly, propagate and build a good sex education program for the young population*

Similar to the findings of Jansen et al. (2016), Carlson et al. (2014), this study provides a basis for better implementation of the early sex education program for the population group. young. A part of the women participating in this survey and to a broader extent the Vietnamese women in the studies mentioned above did not identify the form of sexual violence. In addition, most women surveyed still consider issues related to sex to be private. This result is also the basis for the next proposal on issues of violence and safe sex.

*Fourthly, better implementation of propaganda and interventions for domestic violence and violence between couples, especially sexual violence.*

This proposal is also compatible with the research results of Schuler et al. (2016) and Krause et al. (2014), considering that good external interventions are necessary in the context of the majority of women. participating in this survey and the two studies mentioned above still 'adhere to' the privacy of sexual matters.

*Fifth, more research is needed to analyze further and provide clearer evidence for the findings of this study.*

Some further research directions may focus on: (i) Identifying factors affecting the effectiveness of gender training programs for Vietnamese women; (ii) Research on women's perceptions of forms of economic violence in the context of the transformation of Vietnam's economy; (iii) Analyze the views and behaviors of violence against women.

## 5. References

1. Actionaid Việt Nam. (2016). *Thành phố an toàn cho phụ nữ và trẻ em gái*. Hà Nội: Actionaid. Retrieved from [http://www.actionaid.org/sites/files/actionaid/aav-bc\\_tp\\_an\\_toan-vn-trang-24-11-2014\\_1.pdf](http://www.actionaid.org/sites/files/actionaid/aav-bc_tp_an_toan-vn-trang-24-11-2014_1.pdf)
2. Bryant, S. and Spencer, G. (2003). University Students' Attitudes About Attributing Blame in Domestic Violence. *Journal of Family Violence*, 18(6).
3. Carlson, M., Kamimura, A., Ha, N., Ho, W., Yamawaki, N., Bhattacharya, H., Nguyen, H., Makomenaw, A., Birkholz, R. and Olson, L. (2015). Perceptions of Violence against Women among College Students in the United States, Japan, India, Vietnam and China. *Public Policy and Administration Research*, 5(11).
4. Connell, R. (1987). *Gender and power*. Stanford, Calif.: Stanford University Press.
5. Decker, M., Latimore, A., Yasutake, S., Haviland, M., Ahmed, S., Blum, R., Sonenstein, F. and Astone, N. (2015). Gender-Based Violence Against Adolescent and Young Adult Women in Low- and Middle-Income Countries. *Journal of Adolescent Health*, 56(2), pp.188-196.
6. Delphy, C. and Leonard, D. (1984). *Close to home*. Amherst: University of Massachusetts Press.
7. E. Fulu, S. Miedema, T. Roselli, S. McCook, K. L. Chan, R. Haardörfer and R. Jewkes; UN Multi-country Study on Men and Violence study team. *Lancet Glob Health*. 5(5), e512-e522, 2017
8. Finkelhor, D., Ormrod, R. and Turner, H. (2007). Poly-victimization: A neglected component in child victimization. *Child Abuse & Neglect*, 31(1), pp.7-26.
9. Giang, T., & Lê, H. (2010). *Vượt qua bẫy thu nhập trung bình* (1st ed.). Hà Nội: Nhà xuất bản Giao thông vận tải.
10. Godbout, N., Vaillancourt-Morel, M., Bigras, N., Briere, J., Hébert, M., Runtz, M. and Sabourin, S. (2017). Intimate Partner Violence in Male Survivors of Child Maltreatment. *Trauma, Violence, & Abuse*, p.152483801769238.
11. Guilmoto, C. (2012). Son Preference, Sex Selection, and Kinship in Vietnam. *Population And Development Review*, 38(1), 31-54. doi: 10.1111/j.1728-4457.2012.00471.x
12. Gursoy, E., McCool, W., Sahinoglu, S. and Yavuz Genc, Y. (2016). Views of Women's Sexuality and Violence Against Women in Turkey. *Journal of Transcultural Nursing*, 27(2), pp.189-198.

13. Ha, V. (2008). The harmony of family and the silence of women: sexual attitudes and practices among rural married women in northern Viet Nam. *Culture, Health & Sexuality*, 10(sup1), pp.S163-S176.
14. Hamby, S. and Turner, H. (2013). Measuring teen dating violence in males and females: Insights from the national survey of children's exposure to violence. *Psychology of Violence*, 3(4), pp.323-339.
15. Hartmann, H. (1976). Capitalism, Patriarchy, and Job Segregation by Sex. *Signs: Journal of Women in Culture and Society*, 1(3, Part 2), pp.137-169.
16. Horton, P. and Rydstrom, H. (2011). Heterosexual Masculinity in Contemporary Vietnam: Privileges, Pleasures, and Protests. *Men and Masculinities*, 14(5), pp.542-564.
17. Jansen, H., Nguyen, T. and Hoang, T. (2016). Exploring risk factors associated with intimate partner violence in Vietnam: results from a cross-sectional national survey. *International Journal of Public Health*, 61(8), pp.923-934.
18. Krause, K., Gordon-Roberts, R., VanderEnde, K., Schuler, S. and Yount, K. (2016). Why Do Women Justify Violence Against Wives More Often Than Do Men in Vietnam?. *Journal of Interpersonal Violence*, 31(19), pp.3150-3173.
19. Lange, Glenn-Marie, Quentin Wodon, and Kevin Carey, eds. 2018. *The Changing Wealth of Nations 2018: Building a Sustainable Future*. Washington, DC: World Bank. doi:10.1596/978-1-4648-1046-6. License: Creative Commons Attribution CC BY 3.0 IGO
20. Lê Quang, C., & Nguyễn Vũ, H. (2016). *Doanh nghiệp nhỏ và vừa do phụ nữ làm chủ tại Việt Nam thực trạng và khuyến nghị chính sách*. Hà Nội. Retrieved from <http://www.economica.vn/Content/files/PUBL%20%26%20REP/Women-owned%20SME%20in%20Vietnam%20-%20Policy%20Recommendations.pdf>
21. McDonough, R., Harrison, R. (1978). Patriarchy and relations of production, Edited by by Kuhn, A. and Wölpe, A *Feminism and Materialism*. London: Routledge.
22. Nanda, Geeta. 2011. *Compendium of Gender Scales*. Washington, DC: FHI 360/C-Change.
23. Ngo Dang, T., Tran Thuy, C., Tran Van, Y., & Nguyen Thanh, T. (2017). Sets of Sustainable Development Indicators in Vietnam: Status and Solutions. *Economies*, 6(1), 1. doi: 10.3390/economies6010001
24. Pew Research Center. (2018). *Social Media Use Continues to Rise in Developing Countries but Plateaus Across Developed Ones*. Retrieved from <http://assets.pewresearch.org/wp-content/uploads/sites/2/2018/06/15135408/Pew-Research-Center-Global-Tech-Social-Media-Use-2018.06.19.pdf>
25. Poon, J., Thai, D., & Naybor, D. (2012). Social capital and female entrepreneurship in rural regions: Evidence from Vietnam. *Applied Geography*, 35(1-2), 308-315. doi: 10.1016/j.apgeog.2012.08.002

26. Quốc hội Việt Nam, (2006). Luật Bình đẳng giới. Hà Nội
27. Quốc hội Việt Nam. (2005). *Luật Thanh niên*. Hà Nội.
28. Raghavendra, S., Duvvury, N. and Ashe, S. (2017). The Macroeconomic Loss due to Violence Against Women: The Case of Vietnam. *Feminist Economics*, 23(4), pp.62-89.
29. Schuler, S., Lenzi, R., Hoang, T., Vu, S., Yount, K. and Trang, Q. (2014). Recourse Seeking and Intervention in the Context of Intimate Partner Violence in Vietnam. *Journal of Family Issues*, 37(8), pp.1151-1173.
30. Straus, M. and Gozjolko, K. (2014). “Intimate Terrorism” and Gender Differences in Injury of Dating Partners by Male and Female University Students. *Journal of Family Violence*, 29(1), pp.51-65.
31. Sundaram, V. (2014). *Preventing youth violence: Rethinking the role of gender in schools*. 1st ed. PALGRAVE MACMILLAN.
32. Tổng cục thống kê (2018), Lực lượng lao động từ 15 tuổi trở lên phân theo giới tính và phân theo thành thị, nông thôn. (2018). Retrieved from <https://www.gso.gov.vn>
33. Truong, T. (2008). Women’s Leadership in Vietnam: Opportunities and Challenges. *Signs: Journal Of Women In Culture And Society*, 34(1), 16-21. doi: 10.1086/588432
34. Trịnh Thị Bích, L. (2011). *TRUYỀN THÔNG CÓ NHẠY CẢM GIỚI: Một số gợi ý dành cho phóng viên và người làm báo*. Hà Nội.
35. UN Committee on the Elimination of Discrimination Against Women (CEDAW), *CEDAW General Recommendation No. 19: Violence against women*, 1992, available at: <https://www.refworld.org/docid/52d920c54.html> [accessed 27 March 2019]
36. UNDP. (2018). *Human Development Indices and Indicators*. 1 UN Plaza, New York, NY 10017 USA. Retrieved from [http://hdr.undp.org/sites/default/files/2018\\_human\\_development\\_statistical\\_update.pdf](http://hdr.undp.org/sites/default/files/2018_human_development_statistical_update.pdf)
37. UN Women. (2012). *BÁO CÁO HOÀN THIỆN VỀ ƯỚC TÍNH THIẾT HẠI KINH TẾ DO BẠO LỰC GIA ĐÌNH ĐỐI VỚI PHỤ NỮ TẠI VIỆT NAM*. Hà Nội: UN Women.
38. Zhu, L., Kara, O., M.Chu, H., & Chu, Female entrepreneurship evidence from Vietnam, A. (2015). Female entrepreneurship: evidence from Vietnam. *Journal Of Business And Entrepreneurship*.
39. Vázquez, F., Torres, A. and Otero, P. (2012). Gender-based violence and mental disorders in female college students. *Social Psychiatry and Psychiatric Epidemiology*, 47(10), pp.1657-1667.
40. Weber, M. (1968). *Economy and society*. New York: Bedminster Press.

# FACTORS INFLUENCING URBAN VIETNAMESE YOUNGSTERS' ONLINE SHOPPING HESITATION

**Le Pham Khanh Hoa**

*hoalpk@neu.edu.vn*

**Nguyen Thi Duong Linh**

*baongocthu88@gmail.com*

**Dong Thi Thanh Thuy**

*thuydong922@gmail.com*

**Tran Thi Hong**

*hongtranthi.htt23@gmail.com*

**Nguyen Thi Bao Ngoc**

*baongoc0531@gmail.com*

*Faculty of Marketing, National Economics University, Hanoi, Vietnam*

## **Abstract**

*With the explosive growth of e-commerce and online buying in Vietnam, the youngsters are main drivers. But our research shows that they are not ready to buy online or familiar with this modern buying method. Online shopping hesitation in Vietnamese urban youngsters is common phenomenon which significantly caused by online buying concern, website availability, payment concern and situational factors. Probably Vietnamese online sellers or companies should enhance their trust, credibility and mechanism to protect online customers.*

**Keywords:** *E-commerce, Online shopping hesitation, online shopping abandonment.*

## **1. Introduction**

Vietnam e-commerce marketplace has witnessed the participation of giants from China, Singapore, Malaysia and America which reached \$7.8 billion 2018 and increase 30% annually on average. Vietnam e-commerce marketplace has some characteristics: (1) the majority of customers is youngsters who is tech savvy and engages with Internet-access devices; (2) geographically, the popularity of e-commerce is not equal; (3) mobile devices are often used in purchasing items on e-commerce; (4) e-commerce is developing but not all Vietnamese use as a habit.

Despite the explosion of e-commerce in Vietnam, very little known about how consumers make purchase online. Besides, many people do not trust the availability and authenticity of online stores or items. Some of them hesitate to buy and pay or drop their online shopping carts because of bad reviews or price comparisons. The main question of this study is why Vietnamese youngster have abandoned or dropped their online shopping cart.



Kukar-Kinney & Close (2009) defined virtual or online shopping cart abandonments as consumers' placement of item(s) in their online shopping cart without making a purchase of any item(s) during that online shopping session.

Consideration of online shopping carts has relied on traditional carts, which may constrain strategic thinking about e-commerce and multi-channel marketing. For instance, mirroring offline channel functionality to an online store may result in overlooking features that could be beneficial online, or implementing features not suited for e-commerce (Kukar-Kinney & Close, 2009)

In-store carts are utilitarian (i.e., they store items en route to the cashier), virtual carts may have other, hedonic uses. Hence, it is important to study how and why consumer abandon their shopping carts in an online context. Identifying forces behind virtual cart and the inhibition to making an online purchase will help online retailers better understand their shoppers' product interests and create more consumer—friendly sites

While preparing to buy online, consumer encounter a range of inhibitors which may trigger them to abort the process and abandon their cart. Traditionally, inhibitory situations to purchasing include social influences, lack of availability, high price, financial status, and time pressure (Howard & Sheth, 1969). We extend these inhibitors to the online context. For example, the high price inhibitor may account for consumers' decision to wait for a lower price and thus leads them to abandon their cart. The financial status inhibitor should be related with a shopper's concern about total costs. We further emerging inhibitors to purchasing online, these include organization and research, privacy and security issues, and technology glitches. In the e-tail era, such new inhibitory situations, not identified in the original Theory of Buyer behaviour, may help to explain online cart abandonments.

In the light of (Howard & Sheth, 1969) Theory of Buyer Behaviour and measures discussed by (Cho, Kang, & Cheon, 2006), we analyse online shopping behaviour. Online shoppers from a need or want, they search, consider alternatives, evaluate them, and decide to buy the item(s) in the cart. After determining a need or want, an online shopper browses through web pages in the online search stage. While some online shoppers search with a motive to buy at that sessions, for others, the search is part of a purposeful ongoing search.

Cho, Kang, & Cheon (2006) compared to offline shoppers, online shoppers put higher values on the perceived return on their money, time and effort investments. In addition, there are more risks involved in non-store shopping, including online shopping, than in offline brick-and-mortar shopping. This increased degree of perceived risk may be explained by lack of physical/tangible inspection, lack of interpersonal interaction, lack of security and trust, difficulty in returning the product, and so forth. Because of the increased risks involved with online shopping, the degree of online purchase hesitation is expected to be higher than that of offline purchase hesitation. Similarly, online shoppers may have different reasons for delaying product purchase online (e.g., lack of skills and trust, confused by over choice) and different types of delay behaviours (e.g., abandoning shopping carts, hesitating to click the payment button, hesitating to register as a buyer). Therefore, it is imperative to study the types of consumers' delay behaviours online and the underlying reasons for hesitation in making online product purchase

Greenleaf & Lehmann (1995) developed comprehensive typologies of reasons why consumers delay product purchase decisions. To date, however, there has been no attempt to understand consumer delay behaviours in an online shopping context. This was the starting point of the current study. Four categories—perceived uncertainty, medium/ channel innovation, contextual, and consumer characteristics factors—were included as predictors of online shopping hesitation in this study

Kukar-Kinney & Close (2009) suggest a pre-requisite to online shopping cart use is consumer acceptance of electric shopping. Beyond usability and ease of use, consumer attitudes, perceived continuity of e-commerce websites (Wang et al., 2009), and website personality are important determinants of online shopping acceptance. The e-commerce, marketing, and retailing literature also recognizes both hedonic and utilitarian motivations for online shopping and buying. Similarly, there are utilitarian and hedonic motives for using the Internet in general, such as interpersonal utility, information seeking, convenience, and entertainment. Many of these motivations may also apply to the more specific online cart use behaviour. This utilitarian and hedonic motivations for both Internet use and shopping online may help explain what drives shoppers to use their carts.

Purchase intention is a cognitive state reflecting the consumers' plan to buy in a specified time period (Howard & Sheth, 1969). Current online purchase intent refers to an online shoppers' intention to use his or her virtual cart to purchase during the current Internet session.

We develop a model to test factors influencing online shopping hesitation or online shopping abandonment with some hypotheses.

First, online buyers could have some triggers at the decision point. These are contextual factors such as: perceived time pressure (they have many things to do) which causes delay in purchasing online products, the necessity of need, internet accessibility, shipping time...These contextual forces are barriers for online purchase, *H1: Contextual factors have positive affect on Online shopping hesitation.*

Consumers are influenced by reference group, feedback from other consumers on e-commerce platforms. These social factors are estimated to have a positive relationship with online shopping hesitation (Cho, Kang, & Cheon, 2006), *H2: Social factors have positive relationship with Online shopping hesitation.*

Product price refers to consumers' financial risk compared to benefits or credibility. Financial risk has specific affect on purchase decision (Cho, Kang, & Cheon, 2006; Kukar-Kinney & Close, 2009; Yin & Jin-Song, 2015), *H3: Financial risk has positive relationship with Online shopping hesitation*

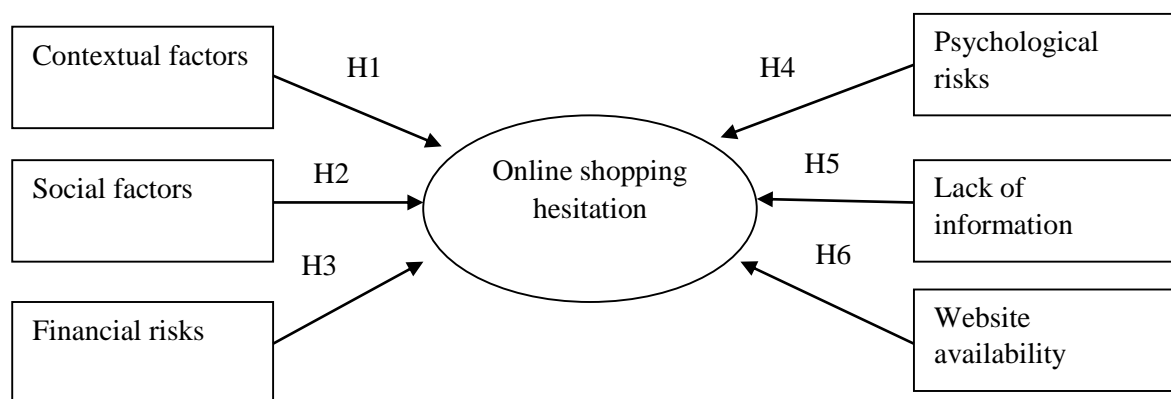
Beside financial risks, consumers have psychological risks relate to motivation, attitude, trust. Consumers can not have physical evidence of products when purchasing online, psychological risks could higher than traditional commerce, *H4: Psychological risks have positive relationship with Online shopping hesitation.*

Information or knowledge is the most important factor in purchasing online. Consumers could use online shopping cart as a means of researching alternative before

making official purchase (Kukar-Kinney & Close, 2009). Yin & Jin-Song, 2015 illustrate that consumers want to compare products in terms of information, feedback, experience in many websites. Cho, Kang, & Cheon, (2006) show that lacking information get consumers worried about their own purchase decisions, they could delay their purchase to get more knowledge related their alternatives to reduce the risk, *H5: Lack of information has positive relationship with Online shopping hesitation.*

Even when consumers overcome all barriers above, they could delay their payment because of some technological problems. E-commerce websites with well-equipped payment tools could force consumers to buy without waiting, *H6: Website availability has negative relationship with Online shopping hesitation.*

**Figure 1: Proposed research model**



## 2. Method

Data has been collected from March to April 2020 by online survey with the target is students and pupils in Hanoi and other neighbourhood provinces. Participants were recruited by Facebook group of schools. 400 questionnaires were delivered, and 300 responses were collected. Measures for independent and dependent variables were adapted by results from previous researches of Cho, Kang, & Cheon, (2006; Kukar-Kinney & Close, (2009; Yin & Jin-Song, (2015; Laura & Julie, (2012) and the result of interviewing 25 e-commerce users (aged 18 to 25) in the context of Vietnam via Facebook Messenger and mobile phone.

## 3. Results

**Table 1: Sample description**

	<b>Criteria</b>	<b>Number</b>	<b>Proportion per sample</b>
<b>Age</b>	<i>15 to 18</i>	100	33.3%
	<i>19 to 22</i>	175	58.3%
	<i>23 to 25</i>	25	8.3%
<b>Gender</b>	Male	59	19.7%
	Female	240	80.0%

	<b>Criteria</b>	<b>Number</b>	<b>Proportion per sample</b>
	Other	1	0.3%
<b>Occupation</b>	<i>Pupil (high school)</i>	96	32%
	<i>Student (university)</i>	177	59%
	Full time job	27	9%
<b>Geographic</b>	<i>Hanoi (central)</i>	181	60.3%
	<i>Hanoi (outskirt)</i>	53	17.7%
	Other province/cities	66	22%
<b>Payment method (more than one option)</b>	Cash		89%
	ATM/Visa/Master card		37.33%
	e-wallet (Momo)		33.67%

Respondents are mainly from urban area and age from 15 to 22

**Table 2: Dependent/Independent variable credibility**

<b>Factor/Variables</b>	<b>No. of items</b>	<b>Sources</b>	<b>Cronbach's Alpha</b>
Contextual factors	4	(Cho, Kang, & Cheon, 2006)	0.673
Financial risk	4	(Cho, Kang, & Cheon, 2006; Kukar-Kinney & Close, 2009; Yin & Jin-Song, 2015; Laura & Julie, 2012)	0.763
Psychological risks	6	(Cho, Kang, & Cheon, 2006; Kukar-Kinney & Close, 2009; Yin & Jin-Song, 2015; Laura & Julie, 2012)	0.806
Lack of information	6	(Cho, Kang, & Cheon, 2006; Kukar-Kinney & Close, 2009; Yin & Jin-Song, 2015)	0.883
Website availability	5	(Cho, Kang, & Cheon, 2006; Kukar-Kinney & Close, 2009)	0.788
Online shopping hesitation	5	(Kukar-Kinney & Close, 2009; Huang, Kofiatis, & Chang, 2017)	0.742

All variables in the study are test the credibility by Cronbach's Alpha, the Social factors is rejected due to the low Cronbach's Alpha (0.3).

**Table 3: Factor loadings of independent variables**

	<b>Factor loadings</b>			
	<u>Online shopping concern</u>	<u>Website availability</u>	<u>Situational factors</u>	<u>Payment concern</u>
Worry about the product quality due not to check physically	<b>.838</b>			
Compare the same products among (other) websites	<b>.837</b>			
Compare the same product with traditional shops	<b>.833</b>			
Worry about returning product if not appropriate	<b>.818</b>			
Worry about the product quality of sale off product	<b>.758</b>			
Confused of many alternative products	<b>.736</b>			
I think that make wrong decision is more costly	<b>.665</b>		<b>.309</b>	
I wait for better product	<b>.645</b>			
Slow feedback from sellers, support for customer is not empathy	<b>.637</b>			
High cost for shipping	<b>.635</b>			<b>.402</b>
The product I buy do not have discount	<b>.606</b>			
I can not afford to buy at that moment	<b>.536</b>			<b>.486</b>
I don not know the sale off policies	<b>.421</b>	<b>.313</b>		
Websites are not stable and always in trouble		<b>.828</b>		
User interface of search is misunderstanding		<b>.796</b>		
The payment process is complex and misunderstanding		<b>.710</b>		<b>.478</b>
I can not trust the user privacy policies		<b>.655</b>		
The purchase is interrupted by external factors			<b>.744</b>	
The product in need now so I buy at a shop	<b>.347</b>		<b>.658</b>	
The shipping time is high due to the long distance			<b>.608</b>	
The necessity of products is not emergent	<b>.427</b>		<b>.543</b>	
Required payment methods are not applicable				<b>.717</b>

Exploratory factor analysis (tested by KMO and Barlett) shows that all items in proposed independent variables are loaded in other components. We call them *Online shopping concern*, *Website availability*, *Situational factors* and *Payment concern*. New independent variables are applied ordinal linear regression for multivariate (in SPSS) with one dependent variables (Online shopping hesitation) and four independent variables (Online Online shopping concern, Website availability, Situational factors and Payment concern) that shows the findings:

$$\begin{aligned} \text{Online shopping hesitation} = & \mathbf{0.698} \times \text{Online shopping concern} - \mathbf{0.103} \times \text{Website availability} \\ & + \mathbf{0.385} \times \text{Situational factors} + \mathbf{0.257} \times \text{Payment concern} \end{aligned}$$

With the coefficient of regression models:

**Table 4: Coefficient of linear regression model**

Model	Unstandardized Coefficients		t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error			Lower Bound	Upper Bound	Tolerance	VIF
(Constant)	-2.373E-16	.031	.000	1.000	-.061	.061		
<i>Online shopping concern</i>	<b>.698</b>	.031	22.355	.000	.637	.760	1.000	1.000
<i>Website availability</i>	<b>-.103</b>	.031	-3.296	.001	-.164	-.041	1.000	1.000
<i>Situational factors</i>	<b>.385</b>	.031	12.327	.000	.324	.446	1.000	1.000
<i>Payment concern</i>	<b>.257</b>	.031	8.212	.000	.195	.318	1.000	1.000

And the model test results:

**Table 5: Linear regression model summary**

Model	R	Std. Error of the Estimate	Change Statistics					Durbin-Watson
			R Square Change	F Change	df1	df2	Sig. F Change	
1	.844	.54009587	.712	182.503	4	295	.000	1.919

Table 4 shows that all variables are significant ( $p < 0.05$ ) and collinearity (VIF under 2.0) does not exist. Table 5 show that the regression model is appropriate with F change sig. lower than 0.05 and Durbin-Watson test is 1.919 ( $1.917 < 1.919 < 2.183$ ). With adjusted R square is .708 independent variables affect nearly 71% of dependent variable change.

**Table 6: Model ANNOVA test**

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	212.947	4	53.237	182.503	.000
	Residual	86.053	295	.292		
	Total	299.000	299			

With the new model and the new factors by rotated matrix factor, we consider the proposed hypotheses:

- H1, H4, H5 are supported by the positive relationship between Online shopping concern and Online shopping hesitation ( $\beta = .698, p = .000$ )
- H2 rejected
- H3 is supported by the positive relationship between Payment concern and Online shopping hesitation ( $\beta = .257, p = .000$ )
- H6 is supported by the negative relationship between Website availability and Online shopping hesitation ( $\beta = -.103, p = .001$ )

#### 4. Discussion and Conclusion

With the main question of this study, we figure out four reasons why Vietnamese youngsters delay their online cart. In which, Online shopping concern have more weight. This result approves some secondary reports on Vietnamese e-commerce marketplace that online is not Vietnamese shopping habit. Vietnamese youngsters with more knowledgeable, tech savvy are still worrying about the credibility of online brand and quality of online products. This pose a question for the Vietnamese Government to have more mechanisms for online business. This insight also raises a problem of online sellers' marketing communications to ensure their products' authenticity and quality.

Situational factors in online purchase rank second which suggest some marketing communication tactics for seller to force their customers in urgent situation with equal perceived price to traditional shop/carts.

Website and payment processing on website are less important with customers but very important for the sellers. Website interface and experience with well-visual designed elements could trigger customers online impulse buying which is one of the marketing tactics for sellers to attract more online purchase buying.

The study has some limitations in choosing and processing measures for dependent and independent variables. The topic and problems are best practices in Vietnam and other countries which have not been developed by the academics that the reason why measures are not well-established. In the research process we try to reduce bias and measuring problems by interviewing potential target participants. The validity and credibility of the research could be illustrated by statistical tests in the research stages we conducted.

Future researches should focus more on measure problems of some constructs like online shopping hesitation/abandonment which help explore more antecedents and consequents of customer hesitation.

#### 5. References

1. Cho, C.-h., Kang, J., & Cheon, H. J. (2006). Online Shopping Hesitation. *CYBERPSYCHOLOGY & BEHAVIOR*, 261-274.
2. Greenleaf, E., & Lehmann, D. (1995). Reasons for Substantial Delay in Consumer Decision Making. *The Journal of Consumer Research*, 186-199.
3. Howard, J., & Sheth, J. (1969). *The Theory of Buyer Behaviour*. New York.
4. Huang, G.-H., Kofiatis, N., & Chang, C.-T. (2017). Mobile shopping cart abandonment: The roles of conflicts, ambivalence, and hesitatio. *Journal of Business Research*.
5. Kukar-Kinney, M., & Close, A. (2009). The determinants of consumers' online shopping cart abandonment. *Journal of Academic Marketing Science*.
6. Laura, E., & Julie, J. (2012). Shopping Cart Abandonment in Online Shopping. *Atlantic Marketing Journal*, 1-14.
7. Yin, X., & Jin-Song, H. (2015). Factors Influencing Cart Abandonment In The Online Shopping Process. *Social Behavior and Personality*, 1617-1627.



**PART 4:  
URBAN AND REGIONAL  
DEVELOPMENT**





# **SOLUTIONS FOR DEVELOPING HIGH QUALITY HUMAN RESOURCE TO MEET THE TARGETS OF INDUSTRIALIZATION AND MODERNIZATION OF NAM DINH PROVINCE**

*Co Huy Le*

*huyle.noivu@gmail.com*

*Faculty of Human Resource Management, Hanoi University Of Home Affair*

## **Abstract**

*The article mentions the task of developing human resource to meet the needs of industrialization and modernization of Nam Dinh province in the context of market economy, international integration and knowledge economy. Raising the innovation requirements for developing high quality human resource in Nam Dinh province for socio-economic development in the direction of industry and modernity. Based on the conditions and requirements of Nam Dinh province, it is necessary to identify effective solutions to develop high quality human resource to ensure sufficient quantity, quality and uniformity of high quality human resource structure to meet the targets of industrialization and modernization of Nam Dinh province and contribute to the socio-economic development of this locality in the current period.*

**Key words:** *Human resource, high quality human resource, industrialization and modernization, development, high quality human resource, Nam Dinh province.*

## **1. Introduction**

In the context of the rapid development of science and technology revolution and the trend of economic globalization to promote the rapid spread of knowledge economy, Vietnam in general and Nam Dinh in particular cannot carry out the task of industrialization and modernization following the traditional way but Nam Dinh must have leapfrog, that is, industrialization and modernization must be done in association with the development of the knowledge economy, taking human capital as an important factor for development socio-economy in Nam Dinh.

Nam Dinh is a province in the Red River Delta with a natural area of 1,669.2 km<sup>2</sup> and has a population of about 2,200,000 people. Geographical position is located at the end of the Red River, on 1A Highway, and Nam Dinh province is about 90 km distance to the center of Hanoi city, which is very convenient for economic development. With the availability premises, Nam Dinh province is enlisting max advantage of the achievements of the 4.0 technology revolution, promoting successful implementation of the targets of industrialization, modernization and socio-economic development of the locals in Nam Dinh. However, besides the opportunities, Nam Dinh also faces the challenges especially are challenges of labor quantity and labor quality, high quality human resource to prepare for a new production period based on advanced and modern science - technology. In order to

successfully solve this human resource challenges, one of the important requirements is that Nam Dinh province must find solutions to develop human resource to ensure the quantity and quality with suitable structure is one of urgent requirements for socio-economic development and for meeting the targets of industrialization and modernization of Nam Dinh.

## **2. Methods**

The paper is carried on basing on a combination of both qualitative and quantitative research methods closely in the research process with the desire to not only describe the theoretical picture of the impact of developing high quality human resource to the targets of industrialization and modernization, but also quantify this impact through reliable statistics of Nam Dinh province. These methods include:

- Methods of scientific abstraction: Abstracting some important components of a phenomenon that has long been used in economic research. Because, within the scope of one study, it is impossible to address all the relevant issues, but can only focus on depth analyzing on a certain aspect. The paper applies this method to focus on analyzing the situation of developing high quality human resource in relation to the implementation of the targets of industrialization and modernization in Nam Dinh province.

- Descriptive and comparative statistical method: Analyzing the actual situation of developing high quality human resource to meet the industrialization and modernization targets of Nam Dinh province, comparing the level of developing quality human resource high with the requirements of industrialization and modernization in both theory and practice to see the suitability as a premise for a solution. Descriptive statistics provide preliminary results and provide qualitative assessments to identify the realization of theoretical relationships for human resource development in Nam Dinh province.

## **3. Results**

### ***3.1. Theoretical basis for developing high quality human resource to meet the targets of industrialization and modernization***

#### ***3.1.1. Human resource and high quality human resource***

According to Vietnamese General Statistics Office, “Human resource includes all people of working age, capable of working and people above the working age who are working in actual jobs in the economy”. Thus, human resource is understood as encompassing all human potential, strength, in every human being and making them actively. That strength is growing with the development of the human body and to some extent, people are eligible to participate in the labor process. “High quality human resource is the most elite part of the country’s human resource: They are leaders, businessmen, scientists and good political, ethical people with good living way, high education, good expertise, good health. They always are the people who lead in labor, create science, contribute positively and highly effectively in the cause of national construction”. Basic characteristics of high quality human resource of a local include: the number of human resource; their quality; structure of human resource (structure of qualifications, industries and regions); the potential of present human resource as well as the level of response (effectiveness) to the local socio-economic

development requirements. High quality human resource is the most quintessential part of human resource, is the labor force characterized by high levels of education and expertise; has the capacity to apply creatively scientific and technological achievements in order to create productivity, quality and efficiency in the production and labor process; good citizenship, professional ethics. High quality human resource is the creative workforce. Creativity is always the source and the important driving force for development. In the whole social human resource, high quality human resources are mentioned including: leaders and managers; teaching staff; scientific and technological staff; team of skilled workers; team of experts in business administration and good businessmen.

### *3.1.2. Developing high quality human resource to meet the targets of industrialization and modernization*

Human resource development is a very familiar term, studied by many people, used widely in human resource management, state management of human resource, and economic management in the field of human resource. Many given concepts have a wide range, narrow range and also different scope.

In the theory of human capital, human resource development is the development of intellectual capacity, personality development and biological development for labor resource. In this view, like any other assets, human resource is only really valuable when they are effectively exploited and used. Therefore, the concept of human resource development includes the factor of using human resource correctly, effectively, creating an appropriate and favorable working environment for each employee to be effective.

### *3.1.3. Requirements for developing high quality human resource to meet the targets of industrialization and modernization*

Firstly, ensuring human resource development is one of three breakthroughs for industrialization and modernization, successfully implementing the goals set out in the socio-economic development strategy such as transformation growth model from mainly in width to reasonable development between width and depth; enhance the application of science and technology; labor restructuring, economic restructuring, implementation of economic restructuring; rapidly increasing the content of localization, added value and competitiveness of products, enterprises and the economy; increase labor productivity, save in using all resources.

Secondly, the basic requirement of local is to develop sufficiently in terms of quantity, quality, and suitability in terms of the structure of high quality human resource to meet the targets of industrialization, modernization and social economic development. In order to ensure the successful implementation of this requirement, it is necessary to regularly follow the labor market needs, promptly grasp the changes in the industry structure and the training level of human resources to meet the requirements demand for labor restructuring of localities in the process of industrialization and modernization.

Thirdly, promoting the development of education and training, especially promoting vocational training for workers both in quantity and quality in order to improve incomes, living standards and contribute to economic restructuring, due to the increasing urbanization process, due to the emergence of new industries and trades ...

Fourthly, the development of human resource needs to meet the requirements of more balanced development among industries, manufacturing sectors as well as each region, stemming from the requirement to maintain political stability and ensure security, defense for national development.

Fifthly, developing high quality human resource in the locality must be associated with the exploitation, efficient use and saving of human resource, besides, on the one hand, creating opportunities for the economy to develop strongly, on the other hand, creating great pressure on employment and vocational training, towards labor restructuring, economic restructuring towards of industrial and modern.

### ***3.2. Characteristics of Nam Dinh's human resource***

Nam Dinh province is on the path of industrialization and modernization with an economy characterized by three intertwined civilizations: agricultural civilization, industrial civilization and some elements of knowledge civilization. In recent years, the general level of the labor force of the province continues to improve and the structure of human resources qualifications is also gradually improved.

Here are some indicators reflecting the size and structure of labor resources by 2019 criteria of Nam Dinh province as follows:

**Table 1: Structure of Nam Dinh's labor resource by qualification**

<b>No.</b>	<b>Criteria</b>	<b>Number (people)</b>	<b>Ratio (%)</b>
1.	Total	1,208,843	100.0%
2.	No technical expertise	371,494	30.7%
3.	Technical worker with Beginner's Degree / Vocational Certificate	591,315	48.9%
4.	High school professional	128,552	10.6%
5.	College - university or higher	117,481	9.7%

*[Source: Nam Dinh Statistical Office, 2019]*

According to the statistical results in Table 1, the percentage of labor with a college degree or higher (*human resources considered high quality human resources*) of Nam Dinh province in 2019 is still quite low, this rate is only accounting for 9.7% of the total labor resources of the whole province, equivalent to 117,481 people. This rate is low but looking at the data table, we can see that the labor structure of Nam Dinh province by professional level is still very unbalanced, the labor force of the province is a technical worker at the level of a preliminary certificate. 48.9% of the total number of technicians and technicians with diplomas accounts for the highest percentage, the unskilled labor force (*untrained*) is still high (30.7%). Therefore, with the rate of labor according to the above qualifications, it is necessary for Nam Dinh province to strengthen the work of human resource development to ensure the level of labor resources, especially high quality labor source to meet targets of industrialization and modernization now.

Regarding the structure of Nam Dinh's labor resource by area in 2019, there are the following criterias:

**Table 2: Labor structure of Nam Dinh province is based on economic sectors**

Labor structure Criteria	Total (people)	% in total labor of Nam Dinh province	% compared to the total labor force of the industry	% qualified labor	
	1,208,843			Professional and vocational high school	College - university or higher
Agriculture - Forestry - Fishery	510,132	42.3%	56.8%	9.7%	4.3%
- Male	153,040	31.8%	42.7%	48.4%	36.8%
- Female	357,092	69.2%	57.3%	51.6%	63.2%
Industry - Construction	424,304	35.1%	80.1%	7.8%	11.3%
- Male	360,658	84.9%	74.5%	92.7%	89.3%
- Female	63,646	15.1%	25.5%	6.8%	9.7%
Service	274,407	22.6%	75.7%	18.3%	15.6%
- Male	115,251	41.5%	37.7%	36.5%	45.6%
- Female	159,156	58.5%	62.3%	63.5%	54.4%

[Source: Nam Dinh Statistical Office, 2019]

According to the labor statistics by economic sectors in Table 2, we see that, in Nam Dinh province, in 2019, the total number of employees is 1,208,843 people, the ratio of employees in Agriculture - Forestry - Fisheries accounts for 42.3%, equivalent to 510,132 people, with the labor structure with college, university or higher degrees, accounting for a very low rate, only 4.3% of the total number of employees in the sector; The labor structure of Industry and Construction accounts for 35.1%, equivalent to 424,304 people, of which, 11.3% of the labor force of the sectors and fields have college and university degrees study or higher; similar to the field of Services, the labor structure of the field is 22.6%, with 274.407 people in the province's total labor force, with the proportion of employees with college, university or higher account for 15.6%. Thus, although in recent years, the high quality labor force in Nam Dinh has tended to increase, the labor structure by industry has changed positively, reducing the proportion of labor in the agricultural sector. forestry, fishery, increase labor force in industry, construction and service sectors. However, the structure of labor sources with college and university degrees or higher is still quite low, the labor structure distributed among industries is still inadequate, the labor structure by gender is still inadequate due to the gender imbalance in occupations is still high, such as agriculture, which is performed by almost female employees, while in industry, construction, which is performed by almost male labor. With the current labor force of the province is abundant,

but the quality is limited, unskilled labor accounts for a large proportion, technical and professional labor is insufficient compared to the requirements of socio-economic development. This requires Nam Dinh province, its labor management agencies to have strategies in developing their local human resource to ensure the socio-economic construction and development of Nam Dinh province in the direction of industry and modernity.

### ***3.3. Developing high quality human resource in Nam Dinh***

The impact of the industrial revolution 4.0 greatly affects the whole human resource of the country as well as Nam Dinh province, especially the threat of heavy unemployment in the unskilled labor resource. Therefore, developing high quality human resource to meet targets of industrialization and modernization in Nam Dinh province needs to develop in two spearhead directions and broadly, specifically:

- Education level: Nam Dinh province needs to make efforts to 2020, the province's labor force ensures the rate of primary school graduates less than 5%; primary school graduates accounted for 8%; 35% graduated from lower secondary school and 52% high school graduate. In 2019, this rate is 7%; twelfth%; 33%; 48%.

- Professional and technical qualifications: In 2020, Nam Dinh province strives to reduce the proportion of short-term trained workers to 35%, to train intermediate-level laborers to 8.5% and to college-level up 16.5%; university and higher accounting for 13.5%.

- Vocational training: Nam Dinh makes efforts to 2020, raising the rate of trained vocational workers to over 60% (42.8% in 2019). Promote rural economic restructuring towards increasing the proportion of industry and services (industry and construction increased from 52% in 2019 to 68%; services increased from 36% in 2019 to 35%); to reduce the proportion of agriculture to 15% by 2020. Through vocational training activities, creating qualified human resources and vocational skills to meet the labor needs of units and enterprises and is one of the weak factors. An important factor promoting socio-economic development of the province.

- For the contingent of cadres, civil servants and public employees of the province: To enhance the thoroughness and consideration of both material and spiritual matters for training occupational skills and other qualities of officials and public employees officials. By 2020, the total number of officials, public servants and employees will be about 23,000 people, of which post-graduate accounts for 20%, college and university degrees account for 75%; By 2030, the corresponding rates will be over 35% and 65%.

- For the private sector: In 2019, the whole province has 1,208,843 employees with aged 15 and over, of which trained workers account for 69.3%. It is expected that by 2020, the proportion of trained workers will account for 23.0%, the proportion of workers with college and university degrees will account for 20.3% of the total labor; labor with university degree an higher accounts for 13%.

To implement this orientation, Nam Dinh province also proposed a direction to improve the quality of vocational educators to meet and exceed the standards of professional

qualifications, pedagogical skills and vocational skills, in accordance with structure of training disciplines, of which 50% of teachers at college and secondary education have graduate degrees. To strive for the target that the percentage of labor through job-based vocational education up to 70% by 2020 and 85% or more by 2030. In the period from now to 2030, to build some schools in the vocational education system up to international standards and the remaining schools up to national standards. Beside, in addition, the province needs to develop and organize the implementation of appropriate policies and mechanisms for the development of human resources quality, including contents on the working environment, employment policies, income, favorable and attractive living conditions and policies for high quality human resource and talents to meet local socio-economic growth and development requirements.

#### ***3.4. Some limitations of the development of high quality human resource in Nam Dinh***

Firstly, the percentage of trained labor has increased, but unemployment has tended to increase over the years. The reason is that the quality of human resource training is not really high, many workers after the training are not able to immediately perform the job, including some workers need to retrain or additional training to suit with the requirements of industrial and modern jobs at the workplace. There is a shortage of trained technical workers, especially workers in high-tech fields such as electricity, electronics, mechanics, new materials and services. The foreign language skills of trained workers are still weak, which affects the work of workers in foreign-invested enterprises.

Secondly, in the training and education, the structure of training fields has not met the social needs. Most vocational schools and universities are training for industries following social trends such as economics, finance, banking, law, accounting, etc., not yet prioritizing investment in training human resource for the industry and service sectors or for industrialization and modernization of the agricultural sector. In addition, the gender imbalance of the labor force in Nam Dinh province is also a matter of concern, especially in the agriculture-forestry-fishery sector, the majority of female workers account for the majority.

Thirdly, policies and regimes in economic integration and venture to develop human resource for the purpose of industrialization and modernization of Nam Dinh province are still limited: The mechanism of joint venture, cooperation and coordination in training and education in and outside Nam Dinh is not yet popular. Enterprises and organizations still mainly use available labor, have not paid enough attention to the development high quality human resource for future personnel requirements.

Fourthly, the issue of attracting investment, accumulating capital and finance for human resource development in Nam Dinh province is not good. The province's labor force is currently exploited by employers, mainly exploiting the quality potential, the number of available human resources, and not paying adequate attention to financial investment for labor development (quantity, quality, structure). Besides, Nam Dinh province's budget revenue is still low, not yet to meet the demand for investment in material facilities, teaching and retraining equipment, and developing high quality human resource for industrialization and modernization of the province.



Fifthly, the development of human resource for industrialization and modernization of Nam Dinh province is a fact that for a long time, the planning and developing of human resource of Nam Dinh province has not been much considered yet, the province has not developed a detailed plan for human resource development strategy for the period 2011 - 2020. Therefore, the implementation of plans for education, training, retraining and human resource development become very difficult and inadequate, so it has not been able to take initiative in human resource for arranging, replacing and supplementing and make many occupations that are labor-shortage, while some areas such as agriculture, forestry and fishery are redundant labor.

### ***3.5. Solutions for developing high quality human resource for Nam Dinh province***

#### *3.5.1. Nam Dinh province is proactive in international economic integration to develop high quality human resource for industrialization and modernization*

Nam Dinh province has the advantage of abundant human resource, with large number of vocationally trained labor force, but the labor force with professional qualifications and high quality is still limited. The labor force still has an imbalance between industries and fields, as well as an imbalance in gender, skills of human resource are not good... this problem really becomes a big barrier in the process of industrialization and modernization of the province. Therefore, in the coming time, Nam Dinh province should implement the following directions:

Promoting of information and communication to the people, officials and workers so that they understand the policy of international integration of the province in order to take advantage of all resources for socio-economic development, especially investment capital for training and vocational education for the development of high quality human resource in the province.

All higher education institutions, vocational education institutions should make recommendations to the province in formulating and promulgating policies in education and training, vocational education to create a clear and favorable mechanism for countries, investors and businesses to increase investment in capital and technology to use and develop high quality human resource to meet requirements of economic investment's demand of all three parties of investors, Nam Dinh province and workers.

Universities and colleges in Nam Dinh province need to promote cooperation, joint venture and cooperation with domestic and international universities in order to take advantage of capital, technology and advanced teaching methods, step by step participate in training high quality human resource, including those who meet full of criteria: quantity, quality and the structure to meet the industrialization and modernization requirements of Nam Dinh province.

#### *3.5.2. Promote economic development, increase capital investment for developing high quality human resource of Nam Dinh province*

In the process of implementing Nam Dinh's human resource development strategy for the period of 2011 - 2020, from the requirements of human resource to meet the targets of industrialization and modernization, Nam Dinh province has achieved many great achievements in socio-economic development such as the annual average economic growth

rate reached 9.2%, the unemployment rate decreased significantly; the economic structure of the province shifted in a positive direction, although the economic structure of Nam Dinh province in the fields of agriculture, forestry and fishery still accounts for a large proportion (42.3%), but the service and industry sectors, construction has been increasing significantly in recent years. However, in general, Nam Dinh is a rapidly aging and sustainable province, the economic growth rate is still low, the unemployment rate is low but lack of job is big, industry and services although have achieved many prosperous results but still not creating a breakthrough, low labor productivity and low economic efficiency. Therefore, it affects the accumulation and investment for developing high quality human resource of Nam Dinh province.

To ensure to have enough of quantity, quality and structure of human resource to meet the targets of industrialization and modernization of Nam Dinh province, the province needs to focus on attracting capital to invest in training, education and development of human resource, especially for high quality human resource. Accelerating the transformation and completion of the economic structure in the direction of industry and modernity, including the main field of agriculture and forestry to create a solid premise with a medium-term strategic vision to get accumulated capital from the agricultural sector, forestry, fisheries for investing for developing high quality human resource for industry, construction and service sectors.

### *3.5.3. Implementing human resource development plans for industrialization and modernization of Nam Dinh province*

In order to improve the efficiency and quality of human resource development to meet the industrialization and modernization targets of Nam Dinh province, an important solution is that the province must develop a plan for developing high quality human resource to meet the requirements in the new, integrated, industrial and modern period with specific directions in:

Planning for developing human resource, especially high quality human resource of the province until 2025. The province needs to assess the actual situation of the ability to provide human resource and forecast the demand for high quality human resource of sectors and fields in towards the way of modern, industry, from there, if there is a surplus or shortage, it is necessary to adjust and transliterate the labor structure accordingly, effectively to ensure socio-economic development plan, meeting the targets of industrialization and modernization of Nam Dinh.

The province must have a breakthrough plan to develop high quality human resource, with a focus on building, fostering and using appropriately qualified leaders and managers with good ethics, improving the quality and efficiency of using science and technology staff, training technical workers in the direction of developing a system of universities and vocational training schools that are widely available. policies to encourage localities, investors, enterprises to invest or directly participate in vocational training for labor staff in the province.

For education, training and development of high quality human resource: The province should pay attention to training programs for high quality human resources towards

focusing on training according to standards of professional titles; each job title and position is trained and fostered with appropriate and practical knowledge and skills for the work being undertaken by the employee. The province also needs to balance the funding for training, fostering and developing high quality human resource of the province to meet the targets of industrialization and modernization.

#### **4. Discussion and Conclusion**

Human resource is the most important resources, determining the existence and development of local and national. But to have high quality human resource to meet the targets of industrialization and modernization. It requires Nam Dinh to have important solutions to carry out this political task. Developing high quality human resource of Nam Dinh province in the period of industrial revolution 4.0 is now an important human resource strategy to contribute for improving the quality of the local labor force in particular of Nam Dinh and of Vietnam in general, contributing to economic restructuring, labor restructuring towards industry and modernity for socio-economic growth and development of Nam Dinh province.

#### **5. References**

1. Communist Party of Vietnam, *Documents of the eleventh National Party Congress*, National Political Publishing House, Hanoi, 2011.
2. Nam Dinh Committee, *Socio-Economic Development Strategy in Nam Dinh 2011-2020*.
3. Nam Dinh Committee, *Human resource development plan of Nam Dinh 2011 -2020*.
4. Nguyen Chi Tan, Tran Mai Uoc, Nguyen Van Phuc (2011), *Human resource of high quality with the cause of industrialization and modernization*, Journal of human resources development, No. 3 (24).
5. Ngo Minh Tuan (2013), *State management of human resource development in Vietnam: issues and solutions*, Ministry of Planning and Investment.

# DEVELOPMENT OF NEW URBAN AREAS THAT ARE FRIENDLY AND MEET THE AGING NEEDS OF THE POPULATION

*M.Sc. La Ngoc Mai*

*mailn@neu.edu.vn*

*Faculty of Human Resources Economics and Management,  
National Economics University, Hanoi, Vietnam*

## **Abstract**

*Approaching from the perspective of analyzing the needs of the elderly, as well as the increasing number of the elderly in urban areas through data of the Population and Housing Census of years and the survey of population change in Family Planning of Vietnam, the author has generalized the population aging process in Vietnam; In addition, the author also summarizes the theories and practices of some developed cities that have applied the active aging approach implemented by the World Health Organization (Who) in the “Active Aging” campaign, thereby, the author has given orientations for building a new and more friendly urban area to accommodate the elderly population in the future. New urban areas need to be built as well as adjusted to ensure the following aspects of active aging: raising awareness of the whole society in general and the elderly themselves in particular to help the elderly consider themselves a resource of the country; applying technology, synchronizing systematically, giving access to the elderly so that they can access all utilities and social services easily and conveniently; building infrastructure to support the care of the elderly both physically and mentally. By clearly recognizing and coordinating across the sectors, the country in general and cities in particular can completely narrow the fourth age of ‘decrepitude and dependence’ and expand the third age of ‘achievement and independence’ with the contribution of the elderly to the economic and social development.*

**Keywords:** *Air and water pollution, Physical environment, Population and environment*

## **1. Introduction**

Aging in urban areas is a new concept related to the increasing number of the elderly living in urban areas; and urban aging is an indispensable, positive and challenging phenomenon because both population aging and urbanization represent the successful development of the people as well as the nation. However, there are many views that aging in general and urban aging in particular as a time bomb having negative effects on economic development, social security, as well as demand for medical and health care services.

According to the United Nations, since 2014, Vietnam has officially entered the population aging process and it is forecasted that our country will only have 20 years for the percentage of the elderly aged 65 years and older to increase from 7% to 14%. As of April

1, 2019, Vietnam's population reached more than 96 million, the percentage of the population aged 60 years and older increased from 9.4% in 2010 to 10.4% in 2013 and reached 11.95% in 2018. According to population experts' forecast, the percentage of the elderly in our country will continue to increase over the years: By 2038, the percentage of the elderly will reach 20% of the population, by 2049 it will be 25%, which means that there is an elderly person among 4 people. The number of elderly people is increasing and the percentage of urban population also increases rapidly from 23.7% in 1999 to 34.4% in 2019, it is clear that before we can reach the pace of urbanization or the percentage of the urban population can be equal to that of the world, the population in our cities is old. This research helps us take steps to prepare, approach and build friendly new model cities in accordance with the trend of urban aging in order to firmly step into the aging process in an active manner.

## **2. Methods**

Initially, the author approached from the perspective of the needs of the elderly to bring out the necessary aspects in the plan to build a new aging-friendly urban. Theories in economics mainly consider age as a factor of personal characteristics and family characteristics, health, physical and mental conditions, natural and social environments also affect the results or benefits that an individual may enjoy.

Based on the results of the 2014 and 2019 labor and employment surveys, the Population and Housing census from 1979 to 2019 of the General Statistics Office and the Socio-Economic Surveys on the Elderly from 2014 to 2019, the author has synthesized and analyzed the changes in the size and population structure of the elderly. At the same time, the author has observed and evaluated the activities of cities that have applied the strategy of building friendly cities according to the WHO list in their 2008 "Active Ageing" report. These cities are like a large social laboratory testing the city's strategies for maintaining the health and independence of the elderly.

## **3. Results**

### ***3.1. The reality of the aging process in Vietnam***

#### *3.1.1. Number of Vietnamese elderly people*

According to the Law on the Elderly in Vietnam, the elderly (NCT) are Vietnamese citizens aged 60 years and older. The percentage of the elderly in Vietnam is higher than the average level of developing countries and increases faster than the world average. The percentage of the elderly aged 60 years and older has steadily increased from 5.8% in 1999 to 6.4% in 2009 and currently in 2019 is 7.7%. The 2013 World Population Aging Report predicts that the total number of the elderly will first be larger than the total number of children globally by 2047. Data in Table 1 below show both the number and the percentage of the elderly of Vietnam that have increased rapidly since 1979.

Unit: million people

<i>Investigation method</i>	<i>Year</i>	<i>Population on 01/04</i>	<i>Number of the elderly (aged 60+)</i>	<i>Percentage of the elderly (aged 60+)</i>	<i>Population growth rate (%) of the period</i>	<i>The growth rate of the elderly (aged 60+) of the period</i>
<i>Census</i>	<i>1979</i>	<i>53.74</i>	<i>3.71</i>	<i>6.9%</i>		
	<i>1989</i>	<i>64.41</i>	<i>4.64</i>	<i>7.2%</i>	<i>19.8%</i>	<i>25.0%</i>
	<i>1999</i>	<i>76.32</i>	<i>6.19</i>	<i>8.1%</i>	<i>18.5%</i>	<i>33.0%</i>
	<i>2009</i>	<i>85.85</i>	<i>7.72</i>	<i>9.0%</i>	<i>12.4%</i>	<i>24.7%</i>
<i>Investigation of fluctuations</i>	<i>2010</i>	<i>86.75</i>	<i>8.13</i>	<i>9.4%</i>		
	<i>2011</i>	<i>87.61</i>	<i>8.66</i>	<i>9.9%</i>		
	<i>2012</i>	<i>88.77</i>	<i>9.06</i>	<i>10.2%</i>		
<i>Forecast</i>	<i>2040</i>	<i>107</i>	<i>22.17</i>	<i>20.7%</i>		
	<i>2049</i>	<i>108.7</i>	<i>26.95</i>	<i>24.8%</i>		

**Table 1: Number and percentage of the elderly (aged 60+) in Vietnam**

Source: 1979-2009 Population and Housing Census, 2012 Annual Population Change Survey, 2009-2049 Vietnam Population Forecast Results.

### 3.1.2. Structure of Vietnamese elderly people

#### 3.1.2.1. Structure by age

Data from the Population and Housing Census show that the number of the elderly in the lowest age group (from 60 to 69 years old) increases slowly, while the number of the elderly in the middle age group (from 70 to 79 years old) and the oldest (80+) tend to increase faster. In 1979, the percentage of people aged 80 years and older of the population was 0.54% in total, in 1989 it was 0.7%, in 1999 it was 0.93%, in 2009 it was 1.47% and it is predicted that by 2049, this number will increase to 4.16%. Vietnam's population is not only aging but the elderly population itself is getting older, the percentage of people over 80 years old is on the rise.

Unit: %

<b>Age group</b>	<b>1979</b>	<b>1989</b>	<b>1999</b>	<b>2009</b>	<b>2019</b>	<b>2029</b>	<b>2039</b>	<b>2049</b>
<b>60 – 64</b>	2.28	2.4	2.31	2.26	4.29	5.28	5.8	7.04
<b>65 – 69</b>	1.9	1.9	2.2	1.81	2.78	4.56	5.21	6.14
<b>70 – 74</b>	1.34	1.4	1.58	1.65	1.67	3.36	4.3	4.89
<b>75 – 79</b>	0.9	0.8	1.09	1.4	1.16	1.91	3.28	3.87
<b>80+</b>	0.54	0.7	0.93	1.47	1.48	1.55	2.78	4.16
<b>Total</b>	6.96	7.2	8.11	8.59	11.38	16.66	21.37	26.1

**Table 2: Percentage of the elderly in Vietnam from 1979 - 2049**

Source: 1979, 1989, 1999, 2009, 2019 census and GSO population projections (2010)

### 3.1.2.1. Structure by gender

Gender ratio is the ratio reflecting the number of males per 100 females. Table 3 shows that at the age of 60-64 in 1979, every 81.75 elderly men, there were 100 elderly women but at the age of over 80 years old, every 46 elderly men, there were 100 elderly women. The general trend is that when the age is higher, the number of elderly women is greater than the number of elderly men. At the age of 80 or older, the gender ratio fluctuates in the range of 50, which means that for every 50 elderly men there are 100 elderly women or in other words for every 2 elderly women, there is an elderly man. It is mostly female aging, women are weaker than men but women live longer due to many reasons such as: biological factors (genetics and differences between sex hormones); risky behaviour factors due to social roles (behavioral and environmental factors such as smoking, alcohol consumption, diet, reckless driving, health risks at work, social stress ... ) and other socio-economic factors such as women's economic, social status, education, poverty[1].

*Unit: %*

Age group/year	1979	1989	1999	2009	2016
<b>60-69</b>	78.14	79.5	79.34	78.4	78.13
<b>70-79</b>	65.03	64	66.01	69.31	70.92
<b>80+</b>	46.51	46.81	48.39	52.34	54.64

**Table 1: Gender ratio of the elderly from 1979-2016**

*Source: Aging trends, risks and living standards of households in Vietnam and GSO 2016*

### 3.1.2.3. By region, urban and rural areas

Due to the change in the age structure of the population in Vietnam, the percentage of children under 15 years old has decreased and the percentage of the elderly population aged 60 years and older has increased, making the aging index tend to increase rapidly over the past twenty years. The aging index in 2019 is 48.8%, an increase of 13.3 percentage points compared to 2009, more than doubled compared to 1999 and this index also tends to continue to increase in the coming years.

*Unit: %*

	Total	Urban	Rural
<b>Nationwide</b>	48.8	50.8	47.9
<b>Northern Midlands and Mountains</b>	36.3	49.1	33.7
<b>Red river delta</b>	57.4	56.4	58
<b>North Central and Central Coast</b>	52.2	50.8	52.7
<b>Central Highlands</b>	28.1	36.1	25.4
<b>South East</b>	42.8	45.3	39.2
<b>Mekong River Delta</b>	58.5	60.3	57.9

**Table 4: Gender ratio of the elderly from 1979-2019**

*Source: 2019 Population and Housing census.*

The Red River Delta and the Mekong River Delta are the two socio-economic regions with the highest aging indexes nationwide which are 58.5% and 57.4%. Besides, the Central Highlands has the lowest aging index nationwide which is 27.1%. Moreover, we find that in most socio-economic regions, urban areas have much higher aging index than in rural areas, those indexes in some places are nearly 16%. Population aging is becoming a topic of concern not only in Vietnam in particular but in the world in general. Aging affects almost all areas of socio-economic life: labor, finance market, demand for goods, education, social security, health services, etc. And in population aging, urban aging is an inevitable trend and is happening more strongly in our country.

The elderly live in rural areas, although they have more difficulties, but the elderly have friends, neighbors, relatives to talk, and there are also physical activities such as gardening, growing vegetables to raise pigs and chickens, the air in rural areas is also more fresh, so the life is happier and more comfortable. In other hand, the elderly living in urban areas, meanwhile, are more lonely even when they are living with their children in their families. In fact, today, children in urban areas have a busy life of going to school, working, working part-time, working overtime, playing games on the phone, using smartphones ..., so the joy of old age is to gather around descendants which are being robbed of their modern lives. Many families also do not want their parents and grandparents to participate in many social activities due to fear of falling, being injured, so many elderly people in urban areas are lacked social activities as well as mental health care.

In addition, urban constructions are still not up to the standards of ramps, gates, elevators, signs, emergency exits... convenient for the elderly. Or at 2014, only 36% of provincial hospitals had geriatrics nationwide, in big cities like Ho Chi Minh City, by 2016, only 2/28 city-level hospitals were fully equipped HR for setting up Geriatric Department and only 5/39 hospitals in Hanoi. Not only is there a shortage of health care facilities, many policies have been issued that are not suitable for the elderly for example, in Ho Chi Minh City, the elderly from 75 years old can take the free bus but the elderly do not benefit from this policy is due to the fact that the bus collectors have not been updated on the policy and also because the majority of the elderly at this age do not have the need or health to take the bus[2]

Understanding the needs and characteristics of the elderly as well as the tendency of rapidly increasing the number of older persons, the construction of new age-friendly urban areas is an urgent need to be considered, researched and invest more seriously. Urbanization in the context of the aging population, the construction of a model urban friendly with the elderly is an important step in the process of proactive aging.

### ***3.2. Development of new urban areas which are friendly to urban aging***

An age friendly city is a city that creates an supporting environment for the elderly to be able to take part in living activities in a comfortable and active way in their families, in the neighborhood or more broadly in the society where they live, thereby, helping the elderly to bring more value to the community[3]. In other words, this is a place that needs infrastructure support and services tailored to the needs of the elderly[4].





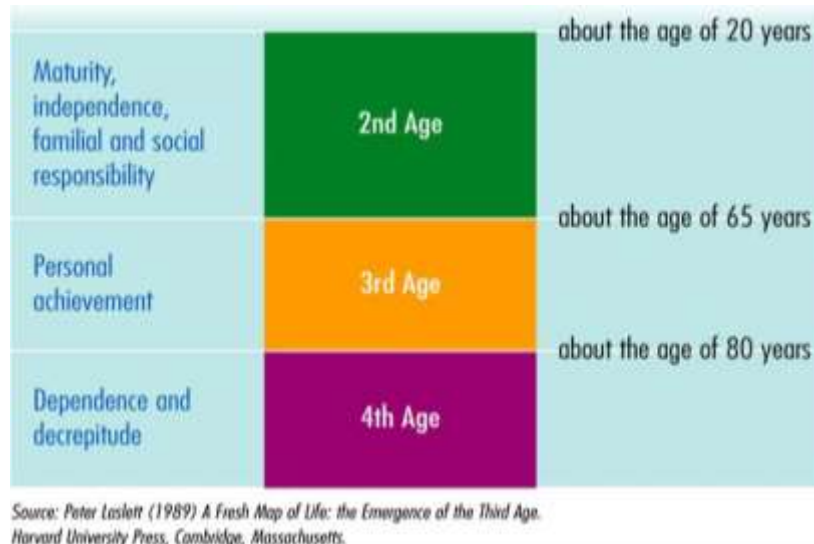
**Figure 1: Eight domains of an age-friendly city**

Who, in order to attract and support cities which are more friendly to the elderly, has provided a list of essential features of this friendly city (Figure 1)[5]. An age friendly city was inspired by the ecological model of Lawton and Nahemow in 1973[6], which shows the interaction relationship between individual adaptation and environmental change to maintain the optimum when getting old. An age friendly city will optimize the opportunity for health care as well as improve the quality of life of the elderly, which will be an extremely positive move in promoting active aging[3].

These domains are outlined: outdoor spaces and buildings, housing, respect and social inclusion, civic participation and employment, communication and information, community support and health services, transportation, social participation. Who has made the most positive view on the system of factors that it is suitable for both developed and developing countries, although urban aging is taking place more strongly in developed countries[5]. In order to have a more general view, the author has divided the above factors into three main aspects: raising awareness of the whole society in general and the elderly themselves in particular to help the elderly consider themselves a resource of the country; applying technology, synchronizing systematically, giving access to the elderly so that they can access all utilities and social services easily and conveniently; building infrastructure to support the care of the elderly both physically and mentally.

### *3.2.1. Raising awareness*

Raising awareness about the role and position of the elderly is an important premise for strategies and plans to improve our living quality. Nowadays, when most countries from developed to developing ones are facing the challenges of aging, we often see that the fourth age group as the most aging group (Figure 2) in a very negative manner: illness, dependence, high mortality, and labour shortages, health burdens, social security.



**Figure 2: Ages and lifecourse**

According to Lastett's 1989 *"A fresh Map of life"* (Figure 2), the third age is the age to show personal accomplishments and independence after retiring from the main job but has not yet entered the "dependence and decrepitude" of the fourth age. Elderly people in the third age only take about 15 years to start at the fourth age. One of the main causes of this state transformation is "an epidemiological transformation"; which mainly due to infectious diseases such as cholera, diphtheria, influenza, or non-communicable diseases such as cancer, cardiovascular disease and chronic diseases such as hearing, vision loss, decreased mobility of bone and joint. While infectious diseases are likely to cause death quickly in some weeks, non-infectious and chronic diseases require more time and can be prevented, managed by improving behaviour or obtaining a more positive lifestyle. Therefore, in order to minimize unhealthy points in the fourth age, it is necessary to focus on strategies, policies and programs to improve awareness, improve life and encourage healthy lifestyles for the elderly at the third age as well as people in younger age groups.

According to a conference named *"A positive and dynamic model for profiling older people in cities"* [7] at the opening of Healthy Ageing Sub-Network in Stockholm in 2005, discussed through three main parts: (1) who are the elderly? and where are they? (2) Health and spiritual care for the elderly and (3) the elderly living in developing cities. The first two factors are primarily based on basic anthropology, seniority records, morbidity, mortality and ability to access to health care and social support services. Particularly, the third factor is determined based on "social picture", which indirectly determines the health, material and spirit of the elderly such as education level, social position, income, house, environment and lifestyle.

The conference recommends that cities develop a list of criteria for measuring the positive characteristics of ageing, always consider the elderly as a national treasure, and encourage the elderly to actively participate in family and social activities. For example, in Turkey - a member of the European Union with an average GDP per capita of nearly 28,000 USD, where people always refer to the "intergenerational solidarity" and also where the elderly are always respected and admired by the young. The elderly here are always actively

living healthy to educate and take care of their children; to volunteer to help other young and old people; to take part in the community activities and they are also empowered to take a public stance on issues of local interest.

An important factor that is indispensable in raising the awareness of aging has been stated by many workshops and articles such as the one of Laverack.G in the paper of Healthy ageing phase IV sub-network, Copenhagen, WHO, 2006 ; or Douglas B in a case study presented to Sub-Network Meeting, Brighton, 2006, which is “Empowering older people” and ‘*The empowerment of older people offers the opportunity for individuals to build ‘power-from-within’ and for ‘communities of interest’ to collectively gain more access to the decisions and resources that influence their health and its determinants*”[8].

*Empowering older people is often expressed through the establishment of associations such as Vietnam Association of the Elderly; Retirement Association in Barcelona, Spain; Association of Citizens Union, retirement and war invalid’s association in Poland, etc. These associations are usually funded by the state and cities to organize activities for the elderly in many fields such as health, education, social, physical and mental and active lifestyle. More simply, the elderly can also participate in forums, community organizations representing the interests of the elderly and in many cities, these elderly organizations have the right to participate in planning strategies, and formulating development policies for the city. Empowering older people is also empowering them to have a positive responsibility for their own aging*[9].

### 3.2.2. Construction of infrastructure and surroundings

The premise for building an age friendly city is a healthy urban planning. Barton.H and Tsourou.C Healthy published by WHO in 2000[10], supplemented in 2007 pointed out six goals in healthy urban planning: (1) promoting the development of an age friendly environment; (2) creating a safe pedestrian environment; (3) improving transportation options for the elderly; (4) promoting the establishment of age-appropriate communities; (5) supporting public areas, parks, and recreational facilities; (6) building and encouraging the selection of suitable housing.

Who Geneva in 2006 initiated a project called "Age-Friendly cities" with the goal of "stimulate global awareness and multi-sectoral action to improve age-friendliness in urban settings" and 33 cities worldwide participated in that project. Many cities including Milan, Copenhagen, Liverpool, Brighton, etc. have created a deep coordination between health and society, urban architecture and planning, environmental protection and transportation, creating a safe and comfortable environment, creating positive contributions to healthy physical activities, as well as forming a friendly atmosphere for the elderly but still harmonizing the interests of the elderly with other users.

However, there is a concern that is affordability, as in big cities, real estate prices are high and housing demand for both the elderly and the young is high. When all individuals in society, not only the elderly face increasing expenses such as health care, medicine, living expenses, utilities, expenses for food and essential items, housing costs account for a fraction of the income or living expenses.

This can be solved by the following three options: (1) designing small houses that are more affordable; (2) building large houses that are suitable for many people to rent or buy together, this will create a sense of openness and closeness, people can share, visit each other often, or help each other when they are sick, it also gives the elderly the opportunity to interact to help them not feel lonely or abandoned; (3) building a larger nursing home area - population, community, integrated more facilities for the elderly, and doctors, nurses to take care of their health as well as nutrition, and activities or clubs are always available.

Building age friendly places or neighborhoods also includes modifying existing homes, designing them to fit the risks of decreased mobility, causing imbalance or falls in the elderly; or building well-ventilated entrances, convenient for ambulance to use a stretcher for moving the elderly; and, in particular, residential services and utilities must be easily accessible[11]. In addition, there are many important issues in public transportation such as getting in and out of buses, public toilets, corridors and pavements for pedestrians, wheelchairs and strollers. The integration of people's mobility and solving the challenges of urban planning to distribute services of stores and health centers evenly, make them easy to access to make travel distance shorter is a positive urban aging promotion measurement.

### ***3.3. Application of science and technology***

Technological advances in recent decades have been growing rapidly, the use of smart technology is increasingly seen as a viable solution to address the challenge of urban aging. Urban residents are also at the forefront of using technology and the elderly in urban areas are not in the outside. V. Righi[12], in 2015 gave us a new direction for smart cities, where the elderly are an important element in the multi-generational community.

A smart city is a city with effective application of information technology to organize and provide urban functions such as management of infrastructure maintenance costs (bridges, roads, airports, seaports, sewer system, etc.); consumption management of energy sources (electricity, water, gasoline, oil, etc); effective use of public areas[13]. For the aging population, a smart city includes health monitoring systems, automatic assessment of supporting needs, emergency response, entertainment, connection, and mental health care[14].

In a smart city, smart home systems will be available and these smart homes are a great solution with lots of features to support on-site aging. For example, a smart home is able to support the elderly's life to become more independent with the function of preparing food, cleaning as well as health monitoring[15]. Although there are many benefits, as well as strengths, smart homes does not exist popularly, and has low application level due to many reasons such as cost, technology, etc.

We see the fact that the elderly population is heterogeneous[16], they are unevenly distributed in age, gender, income, education structures, etc., which makes them have different attitudes, needs, and ability to use technology, etc. However, technology will be increasingly developed, so the elderly will always benefit from technology from those around them and the society.

In the world, there have also been many advanced cities such as those in Netherlands, Poland, etc. deploying application of smart city and house model. In Vietnam, we have needs, but investors who dare to penetrate this risky market are very rare. A promising candidate in the real estate investment market, Vingroup, has launched a model of smart cities in a community of smart apartments, close to the elderly named "Vinhomes Smart City".

It provides "smart home" packages turning the apartment into a smart and professional housekeeper, with CCTV so that family members can update the situation of parents, grandparents from far away. In the apartment, there are also many medical devices such as heart rate, motor intensity measuring device, sleep quality evaluating device and emergency forecasts in case of need. Relatives as well as nurses can appear on time in the right place where elderly people fall, collide or need supports. The apartment building is also equipped with modern fire protection measures, the common outdoor living space is cool, convenient for traveling, and cameras integrated with artificial intelligence to recognize abnormalities and timely alarm.

Besides, the apartment building has many facilities such as hospitals, supermarkets, pools or bicycle, chess, table tennis clubs, etc.[17]. This is a model of standard apartment building and urban area, if the cost and price are reasonable with the income of the majority of residents in big cities, the replication of the above models is absolutely necessary and should be assisted and facilitated by the state and the government.

#### **4. Discussion and Conclusion**

The aging of urban population in the world in general and in Vietnam in particular needs a more friendly approach, it is necessary to apply healthy and active aging methods instead of focusing on facing the diseases and dependence. In addition to prolonging the healthy working life, creating a social and physical environment for the elderly at the third age, the government should have programs and plans to coordinate in many areas: health, social services, public transport, etc to build age friendly smart cities together.

Building an age friendly city, it is necessary to focus on the main aspects: raising awareness of the whole society in general and the elderly themselves in particular to help the elderly consider themselves a resource of the country; applying technology, synchronizing systematically, giving access to the elderly so that they can access all utilities and social services easily and conveniently; building infrastructure to support the care of the elderly both physically and mentally. In particular, the key to success in building an age friendly city is to enhance the application, use of technology and the coordination between policymakers, urban planners and demographers in creating as well as organizing a friendly environment for all ages.

#### **5. References**

1. PGS.TS. Nguyễn Nam Phương and TS. Ngô Quỳnh An, *Giáo trình Dân số và Phát triển với Quản lý*. Nhà Xuất bản đại học Kinh tế quốc dân, 2016.
2. Báo Tia sáng, "Dân số già hóa nhanh: Việt Nam đã sẵn sàng?"

3. L. Plouffe and A. Kalache, "Towards Global Age-Friendly Cities: Determining Urban Features that Promote Active Aging," *J. Urban Health*, vol. 87, no. 5, pp. 733-739, Sep. 2010, doi: 10.1007/s11524-010-9466-0.
4. T. Buffel and C. Phillipson, "Can global cities be 'age-friendly cities'? Urban development and ageing populations," *Cities*, vol. 55, pp. 94-100, Jun. 2016, doi: 10.1016/j.cities.2016.03.016.
5. "WHO | Global age-friendly cities: a guide." [https://www.who.int/ageing/age\\_friendly\\_cities\\_guide/en/](https://www.who.int/ageing/age_friendly_cities_guide/en/) (accessed Feb. 09, 2020).
6. "The Elderly in Context: Perspectives from Environmental Psychology and Gerontology - M. Powell Lawton, 1985." <https://journals.sagepub.com/doi/10.1177/0013916585174005> (accessed Feb. 09, 2020).
7. Ritsatakis A., "A positive and dynamic model for profiling older people in cities.," 2005.
8. Laverack G, "Empowering older people," *Background Working Paper*, 2006.
9. Laverack G., "Addressing the contradiction between discourse and practice in health promotion," 1999.
10. Barton H and Tsourou C, "Healthy urban planning." a WHO guide to planning for people. London, 2000.
11. "Environment and Other Determinants of Weil-Being in Older People1 | The Gerontologist | Oxford Academic." <https://academic.oup.com/gerontologist/article-abstract/23/4/349/830628?redirectedFrom=fulltext> (accessed Feb. 09, 2020).
12. V. Righi, S. Sayago, and J. Blat, "Urban ageing: technology, agency and community in smarter cities for older people," in *Proceedings of the 7th International Conference on Communities and Technologies*, Limerick, Ireland, Jun. 2015, pp. 119-128, doi: 10.1145/2768545.2768552.
13. M. Batty *et al.*, "Smart cities of the future," *Eur. Phys. J. Spec. Top.*, vol. 214, no. 1, pp. 481-518, Nov. 2012, doi: 10.1140/epjst/e2012-01703-3.
14. "Toward a context-aware and automatic evaluation of elderly dependency in smart homes and cities - IEEE Conference Publication." <https://ieeexplore.ieee.org/document/6583501> (accessed Feb. 09, 2020).
15. T. L. Mitzner *et al.*, "Older adults talk technology: Technology usage and attitudes," *Comput. Hum. Behav.*, vol. 26, no. 6, pp. 1710-1721, Nov. 2010, doi: 10.1016/j.chb.2010.06.020.
16. B. Gunter, *Understanding the Older Consumer : The Grey Market*. Routledge, 2012.
17. "Đô thị thông minh xóa tan mọi nỗi lo của người lớn tuổi," *Báo Thanh Niên*, Jun. 21, 2019. <https://thanhnien.vn/content/ODYwNDgw.html> (accessed Feb. 09, 2020).

# SUSTAINABLE DEVELOPMENT OF THE MARINE ECONOMIC ZONE IN THE CENTRAL COAST - REALITIES AND SOLUTIONS

*Ma Duc Han*

*minhtuyenpro85@gmail.com*

*Political Academy, Hanoi, Vietnam*

## **Abstract**

*During the Doi Moi period, the Party and the State paid special attention to the development of coastal economic zones (CEZs), identifying the CEZs as a new development model that is breakthrough, and plays a leading role in regional development and inter-regional. Thus, Vietnam will become a country which is "strong sea, rich in the sea, sustainable development, prosperity, security and safety". In this article, the author focuses on analyzing the process of formation and realities of development of the CEZs in the Central Coast. Based on these analyses, the author proposes a number of solutions to develop the CEZs in the Central Coast towards sustainability in the near future.*

**Keywords:** *Economic zone, Coastal economic zone, sustainable development of coastal economic zone.*

## **1. Introduction**

Vietnam is a country which has the advantages of the sea. The coastline of the country is 3,260 km including 1 million km<sup>2</sup> of the exclusive economic zone which is larger threefold than the land area. There are 28 coastal provinces and cities covered by coastal strips which are stretching from the North to the South. This condition is important to help Vietnam become a strong maritime nation. The 8th conference of the XII Central Committee of the Com. Party of Vietnam emphasized: "It is necessary to focus on building and replicating models of economic zones and coastal eco-industrial parks in association with the establishment and development of economy in advantageous sea centers. Coastal economic zones must play a leading role in regional development and inter-regional"<sup>1</sup>. Therefore, prioritizing the development of coastal economic zones (CEZs) is considered as one of the most important missions in Vietnam's Sustainable Marine Economic Development Strategy until 2030 in a vision to 2045. This model is considered as a breakthrough model in regional development and regional integration. After more than 15 years of construction and development, the CEZ had certain contributions to promote the economy of provinces and cities which have the CEZ in particular and Vietnam in general.

The Central Coast region consists of 14 provinces and cities from Thanh Hoa to Binh Thuan. The area has 11/17 CEZs which form relative integration in terms of geography.

---

<sup>1</sup> Vietnamese Com. Party, Document of 8th conference of the XII Central Committee XII, Publishing House CTQG, H.2018. p.92

According to recent statistics, the Central Coast region has made many contributions to socio-economic development such as increasing budget revenue, contributing to the transfer of science and technology, creating jobs and transforming regional economic structure. However, the Central Coast has some limitations such as: attraction of investment in infrastructure construction, production and business; attraction of investment in labor-intensive manufacturing sectors, using natural resources. Besides, the Central Coast region's contribution to the country's economic development is negligible. There are problems of waste of land and investment, and some economic zones still develop towards intensive development versus extensive development.

Therefore, clarifying the theoretical and practical issues, pointing out the directions, solutions for sustainable development of the CEZ in the Central Coast region has a very important meaning. These explanations help to contribute in actualizing the goals of Vietnam in sustainable sea economic development strategy to 2030, with a vision to 2045 set by the 8th conference of the XII Central Committee of the Com. Party. This paper is based on the theoretical framework of the Communist Party of Vietnam's views on the development of the Central Coast region; Evaluation report of the Government, Ministry of Planning and Investment, Management Board of Economic Zones of the People's Committees of provinces and cities. The research assesses the current situation to propose solutions for sustainable development of the CEZs in the Central Coast region to effectively implement Resolution No. 36-NQ/TW of 22/20/2018 of the 8th conference of the XII Central Committee of the Com. Party:

- Interpreting the process of formation and development of the CEZs in the Central Coast
- Assessing the realities of the development process of the CEZs in the Central Coast region in the current time.
- Proposing some directions and measures to develop the CEZs in the Central Coast region in a sustainable direction in the coming time.

## **2. Methods**

To accomplish the research objectives, the author uses historical logic, comparative statistics, general analysis and specific economic-specific methods:

- Interpretation and synthesis of domestic and foreign research studied the process of formation and development of the CEZs in the Central Coast
- Surveying some of the CEZs in the Central Coast region is to accurately assess the development of the Central Coast region in recent years. Based on the survey results, it is necessary to propose solutions to develop the CEZs in the Central Coast region in a sustainable way in the near future.
- Consult experts through the conference.

## **3. Result**

### ***3.1. The process of formation of development in the CEZs in the Central Coast***

Recognizing the importance of the marine economy in general and coastal economic zones in particular to the socio-economic development of coastal provinces and the country,



during the *Doi Moi* period, the Party and State suggested many resolutions and policies to promote the role of coastal economic zones in socio-economic development.

The idea of developing open economic zones and the CEZs appeared in the early 90s of the 20th century. In 1990, in a number of specific documents of the Com. Party of Vietnam, the Resolution of the Central Conference between the 7th term (1994) set out requirements for the planning of special export processing zones and economic zones. Then, at the 8th conference of the XII Central Committee of the Com. Party of Vietnam in 1997, the Party set a policy of researching and piloting a few economic zones and free trade zones in coastal areas having sufficient conditions.

Central Resolution 4 of Session VIII, the Politburo gave instructions on the formation of EZs in the Announcements No. 79-TB / TW of September 27, 2002 and No. 155-TB / TW of September 9 / 2004 of the Central Executive Committee; Resolution No. 39-NQ / TW of August 16, 2004 of the Politburo on economic development and national defense security in the North Central and Central Coast regions (from Da Nang to Binh Thuan) till 2010.

To continue promoting the potential and strengths of the Sea, in Resolution No. 09-NQ / TW of February 9, 2007, the Fourth Conference of the Central Committee of the Com. Party of Vietnam, Session X determined that: by 2020, the coastal and coastal economy will contribute about 53- 55% of the country's GDP, which is to solve social issues, improve the life's quality of people in the coastal and along coastal areas; build a number of international trade ports, establish a number of strong economic groups... build a number of strong economic zones in coastal areas. Resolution No. 36-NQ / TW dated October 22, 2018, the Eighth Conference of the Central Committee of the 12th Party Committee on the basis of assessing achievements and limitations in the past 10 years on Vietnam's maritime strategy. The conference proposed opinions, objectives and solutions to implement the strategy for sustainable development of Vietnam's marine economy through 2030, with a vision to 2045, which defines the enormous role of coastal economic zones. The conference emphasized: "Focusing on building and replicating models of economic zones, coastal eco-industrial parks in association with the establishment and development of strong marine economic centers. Coastal economic zones must play a leading role in regional development and inter-regional"<sup>1</sup>.

In order to particularize the Party's views on the development of the marine economy in general and the Central Coast region in particular, the National Assembly and the Government issued related laws and decisions to create policies for the CEZs development. The National Assembly and the Government enacted laws such as coastal economic zones operating in accordance with the Law on Investment 2014, Decree No. 118/2015 / ND-CP dated November 12, 2015, Decree No. 29 / 2008 / ND-CP dated March 14, 2008, Decree No. 164/2013 / ND-CP dated November 12, 2013, Decree No. 114/2015 / ND-CP dated November 9, 2015, Decree No. 82 / 2018 / ND-CP dated May 22, 2018 and specialized laws on land, commerce, labor, construction, taxes and some other relevant laws.

---

<sup>1</sup> Vietnamese Com. Party, Document of 8th conference of the XII Central Committee XII, Publishing House CTQG, H.2018. p.92

**Table 1. List of coastal economic zones in the Central Coast region that have been established and given to actualize the master plan of Vietnam by 2020**

STT	The coastal economic zone places	Province/City	Year established	Square(ha)
1	Chu Lai	Quang Nam	05/6/2003	27.108
2	Dung Quat	Quang Ngai	21/3/2005	45.332
3	Nhon Hoi	Binh Dinh	14/6/2005	12.000
4	Chan May - Lang Co	Thua Thien Hue	05/01/2006	27.108
5	Vung Ang	Ha Tinh	03/4/2006	22.781
6	Van Phong	Khanh Hoa	25/4/2006	150.000
7	Nghi Son	Thanh Hoa	15/5/2006	106.000
8	Southeast Nghe An	Nghe An	11/6/2007	19.576
9	Hon La	Quang Binh	10/6/2008	10.000
10	South Phu Yen	Phu Yen	29/4/2008	20.730
11	Southeast Quang Tri	Quảng Tri	27/2/2015	23.972

*Source: Compiled from Decisions of the Prime Minister on the establishment of coastal economic zones*

The Government issued Decision No. 148/2004 / QD-TTg of August 13, 2004, on major orientations for socio-economic development of the key economic region in the Central Vietnam to 2010 and a vision to 2020; Decision No. 178/2004 / QD-TTg of October 5, 2004, on the Master Plan for Development of Phu Quoc Island, Kien Giang Province, till 2010 and vision 2020; Decree No. 29/2008 / ND-CP; Decree No. 82/2018 / ND-CP. Decisions and Decrees of the Government relate to the formation and expansion of the planning, management mechanisms of entities for the CEZs. In addition, the Prime Minister instructed ministries, branches and localities to study and formulate a scheme to establish an EZ on the basis of analyzing the potential advantages of regions, institutionalizing the policy of the Politburo, creating a legal framework and organizing the operation of the EZ to ensure the long-term and sustainable development of the EZs.

### ***3.2. Current situation of development of economic zones in the Central Coastal Region***

#### ***3.2.1. Achievements***

Over the past years, the development of coastal economic zones in the Central Coastal region created some undeniable achievements and positively affected the industrialization and modernization process of the country in general and the provinces/cities having coastal economic zone in particular, specifically:

*Firstly, coastal economic zones play a role as the economic center of the Central Coastal provinces.*

According to statistics of the Department of Economic Zone Management (Ministry of Planning and Investment), in 2019, the CEZs in the Central Coast region attracted nearly

80 new foreign investment projects with the total registered capital more than 1,037 billion USD (especially, there are 35 projects registering to increase capital with a total capital increase of 3.32 billion USD) and attracting 140 new domestic investment projects with registered capital of 50.8 trillion VND (especially, there are 46 projects registering to increase capital with a total capital increase of VND 46.2 trillion. Some CEZs regions attracted big and strategic projects such as oil refineries, mechanical engineer plants, thermal power plants, automobile plants, household electrical appliances, entrepot ports, etc. These projects contributed to strengthening the capacity of heavy industry production, facilitating to sue developing other related industries Besides, the coastal economic zones also attracted investors from countries and territories with advanced science and technology such as the US, Germany, Japan, South Korea, Taiwan, Hong Kong, Singapore and so on. Based on those investors, the transfer and development of technology, human resources, and job creation is promoted, which increases access to the world market of Vietnam. It is considered as an opportunity for the CEZs to improve. In addition, the CEZs regions also contribute to economic growth and increase export's budget revenue. Until December 31, 2019, the Central Coast exported more than 7.2 billion USD and contributed to the state budget about 45.1 trillion VND. Moreover, the CEZs become a place attracting labor, in which having a large number of skilled workers and creating conditions for localities to be employed and restructure labor. Up to now, the Central Coast Guard Region of the Central Coast has settled for more than 190,120 laborers, which contributes to gradually improving the physical and spiritual life for workers in EZs.

*Secondly, the CEZs in Central Coast promote the development of industrial production and form a number of key industries.*

With the establishment of the CEZs in the Central Coast region, the concentrated production and industrial production areas changed towards modernization. Industrial production gradually shifted from small scale to large-scale, and to concentrated production. Specifically, some CEZs in the Central Coast region had some big projects such as Nghi Son oil refinery project of Vietnam Oil and Gas Group (Nghi Son EZ, Thanh Hoa province), iron and steel project, and Son Duong port of Formosa Incorporates (in Vung Ang EZ, Ha Tinh province), mechanical and automobile project of Thaco Group (in Chu Lai, Quang Nam province), Dung Quat oil refinery project of Oil Corporation Vietnam's gas (in Dung Quat EZ, Quang Ngai province). According to preliminary statistics, the number of investment projects with capital of over US\$100 million (equivalent to VND 2300 billion) in industrial parks and EZs is around 500 projects. In addition, the occupancy rate of industrial zones (inside and outside the EZs) has also increased significantly, from 65% (in 2012) to 67% (in 2015), 73% (in 2016) and 75% (in 2019).

Investment projects in the CEZs in the Central Coast region in the early stages of formation mainly focused on labor-intensive industries and resource exploitation such as textiles, footwear, quarrying, construction materials. In recent years, investment projects in the EZ have diversified in industries and trades, and have particularly attracted many projects in the fields of hi-tech, advanced and modern production. EZs have become a place to

develop key industries such as oil refining, thermal power, steel, shipbuilding, manufacturing of electronic household goods, marine economic logistics. These are key industries in the CEZs in the Central Coast region, which creates a great motivation for the fast and modern development of Vietnam's industrial production. SEDP has become a place to develop key industries such as oil refining, thermal power, steel, shipbuilding and electronics manufacturing. Therefore, the average investment rate per hectare in industrial parks has been significantly improved. Specifically, the average investment rate / ha of industrial land in industrial zones (inside and outside the EZ) has increased from 2 million USD / ha (in 2005), to 3.5 million USD / ha (in 2012) and 5 , US \$ 5 million / ha (2019). In 2019, the value of industrial production in the CEZs will reach 18.02 billion USD.

The production technology level of industries in the CEZs of the Central Coast region has been raised significantly. Along with the movement of investment capital flows, investors in the CEZs region invest in many modern technologies from advanced countries such as Korea, Japan, and the US. This is also an opportunity for domestic enterprises to access new technologies in order to participate in production chains and develop supporting industries.

*Thirdly, coastal economic zones in the Central Coast region contribute to the socio-economic development of the country.*

Regarding exportations of goods, the contribution of coastal economic zones is clearly shown in commodity turnover. Currently, there are many production facilities in the CEZs which export goods, thereby helping to increase foreign exchange earnings for the country. According to the Department of Management of Economic Zones in 2019, 13 CEZs exported more than 10 billion USD, of which Vung Ang Economic Zone (Ha Tinh) exported 764 million USD; Van Phong EZ (Khanh Hoa) 430 million USD; Nghi Son EZ (Thanh Hoa) 380 million USD.

In terms of job creation and skills development for workers, coastal economic zones have now created jobs for more than 213,000 direct employees, including more than 188,000 local workers and nearly 4.8 thousands of foreign workers. Among the labor force working in the CEZs region, the number of female workers is more than 95,000. Through job creation, the CEZs has contributed to increasing incomes for workers, which helps improve the physical and spiritual life. From that, it can reduce the proportion of poverty. In addition, a number of major projects in the CEZs region also care for improving skills for workers through joint training between production facilities in coastal economic zones and training facilities abroad. In particular, Dung Quat EZ established a separate training facility serving high-quality human resources. It is a vocational school which becomes the first EZ's vocational school in the CEZs of the Central Coast. Moreover, the research and development facilities are also a favorable environment for employees to accumulate their own knowledge, experience and labor skills.

Regarding infrastructure development, the infrastructure system of the CEZs currently develops quite the same as each other. In recent years by the economic sources

both domestic and abroad funds, 11 CEZs in the Central Coast region seek to create infrastructure in the region which connects with many developed EZs such as Nghi Son EZ (Thanh Hoa), Vung Ang EZ (Ha Tinh), Chu Lai EZ (Quang Nam), Dung Quat EZ (Quang Ngai). In addition, the continuous expansion of repair as well as the North-South Expressway project will create a transport infrastructure and seaport system. Some CEZs in the Central Coast region have formed eco-tourism areas and new urban areas. This pattern is the highlight of infrastructure development in the Central Coast region.

### 3.2.2. Limitations

There are many contributions to attracting investment capital, creating jobs, attracting scientific and technological transfer, synchronous development of infrastructure systems, and contributions to the state budget in the CEZs. However, the CEZs in the Central Coast region still have some limitations leading to the development that has not yet met the expectation.

*Firstly, the contribution of coastal economic zones to national economic development is still inadequate.*

Currently, the area of coastal economic zones (only established FTZs) is 12.8 times larger than 326 established industrial parks throughout the country, but contributes to production targets, business, payment to the state budget and job creation in the Central Coast region. The area of coastal economic zones is huge but the efficiency is low. According to the data of the Department of Management of Economic Zones, Ministry of Planning and Investment, in 2019, revenue, import-export (including exports) and payment to the state budget in coastal economic zones reaches: 22,437.4 million USD (only equal to 10.83% compared to the turnover in the industrial zones across the country); 26,359.1 million USD (only equal to 10.24% of the total import-export turnover in the IPs) (of which exports reached 9,881.6 million USD (only equal to 7.74% of the total export turnover in IPs) and USD 55,059.4 million - equal to 64.2% of the total budget revenue in IPs). Besides, the number of jobs created in coastal economic zones accounts for about 6.1% of total employment in industrial parks across the country. Despite the investment in infrastructure, capital, technology, the contributions of the CEZs in the Central Coastal region do not reach their fullest potential.

*Secondly, investment attraction in infrastructure construction and business production is limited, mainly in labor-intensive and resource-intensive industries.*

Some CEZs have major contributions to the socio-economic development of localities and the country but most of them have not met the development needs towards industrialization and modernization. The CEZs have the same investment orientation, which is: (i) building a deep-water seaport, a system of highways along the coast connecting urban areas, industrial parks and airports. Therefore, the infrastructure system is still fragmented, outdated, and equipment is not synchronized, so the efficiency is very low and (ii) attracting investment in areas such as shipbuilding, port services, marine tourism, seafood processing and thermoelectricity. They do not lead to competition in attracting investment among the CEZs. Currently, there are many unmet attractions for investors and businesses to invest in,

so the level of development is very limited. The occupancy rate and investment rate per hectare of IP land in the Central Coast region is still quite low.

Some CEZs are evaluated recently to be relatively successful compared to the common ground of the whole country ( Nghi Son, Vung Ang, Chu Lai, Dung Quat) but mainly rely on only one or two key projects. The other has not found a direction to develop the creation of new production capacity, diversify production and bring higher added value. Many CEZs have been established for more than 10 years (Chan May - Lang Co; Nam Phu Yen and Hon La) but currently, the development stage is based on cheap labor and low labor productivity. Provinces/cities still seem to focus on attracting investment to fill industrial land without focusing on high-value and high-value-added investment projects such as: Information technology, biotechnology, electronics and precision engineering. Especially, attraction of investment in the CEZs in the Central Coast region has not been associated with the local agricultural development goal to strengthen the relationship between agriculture and sea. Most of the projects invested in IPs in CEZs are projects that use a lot of labor, fuel, energy, and average technology such as: textiles; shoe leather; assembly of electric and electronic goods; plastic product; baked materials; metallurgical; agricultural, forestry and aquatic products; and thermal power. These are low-tech industries but consume a lot of resources and use a lot of labor.

*Thirdly, enterprises in coastal economic zones have not fully played their role and their potential.*

Although, when investing in CEZs, FDI enterprises enjoy quite a lot of preferences from tariffs; credit; administrative procedures; however, the contributions and spread of FDI enterprises are still not commensurate with expectations. In fact, FDI enterprises in the recent time of technology transfer are still low, which is not actively cooperating with Vietnamese enterprises in building value chains but mainly FDI enterprises still urged other FDI enterprises in their value chains to invest in Vietnam. The attraction of FDI capital in the CEZs is mainly of medium technology level. The rate of import of raw materials and components for sewing production is still high. Compared to some neighboring countries, the proportion of Vietnamese enterprises participating in the global supply chain is low. Vietnam has 21% of enterprises participating in the global supply chain, while in Thailand this rate is 30% and Malaysia is 46%. The global value chain has two points: the high added value point and the low added value point. Vietnamese enterprises in the fields of apparel, footwear, processing and processing of agro-forestry-fishery products mainly participate in low value-added chains. In general, FDI enterprises are still mainly taking advantage of cheap labor in EZs and investing in production facilities in the form of assembly lines or finishing products in Vietnam. Therefore, the spillover effect of enterprises is not large.

The CEZs in the Central Coast region have some limitations: The quality of local human resources is still low, and there is a lack of a domestic auxiliary business system to meet the requirements of FDI enterprises in economic zones; the situation of wasting land and wasting investment; planning of long-term economic zones lacks connectivity;

economic management state of the CEZs is not tight. All of the above limitations have affected the promotion of the role, potential, strengths and contributions of the region and the whole country. This requires a synchronous system of solutions for the development of the CEZs to become a breakthrough development model for regional economic development. It is also an opportunity to support regions and territories that have favorable conditions to exploit profits of the natural conditions, geopolitical position and politics for economic development, international economic integration.

### ***3.3. Some solutions to develop coastal economic zones in the Central Coastal region in a sustainable manner.***

In order to overcome the existing limitations in the development of the CEZs in the Central Coast region in the recent time and create a framework, legal corridor as well as orientations for the CEZs in a sustainable way. In the coming time, it is necessary to concentrate on well implementing a number of following orienting solutions:

#### ***3.3.1. Make effective and centralized investments in the development of coastal economic zones***

At present, the Central Coast region has 11 CEZs accounting for 60% of the CEZs throughout the country. They are approved and planned to be set apart in the same period, which leads to scattered and ineffective investment. Some economic zones are facing the situation of lack of capital in investment and infrastructure development.

It is important to motivate a number of economic zones in developing the region and linking the Central Coast region. In the current conditions, in order to achieve the goal of economic growth and development of the country, it needs action to reach the goals in Vietnam's sustainable sea economic development strategy to 2030, with a vision to 2045. It is important to make the CEZs to develop its potential and strengths. However, in order to attract domestic and foreign investment projects into the CEZs, the CEZs must have a synchronous infrastructure system. The synchronous development of infrastructure of 11 CEZs in the Central Coast region is a difficult problem. Therefore, it is necessary to select a number of CEZs which have better potential to focus on developing and being a model for the remaining development members. the Prime Minister's decision suggests to focus on the development of the CEZs in the period of 2016-2020, in which the Central Coastal region is selected for Chu Lai EZ (Quang Nam), Dung Quat EZ, (Quang Ngai); Nghi Son EZ (Thanh Hoa); Vung Ang Economic Zone (Ha Tinh). In order for the investment resources to be effective from the state budget and local governments, it is necessary to focus on investing in basic development to complete important technical and social infrastructure works of the EZ to meet the requirements of large-scale motivational investment projects. In addition, the Ministry of Planning and Investment is the prime responsibility and monitors the process of deploying the concentrated investment in development from the state budget to selected key coastal economic zones, and reports to the Prime Minister. The ministries studies and formulates policies based on the field management in line with the law on EZs, and at the same time guides coastal economic zones to develop in the direction of their strengths and

to exploit the advantages of EZ; The People's Committees of the provinces and cities and the Economic Zone Management Boards of the provinces and cities directly under the Central Government follow the principle of focusing on investment in the development of selected key coastal economic zones; use the central budget capital to be allocated according to the regulations, ensure the disbursement and construction progress. On the other hand, it is necessary to proactively allocate local budgets and mobilize other lawful capital sources other than the state budget to invest in the development of coastal economic infrastructure, promote the local active role and build an effective allocation and coordination mechanism in state management of EZs according to their assigned functions and tasks according to the provisions of law.

### *3.3.2. Studying and promulgating the Law on economic zones including (coastal economic zones and border economic zones)*

Currently, the policies of application of the CEZs in the Central Coast region is only at the Decree level (this is not the highest legal framework in Vietnam), while the activities of the Central Coast region are very diverse in industries, operating in many different fields and in investment partners. These lead to the activities of the CEZs having many difficulties and limitations. The entities managing the CEZs are still governed by a number of other laws. Since then, the Law on Economic Zones has been created to create a favorable legal corridor for the operation of the CEZs in the Central Coast region. The National Assembly needs to promulgate the Law on EZ and the Government will issue Decrees and Circulars to guide the environment, unified attractiveness to investors, especially FDI projects.

The enactment of the law should focus on: (i) criteria, requirements, conditions for new establishment, adjustment of scale (expansion or reduction) of the CEZs; (ii) Mechanism of policy on development of concrete equipment (clearly defining the responsibilities and interests of the parties involved in investment and construction); (iii) functions of duties and rights of the Management Board of Coast Guard in provinces; (iv) rights and responsibilities of the Ministry of Planning and Investment, Ministries, Branches and People's Committees of provinces and cities which have the CEZs. On the other hand, the Law should provide preferential terms within the framework of the Vietnamese law allowing preferences: import and export duties, corporate taxes, finance, banking and infrastructure development investment which are applicable to the CEZs in each certain period. At the same time, the Law on CEZs should focus on the decentralization of the right to management of the People's Committees of provinces and cities, the Management Board of CEZs in resolving related issues in the process of development of the special economic zones. Moreover, the Law on CEZs also needs provisions that clearly define the functions, powers, obligations and responsibilities of investors in the CEZs in order to closely link interests and internal responsibilities (investment, construction, environmental protection, social security for workers). These help to develop the Law on CEZs to ensure close and effective vision with the advice of domestic and foreign experts. It is also necessary to refer to the Law of a Number of countries in the region and in the world related to economic zone development and the CEZs development.



### *3.3.3. Attracting modern science and technology investment in the development of coastal economic zones in the Central Coastal region*

Now, the CEZs in the Central Coast develop with a fairly rapid growth scale. The structure of industries and trades is shifted towards industrialization and modernization. Some CEZs establish some centers of developing industry, agriculture and services. However, the exploitation and use of resources in the CEZs are unsustainable. There are still many resource-intensive industries including a number of low-tech industries with high risks of environmental consequences. To meet the requirements of sustainable development, the CEZs need to develop in the direction of technological innovation, especially modern technology. Currently, the rate of filling projects in the CEZs in the Central Coast region is still low. Therefore, in the coming time, for new investment and licensing projects under Department of Management of Economic Zones, Ministry of Planning and Investment, People's Committees of provinces and cities, Management Board of Economic Zones of Provinces, it is necessary for those in charge to call for investment through trade promotion and investment conferences to have policies and orientations of projects encouraging investment in high-tech and friendly industries and environment, using less natural resources, encouraging domestic and foreign businesses to invest in developing modern infrastructure systems, services and trade. On the other hand, for projects having licenses already, they should have detailed policies for businesses to renovate technology in the direction of gradually eliminating obsolete technologies causing pollution.

### *3.3.4. Developing human resources to serve the development of coastal economic zones in the Central Coast region in a sustainable manner*

The quality of human resources is one of the factors that make a breakthrough in the development of the CEZs in the Central Coast region today. Currently, the quality of human resources in the CEZs is not high. The unskilled labor sectors, local human resources are still lacking. In the coming years, it is necessary to focus on a number of contents in developing the human resources to serve the CEZs.

First of all, it is necessary to complete additional mechanisms and policies on the training of marine human resources, and combined with well performing the state management of human resource training, especially the work of statistics and forecasting of human resource needs. The Government should direct the relevant ministries, departments, branches and localities to give orientations for the development of human resources for the marine economy in general and to serve the development of CEZs in particular. It is important to implement priority mechanisms and policies, focus on developing and training high-quality human resources, especially leaders, managers, businessmen and skilled workers. At the same time, enterprises are encouraged to organize training and re-training of technical workers, and prioritize vocational training such as electricity, electronics, information technology, mechanics and automation. On the other hand, the content and training objectives must meet the needs of the practice. Training should be conducted based on international standards about the content of the program, the training process and the

method of training evaluation. To standardize, modernize, improve the quality of marine human resources and serve the development of the CEZs towards direction of closely following the labor market, linking training with job creation and meeting the necessary requirements about marine human resources. The Resolution of the 8th Plenum of the 12th Plenum emphasized: "Development of high quality marine human resources is in line with market demands. It should have policies to attract talents, and form a contingent of internationally qualified managers, scientists and experts with deep expertise in the sea knowledge. Besides, it is necessary to diversify the training methods. In the open trend of integration, mechanisms should be developed to encourage cooperation and joint training in the country and abroad, which associates with international organizations to build centers for international practice certificates; expands the recognition of mutual qualifications among countries.

It is necessary to review and re-plan vocational training institutions to meet the city's maritime industries and marine labor export. Focus on upgrading existing vocational training institutions, invest in and build new training institutions, encourage the formation of disciplines serving the exploitation and protection of marine environmental resources in schools. In particular, it is necessary to promote some leading universities with strengths in training human resources for the marine economy in our country. Currently, in addition to a number of large universities such as the University of Danang, Hue University, Nha Trang University and Vietnam Maritime University, there are also a number of other universities that have added new training programs on marine economy and marine management such as University of Economics - Vietnam National University, Hanoi University of Natural Resources and Environment, University of Natural Resources and Environment Ho Chi Minh City. However, in the coming time, 28 coastal cities and provinces should take initiative and propose to the Ministry of Education and Training, the Ministry of Labor, War Invalids and Social Affairs for assistance in opening training branch codes for economic development in maritime economy and the development of the CEZs at universities and vocational secondary schools in the province to provide high quality human resources. This is one of the factors that make a breakthrough in the development of the CEZs in the Central Coast region today.

#### **4. Discussion and Conclusion**

Sustainable development of the marine economy in general and the CEZs in particular is one of Vietnam's major strategies in the first decades of the 21st century. The Communist Party of Vietnam determined: "Focusing on building and replicating models of economic zones, coastal eco-industrial parks in association with the formation and development of strong marine economic centers. Coastal economic zones must play a leading role in regional development and inter-regional"<sup>1</sup>. In the past few years, the CEZs in the Central Coast region made important contributions to regional development and regional integration. However, the contributions are not commensurate with the potential. The

---

<sup>1</sup> Vietnamese Com. Party, Document of 8th conference of the XII Central Committee XII, Publishing House CTQG, H.2018. p.92

development of the CEZs is unsustainable. Science and technology are outdated. The labor force is still lacking professional qualities. Therefore, for the sustainable development of the CEZs in Central Coast region, it is necessary to carry out the overall measures such as: Effective and focused investment in the development of coastal economic zones; Studying and promulgating the Law on economic zones including (coastal economic zones and border economic zones); Attracting modern science and technology investment in the development of coastal economic zones in the Central Coastal Region; Developing human resources to serve the development of coastal economic zones in the Central Coast region in a sustainable manner.

## 5. References

1. Ministry of Planning and Investment (2005), *Báo cáo Chiến lược phát triển kinh tế biển và vùng ven biển Việt Nam đến năm 2020*, Hanoi.
2. Ministry of Planning and Investment (2012), *Kỷ yếu Hội nghị tổng kết 20 năm xây dựng và phát triển khu công nghiệp, khu chế xuất, khu kinh tế ở Việt Nam*, Hanoi
3. Vietnam Communist Party, *Văn kiện Hội nghị lần thứ tám Ban chấp hành Trung ương Đảng Khóa XII*, National Publishing House, Hanoi.
4. Regional Political - Administrative Academy III (2009), *Kinh tế biển các tỉnh Duyên Hải Miền Trung trong chiến lược phát triển kinh tế biển Việt Nam*, A scientific conference, Hanoi.
5. Ho Quoc Khanh (2010), “Khu kinh tế ven biển Việt Nam vấn đề đặt ra để xây dựng mô hình phát triển không gian những năm tới”, *Vietnam Architectural Magazine* (No. 5/210), p. 20-25.
6. Dennis, W. Y. (2000), Investment and regional development in Post-Mao China, *Geo Journal*, 51, pp. 169-179.
7. Hermann G. Hauthal and Tiina Salonen (2007), *Chemical industrial parks in China*, 7<sup>th</sup> Achem Asia, China.
8. Jung, B. M. (2011), “Economic Contribution of Ports to the Local Economies in Korea”, *The Asian Journal of Shipping and Logistics*, 27(1), pp.1-30.
9. Leonard Sahling (2008), *China's Special Economic Zones and National Industrial Parks - Door Openers to Economic Reform, China*
10. Robert L.Wallack (2010), Institutional Development and Capacity Building - developing cross-border economic zones between China and Viet Nam, International Consultant, U.S.A - Asian Development Bank.

# RAISING THE LEGAL AWARENESS OF THE NORTHERN MOUNTAINOUS OF THE NORTHERN VIETNAM-SITUATION AND SOLUTIONS

*Tran Thuy Linh*

*linhtt@ictu.edu.vn*

*Department of Basic Science,*

*Thai Nguyen University of Information and Communication Technology*

## **Abstract**

*Raising the legal awareness of grassroots cadres is an active and positive process through propaganda and education, making grassroots cadres gradually raise awareness and consolidate attitude, belief in law and improving the efficiency of applying legal knowledge to work effectively. The paper studies the status of raising the legal awareness of grassroots cadres in the northern mountainous region of Vietnam from which to propose necessary solutions.*

**Key words:** *Awareness raising, legal awareness, grassroots cadres, Northern mountainous region*

## **1. Introduction**

As a form of social consciousness that was born and existed in a class society, the sense of law was born with an increasingly important role for the development of society. The sense of law reflects the economic relations of society. The extent and effectiveness of the impact of legal awareness on social life partly depends on the spread and penetration of legal consciousness both in breadth and depth to the community in society. However, the law-breaking situation still occurs in a part of the people, practically in many places, especially in remote, mountainous and upland areas, with the traditional way of life of villages, villages and ethnic groups. quite common, a part of the people do not know the law and create feelings and beliefs about the law. On the other hand, the socio-economic life in the Northern mountainous region, from the lifestyle, backward agricultural practices to the low intellectual standard, the socio-economic conditions in the locality are still difficult. constraints, from the influence of a number of traditional psychological and cultural factors; from difficult transportation ... a part of the grassroots cadres in the northern mountainous region of Vietnam lacks legal knowledge, has not strengthened their attitudes and beliefs in the law, the application of the law to the work remains many limitations. For the northern mountainous region of Vietnam to develop quickly and sustainably, contributing to the whole country to accelerate the industrialization and modernization process associated with the knowledge economy, one of the important tasks to be built and improved. High awareness of law for grassroots cadres. Because grassroots cadres are the core force, effectively decide the implementation, manipulation, supplementation and testing of the

Party and State's guidelines and policies, as a bridge between the Party and the people. It is the force that contributes to the socio-economic development of the locality.

## **2. Method**

### **2.1. Study overview**

“Laws, politics, ethics and social law awareness” (printed in the monograph work “Basic issues about the State and Laws”, Truth Publishing House, Hanoi, 1996 ) of IV Diuriagin [3] addressed major issues such as: the relationship between politics, morality and law; the role of legal consciousness in social life ... With scientific valuable content, the article has provided the theoretical basis of legal consciousness, the role of legal consciousness.

Dao Tri Australia, "Building awareness and lifestyle according to the law" [11]. Topic is a collection of in-depth discussions about legal awareness, legal lifestyle and solutions for building legal awareness and lifestyle. One of the solutions is to enhance the awareness of law for social strata. This is a valuable reference for us to interpret on the theoretical basis of legal consciousness and the role of legal consciousness, thereby proposing solutions to raise legal awareness.

"Legal awareness" by Le Duc Tiet [6]. The author has studied legal consciousness as a form of social consciousness. From that point out, the structure of legal consciousness includes: awareness, knowledge, school and law; sentiments, attitudes, opinions, positions; wills and habits of the law. At the same time pointed out, the legal consciousness of the classes in each social regime: feudal law consciousness, bourgeois law sense, bourgeois law sense, farmer consciousness , legal awareness of the working class. On that basis, the author has deepened the role of legal consciousness for the cause of national renewal today.

Works of the Committee for Ethnic Minorities and Mountainous Areas (2000), "Situation of implementation and solutions to improve legal awareness for ethnic minorities", Scientific research topic, Hanoi [2], in Secondly, we have studied the situation of legal awareness and the factors affecting the people's legal awareness. Actual data was researched in Ha Giang and Lao Cai provinces to show that ethnic minorities have a need for information on laws and guidelines for law implementation. On the other hand, factors such as economic, social and cultural conditions have influenced the perception of the people. Since then, the research team has proposed solutions on the propagation and dissemination of legal education for ethnic minorities.

Currently, due to the renovation cause in the context of globalization and the 4.0 industrial revolution, due to the requirement to build grassroots cadres in the Northern mountainous area, some issues have not been done. clarified as the impact of socio-economic conditions on improving legal awareness of grassroots cadres in the Northern mountainous area. Therefore, these are the issues that the article continues to research.

### **2.2. Research Methods**

Regarding research data, the article uses secondary data collected through official information channels from the Ministry of Labor, War Invalids and Social Affairs, the Ministry

of Transport, the Ministry of Agriculture and Rural Development, etc..., reports from published studies. The secondary data is processed by methods of synthesis, comparison, analysis.

### **3. Results**

#### ***3.1. Current situation of raising the legal awareness of grassroots cadres in the Northern mountainous region of Vietnam today***

Socio-economic conditions in the Northern midland and mountainous areas have affected the legal awareness of grassroots cadres, while grassroots cadres are one of the drivers for development. Socio-economic situation of the Northern midland and mountainous region. The grassroots cadres in the Northern mountainous region are the forces playing an important role in implementing, applying, supplementing and testing the guidelines, guidelines, policies and laws of the Party and the State. In practice, it is an important bridge between the Party and the people. Therefore, it is required that grassroots cadres in the Northern midland and mountainous area must have the qualifications and knowledge of current legal provisions, respect for the law and the formation of appropriate legal awareness. in accordance with legal requirements, to have a proper judgment and response to legal acts.

It is undeniable that with the socio-economic development in the region, the lives of people in the Northern midland and mountainous areas and grassroots cadres in the Northern Midlands and Mountains are improving. Currently, the Northern midland and mountainous region with modern infrastructure systems, which are National Roads 1, 2, 3, 4, 6, on the other hand, the Hanoi-Lang Son railway line, Hanoi - Thai Nguyen, Hanoi - Lao Cai have created favorable conditions for regional economic development and people's travel in general and grassroots cadres in particular. Therefore, grassroots cadres have conditions to improve their education, knowledge about the law, awareness and application of the law. Grassroots cadres in the Northern mountainous region have self-cultivated legal knowledge and actively propagated the law, popularized and legal education for the people; on the other hand, grassroots cadres became an example when live and work according to the Constitution and laws. Therefore, grassroots cadres on the one hand form attitude, confidence in the law, on the one hand expressing their actions to be able to better implement the provisions of law in the performance of tasks. civil service to serve the socio-economic development of the Northern midland and mountainous region.

However, the system of transport infrastructure system has not been invested between districts, especially between districts and communes, communes and villages. In the rainy season, there are 22 communes without motorable roads to the center. The commune has made it difficult for people to travel, leading to the fact that a part of grassroots cadres in the Northern midland and mountainous areas currently do not have the initiative, self-awareness and actively in receiving knowledge, understanding of laws to raise legal awareness. On the other hand, the knowledge of the law, attitudes and law-abiding behaviors of grassroots cadres in the Northern mountainous area is still low. Therefore, in the face of legal situations and phenomena in reality in the locality, grassroots officials in the Northern

mountainous area may have embarrassing acts and measures. , which can lead to legal violations due to lack of knowledge and legal knowledge, which is one of the reasons hindering the socio-economic development in the Northern midland and mountainous areas.

The economic structure of the Northern midland and mountainous region is still heavy on agriculture, industrial production with purely agricultural activities, small scale and low quality of agricultural products. Trade and services are underdeveloped, so people's income is not high, in which “Bac Kan is the most difficult province in the region and the whole country; The growth rate in 2018 ranked 13/14 provinces in the region. GRDP per capita is about 77% of regional average and ranks 12th out of 14 provinces in the region”[10]. Due to the influence of agricultural psychology, a large number of grassroots cadres in the performance of their official duties have poor legal awareness, especially grassroots cadres working in rural areas, Mountainous areas have very low legal awareness. A part of grassroots cadres, when participating in the law, do not fully understand the provisions of the law, although it is very close and common in life.

At present, the cost of building and modernizing the infrastructure system, especially the amount of investment capital, is higher, while the area is quite rugged, severely divided, and large in area and density. low population, especially in the provinces of Dien Bien, Lai Chau, Ha Giang ... Therefore, has not created a better environment and conditions to raise the awareness of the law to help grassroots cadres in the Northern mountainous area organize, well manage the tasks assigned to develop regional economy.

The current customary law is also one of the causes affecting the raising of legal awareness among grassroots cadres in the Northern midland and mountainous areas. Understanding the issues of land and lineages of Thai people in Dien Bien shows that community institutions for resource management are mainly based on the village social structure. For socio-economic development in the Northern midland and mountainous areas, the State and local authorities have adopted policies on allocation of forest land with red cover to households, but now the real meaning of activities is Use of forest land management depends on village elders and village leaders, according to some grassroots officials in Muong Nhe district (Dien Bien province): Land cadastral officials when planning and adjusting maps Forest land and forest land use must all be consulted and approved by the village patriarch. On the other hand, Thai people have a regulation that traditional forest land is only valid when it is recognized by the God of the Earth and the Thai community, customary laws ensure the value of traditional forest land, from which the Thais identify and take traditional land with stumps and big rocks so that other families can see the boundary signs to identify and not use or possess them anymore. Grassroots officials in the course of training on State policies on land and forests for Thai people realize that Thai people do not understand what the concept of land is to own people and The state is the owner representative. The Thais believe that their ancestral lands that have been reclaimed and inherited are theirs. According to them, when there is a dispute about a red book that cannot be resolved in the community, they must contact the cadastral official. and the government, the whole court to solve.

The effectiveness of law dissemination and education for grassroots cadres in the Northern mountainous area is not high. One of the main reasons for reducing the effectiveness of legal awareness raising among grassroots cadres in the Northern mountainous area is the limited operation of the grassroots political system. inadequacies.

In terms of awareness, leaders and authorities are not fully aware of raising the legal awareness of grassroots cadres in the northern mountainous region of Vietnam. The subject to raise the legal awareness has not renewed the method and content to raise the legal awareness.

Law propaganda and education are still inadequate. The ideology and psychology do not want to be bound by the rules, due to the influence of small, backward production, due to the customs, lifestyles in the Northern mountainous region that have hindered the raising of the legal awareness of grassroots officials in the northern mountainous region of Vietnam.

Difficulties in economic conditions, traffic conditions, staff at all levels of awareness, propaganda and advocacy to raise the awareness of the law have not been highly effective.

### ***3.2. Some directions to raise the legal awareness of grassroots cadres in the Northern mountainous region of Vietnam today***

*Firstly*, raising the legal awareness of grassroots cadres in the Northern mountainous region cannot be separated from the leadership of the Party committees and the management of local authorities.

Promoting well the role of the Party Committee, the government, especially the head of the Party Committee and the Government thoroughly grasped Directive No. 32 / CT-TW of December 9, 2003 of the Secretariat on strengthening leadership. of the Party in the work of law dissemination and education; Resolution No. 61/2007 / NQ-CP dated December 7, 2012 of the Government on the implementation of Directive No. 32-CT / TW of December 9, 2003 of the Secretariat; Decision No. 705 / QD-TTg dated May 25, 2017 of the Government on promulgating the Legal Dissemination and Education Program for the period of 2017-2021 thereby creating a change in awareness and actions of organizations. Party organizations and party members, grassroots officials to raise the awareness of the law.

The Party committees at all levels formulate practical laws-raising plans and programs for all levels, branches and local governments. Party committees and local authorities regularly monitor, inspect and supervise grassroots officials in the northern mountainous region of Vietnam to raise their legal awareness, promptly urge and direct the handling of arising problems. born not only through reporting but also combined with actual testing.

Party committees and local authorities strictly follow the policies and great unity of the nation, pay attention to political, cultural, religious, religious and customary life of cadres at the grassroots level the north ... these are issues that deeply affect the raising of the legal awareness for cadres visiting the northern mountainous base. Leaders of local authorities direct investment and provide electronic libraries to create favorable conditions for grassroots cadres in the Northern mountainous region to search, find books, newspapers, magazines and reference materials for self-officials at grassroots level in the Northern



mountainous areas self-fostering to raise the legal awareness. Localities need to have an appropriate budget to support propaganda and awareness-raising activities.

*Secondly*, raising the legal awareness of grassroots cadres in the Northern mountainous area associated with raising the people's intellectual standards, moral awareness and political consciousness. Paying attention to education and training in order to raise the people's intellectual level, promote the socio-economic development and make clear changes in all areas of social life, and implement justice in education. In order to raise the people's intellectual level to raise the legal awareness of grassroots cadres in the northern mountainous region of Vietnam.

Political consciousness, moral consciousness are formed by social existence and deeply rooted in the socio-economic life itself. Raising the legal awareness of grassroots cadres needs to be placed in relation to other forms of social consciousness especially in relation to political consciousness and moral consciousness. The law is the institutionalization of political lines as a means for political policies to be strictly implemented in society. Therefore, raising the legal awareness is political education, the Party's guidelines and policies and also through political education to raise awareness and attitude towards the provisions of the law, into the right behaviors in life.

*Thirdly*, raising the legal awareness of grassroots cadres in the Northern mountainous area must be associated with the gradual elimination of backward customs.

Backward practices, though small in comparison with the overall cultural and social life in the mountainous areas of Northern Vietnam, have the potential to spread, including the risk of being abused by bad guys, forming a "barrier" that hinders the raising of the legal awareness, which are the customs that exist in daily life, festivals, customs, beliefs ...

Raising the legal awareness of grassroots cadres in the northern mountainous region must be associated with every step of eliminating outdated customs required:

Grassroots cadres in the Northern mountainous region continue to realize and quickly identify, repel and abolish backward practices and contribute to cultural, economic, social and national security development. The grassroots cadres in the Northern mountainous region are well aware of the harmful effects of the customs and mobilize the people to gradually eliminate backward customs which are no longer suitable to the current life, causing waste and cost. Grassroots cadres take the initiative in building a healthy cultural environment, regularly organizing useful, practical cultural, information, sports and tourism activities to raise their awareness of law and consolidate attitude, belief in law and application of legal knowledge in the work.

*\* Some major solutions to raise the legal awareness of grassroots cadres in the Northern midland and mountainous areas at present*

*Firstly*, renovating propaganda and education methods to raise the legal awareness of grassroots cadres. Subjects engaged in the propagation and education of legal awareness for grassroots cadres in the northern mountainous region must have legal knowledge and knowledge

at a high level, which helps subjects be proactive and confident in teaching. , chat, discuss about legal issues with grassroots officials; know how to analyze and interpret in a "sympathetic, rational way" the legal contents; know how to bring out stories, legal situations, examples of practical, vivid so that grassroots cadres can understand the content of law to convey.

Using methods such as presentations, legal teaching; talking, discussing law... combining technical equipment, modern technology such as computers, camcorders... so that the subjects of legal awareness propaganda and education can easily implement tissue methods. visualization and visualization associated with realistic observation situations.

*Secondly*, renewing the contents of propaganda and education to raise the legal awareness of grassroots cadres in the Northern midland and mountainous areas of Vietnam.

Focus on popularizing key and focused content in order to raise legal awareness, strengthen attitudes and beliefs in law of grassroots cadres in order to effectively use legal knowledge on business. The content of propaganda to grassroots cadres must be complete, timely, accurate and specific legal documents should be concretized so that these documents can practically attach to the life of the people. Our Party also emphasized, "vigorously deploying law propaganda and education, mobilizing mass, political, social, professional and mass media forces to participate in the campaign. establish order, discipline and regular activities, build a lifestyle and work according to the law in state and social agencies "[4, p.241].

Renovating the contents of propaganda and education to raise legal awareness suitable to the practical situation of the northern mountainous region of Vietnam. The relevant contents all refer to the Law on Prevention and Combat of Trafficking in Persons and the skills to prevent and combat human trafficking; Law on Prevention and control of drug evils, Law on Forest protection and development; child marriage and inbreeding marriage; laws on promoting good practices, strengthening neighborhood affection in the community; Ordinance on democracy in communes, wards and towns; Content of law propaganda and education intertwined with content of political, ideological and ethical education; Criticizing backward laws, contrary to the laws of the state, to the interests of society, collectives, and to inhibit civilized progress ...

*Thirdly*, innovating methods - combining education propaganda with practice, applying legal knowledge

Promote the role of socio-political organizations such as Trade Unions, Youth Union, Farmers' Association, Women's Union, Veterans Association and other social organizations in mobilizing investment resources for propaganda, raising legal awareness and integrating conferences and mass media. Strengthen coordination in leadership, direction and organization of the implementation of legal education for grassroots cadres in the Northern mountainous area of the grassroots political system; promote exchange, discussion and debate between propagandists and grassroots cadres, among grassroots cadres based on legal situations to improve the quality of their work. this.

Combining education propaganda with practice, applying through various types of social activities such as building cultural families or movement movements among the

people. Combining educational propaganda with practice, applying through propaganda press activities, coordinating with Radio - Television and Newspaper stations: Building a broadcasting section on television and a column on Propaganda on propaganda , legal education for grassroots cadres in the Northern mountainous area.

Propagate and educate laws through the implementation of village regulations and conventions. Propagate and educate laws through customary laws and customs. Disseminate legal education through the activities of lawyers and lawyers. Strengthen the inspection and supervision of disciplinary and legal violations by grassroots officials to detect problems and mistakes from which timely guidance is given; resolutely fight strongly with information released by hostile and reactionary forces with the aim of distorting, fabricating and detrimental to the law in order to reduce the people's faith in law and the law. law enforcement.

*Fourthly*, create a better environment and conditions to raise the legal awareness of grassroots cadres in the Northern midland and mountainous areas of Vietnam.

Strengthen socio-economic development in the Northern mountainous areas to have resources to support education and propaganda to raise the legal awareness of grassroots cadres. The Northern midland and mountainous region is the largest area in the country, but its population density is low, especially in communes of high mountainous and deep areas. On the other hand, scattered population, ethnic minorities live in complex terrain, strongly divided, high slopes, which is very expensive and difficult to build infrastructure, including infrastructure. about traffic. Therefore, northern mountainous provinces need policies to relocate households to concentrated areas to reduce investment in infrastructure in order to concentrate capital and mobilize investment sources, build infrastructure systems to redistribute the population to create favorable conditions for regional economic development. When the economy develops, there will be conditions for supporting resources and organizing training courses to raise the legal awareness of grassroots cadres at the Northern midland and mountainous areas. When the economy of the Northern midland and mountainous region develops, there will be conditions to take care of ensuring the material and spiritual life for grassroots cadres to give them peace of mind, namely policy reform. Salaries and salaries of grassroots cadres should be paid commensurate with the level of dedication and qualifications. The salary structure must be reviewed periodically and reviewed to ensure continuous effectiveness, corresponding to the growth rate of society's income; avoid being too backward with reality. It is necessary to well implement the welfare regime, the work of emulation and commendation should ensure the impartiality, objectivity, timeliness, right subject, right process is a spiritual resource in the policy of treating grassroots cadres , promoting the ability of dedication and development of grassroots cadres in the Northern midland and mountainous areas.

#### **4. Discussion and Conclusion**

Legislation and awareness of the law plays an important role in the exercise of democracy to build an equal and civilized society. For socio-economic development in the Northern midland and mountainous areas, it is necessary to be politically stable in order to

realize the objectives and solutions of economic development to improve people's lives. Therefore, raising the legal awareness of grassroots cadres in the Northern mountainous region is now an important issue, it does not only stem from the role and position of grassroots cadres in the midland and mountainous areas. Northern Mountains, but also contributes positively to raising legal awareness, understanding of laws and the sense of respect for and observance of laws and reinforcing attitudes and beliefs in laws, improving effectiveness. The results were applied to propaganda and education of legal awareness, from which grassroots cadres propagandized to the people about the Party and State's guidelines and views on regional socio-economic development Northern Midlands and Mountains.

## 5. References

1. Central Census Steering Committee (2019), *Census of Population and Housing at Oh on January 1, 2019, Organization of Implementation and Preliminary Results*, Thong Ke Publishing House.
2. Works of the Committee for Ethnic Minorities and Mountainous Areas (2000), *Implementation situation and solutions to improve legal awareness for ethnic minorities*, Scientific research topic, Hanoi.
3. Diu Righin (1986) "*Law, politics, ethics and social law awareness*", Su that Publishing House, Hanoi.
4. Vietnam Communist Party (1996), *Document of the Eighth National Congress*, Chinh tri Quoc gia Publishing House, Hanoi.
5. Nguyen Ha - Bao Nam, Northern Midlands and Mountains strives for GRDP growth of 9%, <https://enternews.vn/vung-trung-du-va-mien-nui-phia-bac-phan-dau-tang-truong-grdp-dat-9-phan-tram-155592.html>
6. Agriculture in the Northern Midland and Mountain region shall be transformed towards commodity production after 15 years of implementing Politburo's Resolution 37-NQ / TW, <https://www.mard.gov.vn/Pages/nong-nghiep-vung-trung-du-va-mien-nui-bac-bo-chuyen-doi-theo-huong-san-xuat-hang-hoa-sau-.aspx>.
7. Mai Phuong, *Conference on making plans for socio-economic development and public investment in the Northern mountainous region in 2020*, <http://www.mpi.gov.vn/Pages/tinbai.aspx?idTin=43810&idcm=188>.
8. Nguyen Hop Toan (Editor) (2008), *General legal curriculum*, National Economics University Publishing House.
9. Duong Thin, *Northern Midland and Mountain Area changed from Resolution 37*, <http://laodongxahoi.net/khu-vuc-trung-du-va-mien-nui-phia-bac-thay-doi-amenities-35-1313518.html>.
10. Vietnam News Agency, *Need specific mechanisms and policies for Northern Midland and Mountain provinces*, <http://tuyengiao.vn/kinh-te/can-co-che-chinh-sach-dac-buy-for-the-mid-mien-mien-mien-bac-bo-122682>
11. Dao Tri Australia (1995), *Constructing consciousness and lifestyle according to law*, State-level science project KX.07.17.

# LESSONS APPLIED TO THE DEVELOPMENT OF MEDICINAL VALUE CHAINS IN QUANG NINH PROVINCE

*Dr. Tran Trung Vy*

*kttrantrungvy@gmail.com*

*Ha Long University, Quang Ninh, Viet Nam*

## **Abstract**

*Developing the value chain of medicinal herbs materials plays an important role in planting, exploiting and processing medicinal herbs materials, as an increase in the quantity and quality of agents participating in the pharmaceutical value chain in both width and depth. The article clarifies theoretical and practical issues on the development of medicinal value chains; factors affecting the development of the pharmaceutical value chain include both internal (subjective) factors and external (objective) factors. From that, it can identify how the factors affect the value chain of medicinal herbs in the study area. The author clarifies the benefits of analysing the value chain; contents of analysis of medicinal value chains: chain maps, quantification and detailed description of factors in the chain, economic chain analysis, chain upgrading. The study of medicinal development experiences of some localities such as Lao Cai, Yen Bai, Ha Giang and Da Lat from which draw lessons learned for the development of the medicinal value chain in Quang Ninh.*

**Keywords:** *Chain, Development, Medicinal Materials, Quang Ninh Pharmaceutical, Value Chain.*

## **1. Introduction**

Quang Ninh is a province with rich and diverse medicinal vegetation such as: Medicinal Indian Mulberry, Golden Camellia, Anise, Cinnamon, One-leaf Betel, Stephania, Eurycoma longifolia, Honeysuckle flower, Adenosma glutinosum, Coix lacryma-jobi,... but the development of producing these medicinal herbs in Quang Ninh is not commensurate with the potential and strength for various reasons: The exploitation of medicinal plant resources is still spontaneous, not concerned with regeneration and conservation. leading to many medicinal plants facing the risk of exhaustion; pharmaceuticals mainly stop at the raw and fresh raw materials stage, not paying much attention to the preliminary processing and fine processing, creating different products, in order to increase their value.

With the potential of strong natural and socio-economic conditions, especially natural conditions, Quang Ninh can develop medicinal plants to become one of the important sources of income in order to exploit its strengths of nature and a number of specialty medicinal plants, to develop into a major pharmaceutical center of Vietnam. This will be a new breakthrough, contributing to speeding up the goal of changing the province's mode of development from "brown" to "green". Along with tourism, services and development of medicinal production are one of the important products under the province's OCOP program

(One Commune, One Product - *Moi xa phuong mot san pham*) implemented from 2013 to present. However, the cooperation and linkage to produce pharmaceuticals along the value chain to enhance the added value in the production process is limited: (i) *The vertical linkage* is the link between the stages in the value chain. The value of the commodity industry also has passed through many intermediaries, making the market unstable, lacking transparency and being forced to price, causing damage to producers, many production contracts, and supplying raw materials between producers and enterprises. sometimes it is not done due to the competition of buying, selling... (ii) *Cross-linking* is the link between farmer households into cooperative groups or cooperatives, or groups of production households; The linkage between small processing facilities to form a larger-scale enterprise, lower production costs ... is very limited, or there is but not clear, there are no binding mechanisms.

In order to contribute to the implementation of the Scheme on restructuring agriculture in the direction of raising added value and sustainable development of agriculture in Quang Ninh province, developing pharmaceutical production along the value chain, aiming to create concentrated and high-quality pharmaceuticals products, increase competitiveness in the market, improve production efficiency, increase incomes for workers, especially farmers, play an important role.

Research objectives: Research on the value chain of medicinal plants in Quang Ninh province, based on which proposed solutions to develop the value chain of medicinal plants in Quang Ninh province until 2025. The object of the study is the value chain. and developing the value chain of medicinal plants in Quang Ninh province.

Research scope:

- Regarding space: The research topic is in Quang Ninh province, focusing on eight districts and cities of the province that are localities where planting medicinal herbs and exploiting natural medicinal herbs. Surveys were also conducted in Yen Bai, Lao Cai, Ha Giang and Lam Dong.

- About time: Secondary data is collected from 2013 - 2019; Primary data is collected in 2019.

## **2. Method**

Methodology of the research: The author combines qualitative and quantitative research methods with different approaches, along with analytical criteria that have a comprehensive assessment of the value chain for a specific medicinal plant.

For localities: The research results are a scientific basis to help policy makers have a more comprehensive view on the management of agricultural production development programs and programs along the value chain; contribute to raising the income of laborers directly involved in the production of agricultural products.

## **3. Results**

### **3.1. Awareness of developing the medicinal value chain**

#### **3.1.1. Regarding the concept of medicinal value chain**

Development of the medicinal value chain is an increase in the number of factors participating in the value chain, an increase in the volume of products in the medicinal value chain (changes in quantity) and changes on product structure and product market (change in quality).

To outline the concept of medicinal plant value chain development, we rely on the theory of economic development and development of medicinal value chain. According to that, the concept of developing the medicinal plant value chain is understood as a process that changes both the quantity and quality of activities related to the development of medicinal plant production along the value chain. In particular, the increase in scale is considered as the creation of new value chains for other medicinal plants, the qualitative change of the development of the value chain of medicinal plants is an upgrade to the price chain. treating existing medicinal plants.

When assessing the status of development of medicinal plants as a basis for developing medicinal production along the value chain, we found that in Quang Ninh, there were two types of medicinal materials produced in the chain: Medicinal Indian Mulberry and Golden Camella are only at an initial stage, due to the loose and vertical links between the factors in the chain, lack of sustainability, lack of binding mechanisms as well as encouragement for the chain to develop effectively. From the above explanation, developing the value chain of medicinal plants in width, we focus our research on the development of a number of medicinal herbs along the value chain: Value chains of Cinnamon, Anise, Citronella, Solanum procumbens, Gymnema sylvestre,... are types of medicinal plants that have not been produced along the value chain. Developing the value chain in depth by upgrading the value chain for the two types of medicinal herbs that have formed the chain by upgrading the value chain of Medicinal Indian Mulberry and upgrading the value chain of Golden Camellia.

### *3.1.2. The objective of pharmaceutical development in Quang Ninh*

- To develop commodity medicinal herbs along the value chain to add value, on the basis of forming concentrated medicinal plantations: Medicinal Indian Mulberry planting areas, Golden Camellia, Anise and Cinnamon planting areas... according to the allocation naturally in the locality.

- The factors participating in the value chain, proactively applying science and technology in a unified manner throughout the production chain, from conserving genetic resources, researching on breeding, planting, extracting and processing, preparing to create products of high quality, competitive in the domestic, regional and world markets.

- Sustainable exploitation in combination with conserving biodiversity of natural medicinal plant resources, especially some precious medicinal herbs.

- By 2025, upgrade the value chain of Golden Camellia and Medicinal Indian Mulberry, and develop the production of medicinal herbs according to the value chain for a number of other strengths: Anise, Cinnamon, Camellia oleifera, Gynostemma pentaphyllum, Solanum procumbens... to increase the added value of the product, connecting farmers with businesses, scientists, and markets.

### ***3.2. Factors affecting the development of medicinal value chains and value chains***

#### ***3.2.1. Macro factors***

##### ***- Business environment***

The business environment includes the general management regime of the State, the principles, pharmaceutical business practices, incentive policies of supporting organizations, the simultaneous existence of agents, competitors, partners of the industry... The business environment has a strong impact on the activities of all actors in the pharmaceutical value chain.

##### ***- Market economy mechanism***

The market economy mechanism is a whole consisting of many types of markets mobilizing synchronously in that whole. For the pharmaceutical market, if the output market of the product is not developed, it will hinder the input market as raw materials, and prevent the input market from outside the chain (the market that provides input for agents production) and hinder the overall movement of the entire value chain. In this context, it is necessary for the State to intervene in the operations of the value chain. Such intervention is to ensure a stable market, but it will likely distort market performance. Accordingly, in order to have appropriate intervention, it is necessary to have very careful research and calculations, which markets (inputs or outputs) and when to intervene and where the intervention is needed is sufficient to The market can operate normally.

##### ***- Trade policies and barriers***

Trade policies are the policies of the Party and the policies of the State, macro management agencies, micro management regulate economic subjects in the production of medicinal materials that have a great impact on the industry value chain. Strong and reasonable trade policies can create favorable conditions for domestic pharmaceutical manufacturing enterprises to penetrate and expand overseas markets, fully exploit the comparative advantage of domestic pharmaceutical materials, protecting the domestic market. Unreasonable trade policies may hinder the efforts of enterprises to upgrade the pharmaceutical value chain. For example, the export taxes policy is too high, the irrational production protection policy may divert the development of the pharmaceutical value chain from competitive advantage and efficiency, etc.

Trade barriers are also one of the factors that have a strong impact on the development of the pharmaceutical value chain. If the Government restricts the import of pharmaceutical materials from foreign countries by various measures (especially from China), it will effectively support the development of the pharmaceutical industry, thus, it is possible to formulate many value chains of medicinal materials which are not only at provincial level but also at regional and national levels.

##### ***- Trends in international economic integration***

Agriculture in general and the pharmaceutical industry in particular are facing certain difficulties when the economy integrates, due to running after profits, producers are less concerned about the quality and international standards of the products. Agriculture as well



as the pharmaceutical industry can only exist in the integration conditions when products ensure quality and food safety. Currently, the pharmaceutical industry in exporting countries has a competitive advantage with relatively low production costs due to the appropriate climate and soil. However, if only the primary pharmaceuticals are exported, it will not improve the added value of the chain and raw material agents, which are difficult to participate in big markets under the current integration condition.

### *3.2.2. The micro elements*

Including internal factors: The quality of human resources, financial capacity, infrastructure, chain management capacity, access to science and technology,...

## **3.3. Experience in developing medicinal herbs of some localities and some solutions**

### *3.3.1. Experience in developing medicinal herbs along the value chain of some localities in the country*

Implementing the Decision 1976 / QD-TTg, dated October 30, 2013, of the Prime Minister "Approving the master plan on development of medicinal herbs up to 2020 and orientations to 2030" and Decision 206 / QD- MOH, dated January 22, 2015, of the Ministry of Health, issued a list of 54 medicinal plants prioritized for development, period 2015-2020. Accordingly, localities throughout the country have focused on directing exploitation and development. Develop pharmaceutical production, making the pharmaceutical manufacturing industry one of the important branches in the local economic development.

(1) *Experience in developing medicinal herbs in Yen Bai:* Yen Bai is a province with a rich source of medicinal materials and natural medicinal plants, which are diverse in types. The soil and climate are suitable for many species of plants, including many valuable medicinal plants from different sources. The province has two nature reserves: Na Hau commune of Van Yen district and Che Tao commune (Mu Cang Chai) - where there are rich vegetations, soil climate is extremely suitable for medicinal plants, species. Rare and precious medicinal herbs. Yen Bai is also considered as the "capital" of a number of rare and precious medicinal plants in groups IA, IIA and a number of other precious herbal plants such as: *Coptis quinquesecta*, *Anoectochilus setaceus*, *Dendrobium*, *Herba Dendrobii*, *Panax bipinnatifidus*, *Panax vietnamensis*, *Drynaria fortunei* J.Sm, *Paris polyphylla*, *Maranta arundinacea*, *Sargentodoxa cubeata* Oliv, *Stephania*, *Fallopia multiflora*, *Smilax glabra*, *Golden Camellia*, *Ardisia silvestris*, *Phellodendron amurense*, *Elettaria cardamomum*, *Amomum tsao-ko*, *Cinnamomum loureirii* Ness... In Mu Cang Chai, Tram Tau, Van Chan, Van Yen and Luc Yen districts. Although there has been the attention of the authorities, the people in the province have had experience and practices of producing some kinds of medicinal plants from planting, tending, protecting, exploiting and consuming products, but in the development of medicinal plants in the area encountered many difficulties. Specifically, in Yen Bai at present, production is still in small scale mainly, the exploitation of medicinal plants on a large scale is almost none. In addition to Cinnamon, Medlar and *Amomum tsao-ko*, people mainly exploit medicinal plants in a natural way. In addition, the situation of uncontrolled exploitation of pharmaceutical materials, lack of conservation

management planning, causes the exhausted of rare and valuable herbs species. Moreover, the cultivation of valuable medicinal herbs is mainly spontaneous and fragmented, while for enterprises, there is a lack of models, planning, development orientations, as well as linking medicine value development chains to exploit the full potential strength. The linking of pharmaceutical production into large-scale value chains is unclear.

(2) *Experience in pharmaceutical development of Ha Giang*: Ha Giang province has attracted the investment on manufacturing and processing pharmaceutical, such as Binh Minh 3 Agriculture and Forestry Development Trading Joint Stock Company; Nam Duoc Company, GFS Group associated with single-shared holder limited company of Pharmacy - Hanoi University of Pharmacy;... These enterprises have produced a number of consumer products launched in the market, such as Artichoke tea, Artichoke balm, Angelica, Female Ginseng, Wine soaked, etc. initially showed the effectiveness in the medicine herbs business in Ha Giang province. Collecting medicinal herbs is mainly based on the experience of households, in a small scale; do not have proper technical process. The quality of products has not been controlled; the consumption market is precarious, mainly through traders, the market experience phenomenon of fierce competitive. Province's infrastructure is lacking and synchronous; the shortage and inexperienced scientific and technical staff specialized in pharmaceuticals are also significant obstacles in the development process. In addition, the difficult economic conditions together with the rate of poor households is high, over 80% of agricultural workers have not been trained and following the old and outdated production methods, have not accessed flexibly to market economy. Ha Giang established a planting area of 41 medicinal plants in 5,580 ha area according to GACP criteria (Good cultivation practice of medicinal herbs) and naturally collected 17 medicinal plant species according to GCP criteria (Good collection practice of picking wild medicinal plants); Maintain and consolidate 7,400 hectares of existing; build up Ha Giang's pharmaceutical production region of national stature, joining the domestic and regional market. Establish a system of medicinal value chains with the participation of stakeholders, including over 15,000 households, businesses, cooperatives, state management agencies, public services, scientists and input suppliers. Focus on research and application of appropriate technology chains, thereby creating products of high quality and stability, competitiveness. However, up to now, the development of pharmaceutical production in the value chain with large scale is limited and ineffective.

(3) *Experience in developing pharmaceutical materials of Lao Cai*: At the end of 2016, the People's Committee of province approved the Planning of medicine development in Lao Cai province to 2020 and a vision to 2030. Accordingly, by 2020, the province will give priority to develop 10 kinds of medicinal herbs that have advantages in the consumer market, based on exploiting the conditions of sub-tropical climate sub-regions and natural forests, with a total area of 1,200 ha. By 2030, planning to expand the area and dominant commodity pharmaceuticals in the province to 22 main categories, with an area of 3,799 ha, 100% of the area and output products ensure standards of good practice for cultivation and collection of medicinal plants of the World Health Organization (GACP - WHO). By 2030,

there will be 12 establishments of collecting, processing and preserving pharmaceutical materials, with an area of 500 to 1,000 m<sup>2</sup> / area, 3 establishments processing products in Sa Pa district, Bac Ha and Lao Cai city; The output will reach from 4,500 tons to 5,000 tons of products (in 2020) and from 11,000 tons to 11,500 tons (in 2030). In addition to the planning for development of the pharmaceutical industry, Lao Cai province also issued a number of policies to encourage businesses, collectives and individuals to invest in pharmaceutical production such as exemption, reduction of land rent and support for field improvement and training. Regarding to the output, there are currently 06 enterprises that commit to consume all medicinal materials (Traphaco Sa Pa Joint Stock Company, Vietnam Pharmaceutical Joint Stock Company, Nam Duoc Company, Tai Nguyen Xanh limited Company, Tam Phat Green Limited Company, Pharmaceutical Joint Stock Company across Vietnam). Businesses are committed to purchase in the long-term conditions which is stated clearly in the contract. Currently, with the motto "Enterprises go prosper, Lao Cai develops", there are huge number of businesses investing in the production and trading of medicinal herbs, following the production chains from planting, caring to harvesting, preserving and processing into commodity products to the market, gradually affirming the brand name of Lao Cai medicinal material, contributing to increasing incomes, creating commodity production areas and actively taking initiative in the process of international integration.

(4) *Experience in developing medicinal materials of Da Lat*: The goal is to develop the cultivation of medicinal plants into commodity production in parallel with vegetables and flowers, on the basis of high-tech application, to create high-quality products. The products are of high quality, especially Lam Dong province has ability to grow the medicine that have been imported for a long time from countries. At the same time, it is necessary to manage the exploitation, conservation and preservation of valuable local gene sources of medicinal herbs; Sustainable use of medicinal resources to serve the province's medical and economic development goals. Regarding planning of planting medicinal plants: Depending on the terrain, climate, soil of the provinces, for example: In Da Lat City, Lac Duong and Don Duong districts, where the regions have cool climates with an altitude of 1,000 m or more, it is recommended to plant acclimatized trees, which are currently in demand in the market and have high economic value, not only for product production but also for variety production like: Artichoke, Angelica, Mint, Atractylis, Paris polyphylla, Sweet herb, Matricaria chamomile, Codonopsis, Female Ginseng, Polygonum, Fig-wort, Achyranthes, Diocorea persi, Taiwan anoectochilus, Panax Vietnamensis, Rehmannia glutinosa, Panax pseudo-ginseng, Red Pine, Ligusticum striatum, Saussurea costus. In districts and cities of Bao Loc and upwards of Da Lat, growing: Polyscias fruiticosa, Female Ginseng, Angelica, Fig-wort, Rehmannia glutinosa, Ampelopsis cantoniensis, Amomum longiligulare, Lemongrass, Ocimum gratissimum, Phyllanthus urinaria, Coix lacryma-jobi. In the three districts of Da Teh, Da Huoai and Cat Tien, they plant Mint, Phyllanthus urinaria, Citronella.

The People's Committee of Lam Dong province assigns Da Lat City and districts to study and formulate planning projects for planting some medicinal plants and solve some difficulties for farmers, guide organizing the association between enterprises. and growers

of medicinal herbs to consume products; It is necessary to develop growing medicinal plants according to household, cooperative and enterprise sizes; strengthening the "four-home" cooperation (State - Scientist - Entrepreneur - Farmer), and first the link between the entrepreneur and the farmer; The study proposes a number of preferential policies for the cultivation of medicinal herbs, such as loan support, land lease, tax exemptions, product underwriting policies, etc. The establishment of a purchasing, trading center and Research on cultivation and processing of medicinal materials is also a problem for the province. This center is not only responsible for business, but also researches to cultivate a number of economical and high value acclimatized plants; At the same time, it is necessary to promote the propagation and dissemination of knowledge about using, exploiting, preserving and cultivating medicinal herbs for people.

### *3.3.2. Some recommendations for developing the pharmaceutical value chain in Quang Ninh province*

From the experience of local medicinal development, we see that each locality is interested in developing medicinal herbs in different ways to implement Decision 1976/QĐ-TTg dated 30/10/2013, of the Prime Minister, concurrently implementing the Notice No. 220/TB-VPCP dated 12/5/2017 on the Decision of Conclusion of the Prime Minister Nguyen Xuan Phuc at the National Conference on Pharmaceutical Development Vietnam. Accordingly, the localities are concretized by Resolutions of the Party Committee level and Decisions of the Government level to realize. The most common point is that all localities are oriented to develop medicinal herbs along the value chain, but in fact, the author realized that Ha Giang has attracted 10 entrepreneurs to invest in exploiting and processing medicinal herbs in the locality. In the province and other localities, there are quite limited, the implementation of development of medicinal herbs along the value chain is still very modest, most of which are just the initial steps of implementation, not summarizing and assessing to draw experience on the cities public, limited in developing the production of herbal raw materials in the chain in these localities. Through studying the development of medicinal materials in some localities, the author found that most of the localities have oriented the development of medicinal materials along the value chain, some businesses have actively come to the localities and people. However, the benefits of developing pharmaceuticals along the value chain are enormous, contributing to creating jobs and increasing incomes for people. However, the experience of direction and development orientation of localities is also valuable lessons for other localities to refer and learn. *After analyzing the lessons learned, we can draw some lessons for Quang Ninh as follows:*

**Firstly**, identifying key pharmaceutical materials among thousands of different types of medicinal herbs in localities in the province, each locality specifies which pharmaceuticals should be focused on investing in material areas to attract joint-venture and associated enterprises in production (Quang Ninh has identified 6 major pharmaceuticals). At the same time, the application of high technology in production to create a source of high quality and stable raw materials to supply to pharmaceutical processing establishments.

**Secondly**, in order to develop production of medicinal materials along the value chain, it is necessary to enter into joint ventures and direct links with enterprises to solve the problem of processing raw materials, expand production scale, create jobs for people. labor, especially farmers are the first link in the value chain, creating a source of raw materials to supply to the actors in the chain, if raw materials cannot be solved, it is difficult to expand. scale of production, encouraging people to participate in the pharmaceutical value chain.

**Third**, local governments at all levels proactively enact policies and mechanisms to engage businesses in the pharmaceutical value chain, as well as promote advertising on the potential available for local medicine to attract the attention of enterprises and investors in the field of pharmaceutical development of the province.

**Fourth**, focus on developing medicinal plants into commodities, associated with tourism development, while exploiting the strengths of agriculture while exploiting the province's existing tourism potential and introducing products to many domestic and international markets, because Quang Ninh has great strengths in tourism (sea and island tourism; spiritual tourism).

**Fifth**, link and apply appropriate technology chains in production and processing to create high quality products, and at the same time link regions with adjacent provinces (Lang Son, Thai Binh) to create to become a key link in the production of pharmaceutical materials in the Northeast region, creating a competitive advantage domestically and internationally.

**Sixth**, strengthening the link "Four houses" (Government - Scientists - Entrepreneurs - Farmers) and "many houses", first need to build the link between entrepreneurs and farmers to businesses. can directly support people in the production of raw materials (capital, seeds, techniques...); The State should study and propose a number of preferential policies for the cultivation of medicinal herbs such as loan support, land lease, tax exemption and reduction, product off-take policy...; Scientists need to research and apply new technologies to production and processing of products to increase added value.

#### **4. Discussion and Conclusion**

Quang Ninh has gathered all favorable factors to develop into a major pharmaceutical center of Vietnam, becoming a key economic sector of the province, contributing to increasing incomes and improving socio-economic life for people. people. In order to promote the potential and strengths of the province, and at the same time meet the increasing demand for medicinal use.

In addition, support to the development of concentrated medicinal plant growing areas such as cost support for infrastructure construction of roads, electricity systems, water supply and drainage systems, collection and treatment systems waste treatment, net houses, seed materials and equipment for seed production and medicinal plants; Support for investment in preliminary treatment and processing facilities for pharmaceuticals, pharmaceuticals, functional foods and cosmetics products, including: Supporting expenses for construction of waste treatment facilities , transportation, electricity, water, workshops

and equipment purchase in the project fence... With the improvement of the business investment environment, administrative procedure reform, investment promotion activities innovation; Preferential and attractive policies for enterprises investing in agriculture and rural areas in general and potentials and strengths of medicinal materials in particular of the province.

The paper attempts to move from the most basic perceptions of the value chain and development of medicinal value chains; Factors affecting the value chain of medicinal plants in Quang Ninh. The recommendations are based on the survey, analysis and acquisition of experience in the development of medicinal materials of provinces with many similarities. Hopefully the article will give Quang Ninh a lesson in applying science and creativity for the development of the pharmaceutical value chain in order to contribute to the best implementation of the Restructuring project in the agricultural sector towards increasing value added. increase and sustainably develop agriculture in Quang Ninh province.

## 5. References

1. Management board of program 'One commune, One product' in Quang Ninh (2014), *Guidelines for implementing OCOP programs*, Quang Ninh.
2. Ministry of Health (2009), *Guiding the application of criteria on medicinal plant cultivation and collection practices according to WHO recommendations*, Issued together with Circular No. 14/2009-BYT-TT dated 03/09/2009 by Ministry of Health.
3. Ministry of Health (2015), *List of 54 medicinal plants prioritized for development, period 2015 - 2020*, Issued together with Decision 206/QD-BYT, dated 22/01/ 2015.
4. Government of the Socialist Republic of Vietnam (2013), *Socio-economic Development Plan of Quang Ninh Province to 2020, vision to 2030*, Issued together with Decision No. 2622/QD-TTg dated 31/12/2013 by the Prime Minister.
5. People's Committee of Quang Ninh Province (2013), Project "*Quang Ninh Province - One commune, One product for the period of 2013-2016*", issued together with Decision No. 2870/QD-UBND dated 22/10/2013 by People's Committee of Quang Ninh province.
6. People's Committee of Quang Ninh Province (2015), *A set of criteria for evaluating and classifying products in Quang Ninh province's Program One commune, One product*", Issued together with Decision No. 3479/QD-UBND dated 05/11/2015 by People's Committee of Quang Ninh Province.
7. People's Committee of Quang Ninh Province (2016), *Results of product evaluation and ranking under the Program "One commune, One product" of Quang Ninh province in 2016*, Issued together with Decision No. 1264/QD-UBND dated 25/04/2016 by People's Committee of Quang Ninh Province.
8. People's Committee of Quang Ninh Province (2016), "*Quang Ninh Planning to 2030, vision to 2050 and beyond 2050 and general construction planning for localities in the province*", Issued together with the Decision on 1588/QD-UBND dated 28/072014 by People's Committee of Quang Ninh Province.

9. People's Committee of Quang Ninh Province (2014), *Policy on encouraging the development of concentrated agricultural commodity production in Quang Ninh province, period 2014 - 2016*, Issued together with Decision No. 2901/QĐ -UBND 05/12/2014 by People's Committee of Quang Ninh Province.
10. Shahidullah A.K.M, Emdad Haque C (2010), *Linking Medicinal Plant Production with Livelihood Enhancement in Bangladesh: Implications of a Vertically Integrated Value Chain*.
11. Department of Agriculture. Alam, G. and J. Belt (2009), *Developing a medicinal plant value chain: Lessons from an initiative to cultivate Kutki (Picrorhiza kurrooa) in Northern India*, India.

# TECTONIC GOVERNMENT WITH SUSTAINABLE URBAN DEVELOPMENT. A CASE STUDY IN VIETNAM'S MAJOR CITIES DURING COVID-19

*Assoc. Prof. Dr. Phan The Cong*

*congpt@tmu.edu.vn*

*Dr. Nguyen Ngoc Quynh*

*quynh.nn@tmu.edu.vn*

*Department of Economics, Thuongmai University, Hanoi, Vietnam*

## **Abstract**

*Tectonic Government has been a topic of interest to many scholars in recent years. This model appeared in Asia more than 30 years ago and is the goal of many countries around the world. This is a model in which the government plays a leading role, directing the development of a sustainable economy, a civilized society that promotes human values. One of the core issues related to improving the quality of life and safety of people is housing in large cities. An example of the impact of the tectonic government on the environment was analyzed during the COVID-19 pandemic that has recently occurred and spread worldwide. The period of pandemic showed the effectiveness of the Vietnamese government in disease control, adaptive policies and safe living together in a new situation, helping to develop sustainable urbans. The paper analyzes the modern tectonic government model and its application to sustainable urban development in Vietnam.*

**Keywords:** *Tectonic government; Tectonic state; Planning; Green urban; Sustainable development*

## **1. Introduction**

From the 70s of the twentieth century, a wave of reforms and transitions from traditional administering governments to tectonic governments in line with globalization trends initiated and implemented by several countries. However, provided different socio-economic and geographical conditions and political institutions, different countries have applied the tectonic government model in varied ways to generate their tectonic governments with their own characteristics.

Each country has its own characteristics with typical intervention policies in certain historical periods. Despite various ups and downs, in general, the tectonic state model has been developed through two stages: Stage 1 - a classic model with the state's active participation and strong interventions in the economy (instead of letting the market run by itself), attaching the importance of economic growth to arbitrary governance; Stage 2 - a democratic model with the state's proactive interventions associated with democratic governance and social policy towards three basic goals: Economic growth, improved quality of people's life and ensurance of the ruling legitimacy of governing parties through the



transformation of the state's role in the proactive and active direction, from operating the tectonic economy of service and completed institutions to promote growth in a new era.

Vietnam is also in the process of building a tectonic state of integrity, service-orientation, and response to sustainable development that aims to improve the quality of life of its people in the future. Especially in the context of the global fight against COVID-19 pandemic. In this case, the government encourages state employees to be more creative and dare to think. Planning policies for sustainable urban development aiming at improving people's living standards and mitigating environmental pollution needs to comply with national standards and requirements. For sustainable urban development, municipal governments can integrate energy-saving programs and green buildings into urban planning, urban development strategies, etc. to help achieve the criteria of green city and, ecological city. The question is how to develop a sustainable city, an ecological urban area and make a change in the quality of model urban areas, 4.0 areas or smart cities. The paper is to analyze the literature and reality of tectonic government for sustainable urban development in Vietnam and make recommendations to national governments for more sustainable urban development.

## **2. Literature review of tectonic government and sustainable urban development**

### ***2.1. Concept of tectonic government***

"Tectonic government" is a fairly new term in Vietnam but it is not unfamiliar to many countries in the world. However, so far there has not been a unified concept of this phrase. The cognitive and practical process implies that many theoretical issues have arisen from the concept of tectonic government. To build and operate a tectonic government in the context of the internationalization of the economy and specific conditions of Vietnam today, it is important to have an accurate term and understand of the concept. Several scholars in the world have different definitions. Some of them use *Constructive government* in English to imply that the government is constructive in its operation and development. However, according to Bui Dinh Phong (2018) to emphasize flexibility, creativity and adaptability to changes, some other ideas use the phrase *Creative government*. In Vietnam, many scholars agree on the use of the term *developmental government* (Le Quy, 2017) based on the interpretation of scholar Chalmers Johnson (1982) about the development government and developmental state. With "MITI and the Japanese Miracle: The Growth of Industrial Policy 1925-1975", Chalmers Johnson (1982) was the first scholar to initiate and introduce the concept of a state of tectonic development. In particular, the author analyzed the case of Japan in the post-World War II period. From a defeated and severely devastated country with a difficult economy losing all of its colonies, and having poor resources and raw materials for production, high inflation and unemployment, Japan has experienced a spectacular transformation since the 1960s and 1970s to be a country with "miraculous" development to rank second after the US in the capitalist world. This achievement is attributed to the active role of the Japanese State in the orientation, planning and administration of the economy, leading its modernization of the national industry for national

development. Therefore, Johnson called the Japanese state a state of development. This is a model between the free market capitalist economic system and the centrally planned economic system. This "neutral" development model is addressed as "a plan-rational capitalist system" called by Woo-Cumings, characterized by "combining private ownership with state direction" Johnson, Chalmers (1985).

According to Chalmers Johnson (1982), the Regulatory State is the state that governs the economy primarily through state agencies that are empowered to enforce economic regulations to protect the public from market constraints such as monopoly, unfair competition and other forms of market abuse, as well as to provide public services (such as national security, education, public health) that the market cannot do. And the tectonic development state intervenes directly and deeply into the economy through measures to promote the development of new industries, reducing the disturbance caused by changes in investment and interests of new industries. State intervention includes development goal orientation such as industrialization, export orientation and connection with state agencies and private enterprises to achieve those goals (Pham The Anh, Dinh Tuan Minh, 2016). Besides, with an proactive and active role in economic development, the state gives priority to economic development, increased productivity and technological and managerial competitiveness, which is led by an elite group of leaders with leadership management capacity in planning industrial policy and the group is supported by a political system by with necessary freedom of creativity.

In addition, many other scholars also provide other definitions of tectonic development state. For example, David Levi-Faur (2012), a state of tectonic development is a state with power and rational organisation to achieve its development goals. Evans, Peter B. (1995) argued that the tectonic state is the state that has the capacity to design and implement its development goals in an imposing and authoritarian way to create economic growth. The author Eul-Soo Pang (2000) makes the implication of a "hard state" in terms of interfering economic activities by not only adjusting and guiding but also monitoring and controlling the economy. Loriaux, MU Juul (1999) identified the state of tectonic development as a state giving top priority to economic development; to that end, the state actively intervenes in the market, through orientation, rules, coordination, resource allocation and other diverse policy tools.

The United Nations Economic Commission for Africa (UN ECA) and the African Union (AU) define the tectonic development state as a state that "places economic development as the highest goal in its policy and is capable of designing tools to promote that goal" Chang, Ha - Joon (1999).

It can be seen that these views have more or less mentioned aspects of the tectonic government but the expressions have not described the nature, goals, motivations, as well as the structure of this model. Therefore, many other scholars have proposed combining the word "tectonic" to mean tectonic (used in geoscience to describe the process that forms the structure and characteristics of the Earth's crust. and its evolution over time such as:

mountain tectonics, continental core tectonics, etc.) with the word "government" to make *tectonic government* Ta Quang Dong (2016). In which, the word "tectonic" implies the process of construction and operation associated with the Government's characteristics, nature, goals and motivations. Therefore, the word "tectonic government" outlines the process that governs the structure, including inside and outside of the process of building and operating the government. However, the scope and approach of tectonic government varies from country to country depending on time and specific context.

In Vietnam, tectonic government is understood as innovation with new ideas in the process of building and operating the Government. This model firstly reflects the requirements from the reality in building and operating the Government and in the economic and political institutions in particular of Vietnam. Currently, scholars in Vietnam have interpreted in two directions: the development model and the development theory of the tectonic government. If viewed as a development model, the tectonic government has specific entities, tools and organizational forms to realize the development goals of the tectonic government. Especially, if it is a development model, then the government model should always be separated from the issues of political organization. In view of the tectonic government as a development theory, it is necessary to have a system and a common vision that clearly identifies principles and guides thinking in practice. Although viewed in different directions, it is generally the government's proactive intervention in the economy. At the same time, it satisfies the basic characteristics of the tectonic government, including: (1) solutions to the country's financial problems; (2) the government's management function influenced by the private sector and the market; (3) public service delivery being changed: the government has changed from a public service provider to a "monitor" of public service provision; (4) simplified organizational structure, positioning the function of the government "to control the boat, not to row the boat".

Besides, when building and developing a model of tectonic government, it is important to pay attention to factors such as the context of international economic integration and the Technology Revolution 4.0. In particular, the development of each nation cannot be separated from the general trend of the world. This process requires the government to have adaptability with proactive and active inclusion of entities and standards in international relations. Moreover, international integration and globalization also lead to global competition with complicated and unpredictable developments. This creates both opportunities and challenges, while at the same time posing very urgent requirements for the nation. Therefore, it requires the model of tectonic government to follow the direction of innovation in leadership and management in order to improve policy adaptability to national and global changes in advance for fast and sustainable development.

International scholars have pointed out that many countries have been successful thanks to stimulating innovation in the private sector through government policies and strategies to support export in agriculture, or to lower taxes for emerging industries such as renewable energy production. Facing the context of industrial revolution 4.0 spreading to every corner of economic life, governments should play a pioneering role in innovation to

create an ecosystem, a favorable environment for private enterprises to improve labor productivity. The reality shows that the application of artificial intelligence, information technology and the digital platforms has an increasingly profound influence on all aspects of social life as well as the national management process and provision of advanced modern public services. This will bring about a lot of advantages in information sharing, policy dissemination, minimized administrative paperwork as well as time, effort and money saving for private businesses. Tectonic government is a philosophy of development in building and operating a government today. From that philosophy, Vietnam can learn from development models, promote the strengths of the model and at the same time acquire theoretical foundations in management and develop its own theory on the basis of practice.

## ***2.2. Sustainable urban development***

In 1983, upon the recognition that human habitats and the earth's natural resources reached a state of serious degradation, the concept of "sustainable development" emerged in an environmental protection movement. The Brundtland Commission (the Brundtland Commission, the name of the Norwegian Prime Minister) established by the Secretary-General of the United Nations proposed the concept of the term. According to the World Council on Environment and Development (WCED) of the United Nations in the "Our Joint Future" Report of 1987, Sustainable Development is understood to be the ability to meet the needs of today's generation, without affecting the development of future generations, WCED (1987).

The Earth Summit on Environment and Development held in Rio de Janeiro (Brazil) in 1992 and the World Summit on Sustainable Development held in Johannesburg (Republic of South Africa) in 2002 identified sustainable development as a process of development with a close, reasonable and harmonious combination of three aspects of development, including: (i) economic development (most importantly, economic growth); (ii) social development (implementation of social progress, social justice, poverty reduction, job creation); (iii) environmental protection (pollution treatment and remediation, environmental restoration and improvement of environmental quality, fire and deforestation prevention, rational exploitation and economical use of natural resources). Criteria for assessing sustainable development include: (1) stable economic growth; (2) good implementation of social progress and justice; (3) rational exploitation, economical use of natural resources, protection and improvement of living environment quality. Thus, environmental protection is one of the three constituent elements of sustainable development. The problem for every country is that we should not underestimate or overestimate environmental protection or economic and social development, but the policy-making process and legislative regulations; it is important that nations ensure the harmonious development of all three constituents. This is a challenging question not only to less developing countries but also for developed and developing countries.

In Vietnam, the perspective of sustainable development has been affirmed in the Party's guidelines and policies. According to Provision 4, Article 3 of the Law on Environmental Protection 2014, the concept of Sustainable Development is identified as

*“the development that meets current needs without compromising the ability to meet that demand of future generations on the basis of close and harmonious combination of economic growth, ensuring social progress and environmental protection”.*

In the course of history, the concentration of residents in a finite space for trading or exchanging of goods (now called "trade and services") was the phenomenon of "urbanization". This is also an indispensable development step of human society. At the end of the 18th century in England, under the impact of the Industrial Revolution 1.0, the process of urbanization developed strongly and then spread throughout Europe throughout the 19th century and then in the world. According to Christopher Watson (1993), the proportion of the population living in urban areas of more than 20,000 people in England and Wales increased from 17% in 1801 to 54% in 1891. However, with a broader definition of urban areas, the level of urbanization in England and Wales in 1891 was thought to be 72%, compared to 37%, 41%, and 28% in France, Germany and Prussia, and the USA respectively. At the beginning of the 20th century, in the world, people living in urban areas accounted for 15% of the population, but it reached 50% by 2007. According to the Report of the Ministry of Construction of Vietnam (2016), in 1990, the urbanization rate of Vietnam was less than 20%, and 35.7% in 2015, which was actually only 34.4% according to the results of the 2019 Census, while according to World Bank in 2018, the average level of urbanization of the world was 55%. Vietnam's urbanization forecasts are often more optimistic than they actually are.

The urbanization process entails the need for urban infrastructure development including a set of synchronously designed utilities and ecosystem systems. From the standpoint of many scholars today, sustainable urban development means focusing on urban infrastructure based on three pillars: society, economy and environment (within a shared circle of the management system to create a balance) and sustainability is available only when these three pillars must be balanced, not biased, Elkington, J. (1994).

Technically, urban infrastructure includes the ability to provide clean water, energy, transportation, sanitation (collection, transportation and treatment of sewage and waste), information, housing and irrigation system. In addition, it is also about the ecosystem around urban areas with social infrastructure such as parks, schools, hospitals, commercial centers, outdoor play areas for children, and others. Urban infrastructure is the whole healthy and adequate infrastructure for an existing and developing urban population.

Industrialization, modernization, agricultural development, tourism, urbanization, new rural construction, etc. all have negative impacts on the environment and natural conditions. Sustainable urban development is that the quality of human living environment must be ensured when these natural factors are used. It is to ensure the purity of air, water, land, geographic space and landscape. The quality of the above factors should always be valued and regularly evaluated and tested according to national or international standards. Therefore, urban infrastructure will need to be changed to meet long-term factors such as ensuring clean environment, clean air for residents and

environmental protection (El-Diraby, T., Osman, H, 2011). According to Martos, A. et al. (2016), *“a city with efficient and sustainable use of resources can be interpreted as a city being substantially separated from the impacts of resource exploitation and ecosystem-related impacts and it is a long-term economic and social sustainability.”*

With a rapid rate of urbanization, it is expected that by 2050, about two-thirds of the global population will live in cities, thus creating challenges for big cities on issues such as transportation, health, environmental pollution, etc. To solve this problem, policymakers need a vision and strategies to build smart cities in the future.

### **3. Analysis of the recent status and speed of urbanisation in Vietnam**

#### ***3.1. Urbanisation speed in Vietnam***

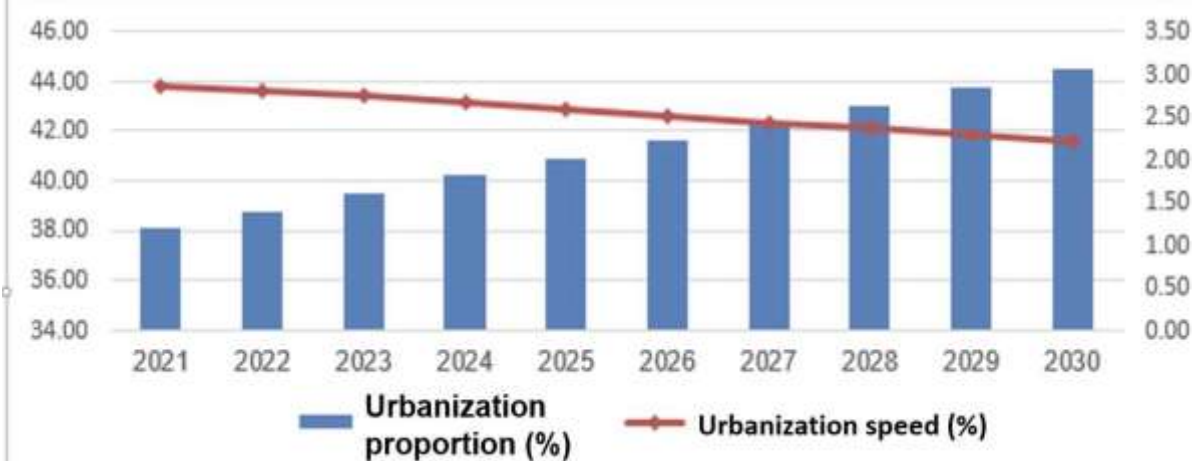
Urbanization is an inevitable process in every country, including Vietnam. However, the process of urbanization in each country also takes place according to different trends or at different speeds because it depends on the conditions and level of socio-economic development in that country. In Vietnam, over the past time, the process of urbanization has taken place strongly in large cities, causing rapid urbanization to spread widely across provinces, regions and the whole country. Many new urban centers and new urban areas have been developed. In addition, many old urban areas have renovated and upgraded their infrastructure. This shows that Vietnamese cities have been paying great attention to their development with the height of modern architecture.

According to the General Statistics Office (2019), as of April 2019, the number of urban centers of the country had increased to 830 (an increase of 11 urban areas compared to 2018) including two special cities of Hanoi and Ho Chi Minh City, 19 urban centers of grade I, 29 urban centers of grade II, 45 urban centers of grade III, 80 urban centers of grade IV and 655 urban centers of grade V. In particular, the urban growth is fastest in the two major cities of Hanoi and Ho Chi Minh City, followed by Hai Phong, Da Nang, and Can Tho. The country's urbanization rate was estimated to reach 40% by the end of 2019. The process of rapid and widespread urbanization in many localities has affected population growth in urban areas. In 2019, the estimated urban population in our country was 33,059,735 people, accounting for 34.4% of the country's population. Since 2009, the proportion of urban population had increased by 4.8 percentage points. Vietnam's population density also increased with 290 people/km<sup>2</sup> (2019). Hanoi and Ho Chi Minh City are the two localities with the highest population density in the country, which is 2,398 people/km<sup>2</sup> and 4,363 people/km<sup>2</sup> respectively.

According to United Nations (2018), the trend of urbanization in Vietnam is and will continue to be expanded to small and medium cities. It is forecasted that cities with 0.75-5 million people will grow faster and make a significant contribution to the country's GDP in the next decade. It is forecasted that in the period of 2021-2030, the urban population will

continue to increase, reaching 42.04 million people in 2025 and 47.25 million people in 2030. The urbanization rate will gradually increase and reach 40.91% in 2025 and 44.45% in 2030. However, the urbanization rate tends to decrease gradually, reaching 2.25% in the 2021-2025 period and 2.5% in the 2021-2030 period (3). Besides, it is forecasted that by 2030, Vietnam will have an urban center of over 10 million people, an urban center of 5-10 million people, and 4 urban centers from 1-5 million people.

**Figure 1: Annual urbanisation proportion and speed in 2021-2030 period (%)**



*Source: Forecast by researchers based on the UN's statistics*

**3.2. Urbanisation status in Vietnam**

Urban areas are places where population concentration and socio-economic development activities take place strongly, especially in big cities like Hanoi and Ho Chi Minh City, where the pace of development is very fast and dominates urban development nationwide. Rapid urbanization has led to many consequences. In the 2016 report on national environmental status - "Urban environment", most of Vietnam's major cities are facing increasing air pollution, including pollution. Air pollution due to dust is still the most prominent issue in urban areas. Localized at some point, NO2 pollution appeared in traffic areas in some big cities such as Hanoi, Ho Chi Minh City, Ha Long City and tended to increase. Currently, people in many urban areas are faced with living together in dust and garbage.

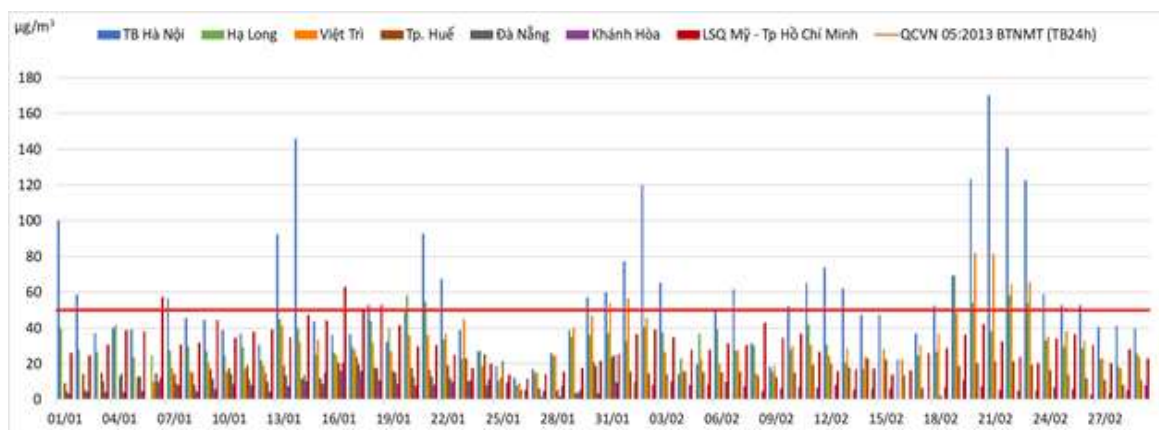
Urban is like a living organism with processes of formation and development. In order to avoid urban degradation, impacts on the quality of people's life require a process of continuous regeneration and rehabilitation. However, in the context of Vietnam, especially in large cities, in reality, a number of factors affect the quality and sustainable development of the city. Most typically, in big cities, renovation projects of urban high-rise buildings and urban upgradation are causing the overload of "infrastructure, generating large amounts of dust into the environment." Moreover, the traffic has grown rapidly but the technical infrastructure has not met the needs; the density of private vehicles is too high, causing traffic congestion; poor quality of vehicles and the growing number of old and expired vehicles result in increased dust and emissions. In addition, pollution of waste comes from daily activities, health care, trade, individual industrial facilities with outdated technology located

in urban areas. Urban environment pollution, especially pollution of the air, water and solid waste causes many impacts on public health, economic losses as well as social problems.

According to Hoang Duong Tung, former Deputy General Director of Vietnam Environment Administration (Ministry of Natural Resources and Environment of Vietnam), the main pollution pressure on the air environment in urban areas is due to transportation activities, construction, operation of urban industrial production facilities, cooking activities, people's daily activities, treatment of garbage and pollution sources in suburban areas, straw firing at the end of the crop, and so on.

Local governments have made great efforts over the years to improve the quality of the environment in some urban areas. For example, the implementation of projects and programs on treatment of urban daily-life wastewater, dredging sewers, clearing and renovating landscapes of inner rivers and lakes has significantly contributed to improving the quality of water environment. In some big cities, namely: The program of collecting and treating waste water from urban centers of grade II or higher in the basins of Cau, Nhue, Day and Dong Nai rivers; Scheme on renovation and upgrading of To Lich river; Investment projects to improve the environment of some canals in Ho Chi Minh City such as Nhieu Loc - Thi Nghe, Tau Hu - Ben Nghe, Doi Te channels, etc. For air environment, some black spots on urban air pollution have also been removed, for example the areas of Hue Junction (Da Nang) and Dau Giay Junction (Dong Nai). However, there are still many urban areas, especially in areas of big cities with socio-economic concentration of the country. Environmental pollution is still a prominent issue, continuing to pose significant challenges to environmental management.

**Figure 2: 24-hour average value of PM2.5 parameters in 6 provinces (1/2/2020 - 24/2/2020)**



*Source: Vietnam Environment Administration (2020)*

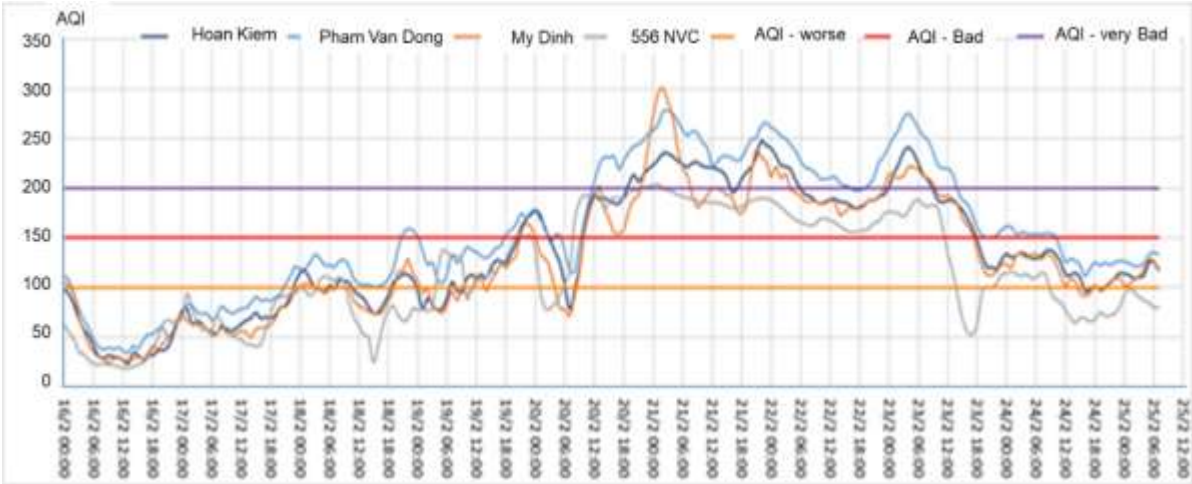
Figure 2 shows the monitoring results of 6 continuous automatic air monitoring stations (in Hanoi, Viet Tri, Ha Long, Hue, Da Nang and Khanh Hoa) managed by the Vietnam Environment Administration. The air pollution is mainly caused by PM2.5 fine dust, the remaining parameters (NO<sub>2</sub>, O<sub>3</sub>, CO, SO<sub>2</sub>) basically still meet Vietnam Standards 05: 2013/BTNMT. In some urban areas of the North (Viet Tri, Hanoi, Ha Long), the 24-hour average value of PM2.5 is higher than other areas, in which Hanoi has the highest value. In



Hanoi, the average 24-hour monitoring value of the stations exceeded the limit according to Vietnamese Standards in 9 days in January, and in 14 days in February (from February 1 to February 24). Viet Tri City also had 6 days in February with average PM2.5 value of 24 hours in excess of the allowed limit. In cities in the central region (Hue, Da Nang, Khanh Hoa), the 24-hour average value of PM2.5 basically still met Vietnamese Standards. Ho Chi Minh city also recorded some days with a 24-hour average value of PM2.5 in excess of Vietnamese standards (January 6 and January 16).

Figure 3 shows AQI hours of 3 days (from 20 - 23/2/2020) with very bad AQI hours (> 200) in many stations. In particular, at My Dinh station (where many apartment complexes are located in the west of Hanoi city), the air quality was at a dangerous level at 2am on February 21, 2020. From February 24 to the end of February 2020, the fog was reduced and the air quality also improved.

**Figure 3: AQI index from February 16 to February 25, 2020**



Source: Vietnam Environment Administration (2020)

It can be noticed that, in the first two months of 2020, the air environment in some major cities in Vietnam continued to be polluted by PM2.5 fine dust, in which, Hanoi capital continues to be the city with the highest PM2.5 dust value. Hanoi and some other cities in the North were still recorded with the concentration of air pollutants, of which PM2.5 is the highest in the year (from September to March). During the holiday period, because the sharp decrease in traffic, industrial and construction activities almost stopped, the air quality was assessed as good. During the middle of February (February 18-24), air quality dropped sharply, and there were days when the assessment was very bad. However, by the end of February, the air quality had improved quite clearly. In March and the coming months, air quality can be improved more than the first months of the year as usual.

According to the 2016 national environmental status report, air pollution caused direct impacts on public health. The proportion of people in large urban areas suffering from diseases related to air pollution was high, and children are the most seriously affected group. Water pollution in urban areas mainly occurs in inner areas, often causing bad odors, affecting people's daily life, damaging urban aesthetics and deteriorating water quality of water intakes.

Meanwhile, solid waste collection, transportation, and storage stations that are not hygienic in many urban areas have been causing negative impacts on people's daily life and damaging municipal aesthetics. In areas with well-developed tourism activities, solid waste pollution makes a bad impression on tourists, reducing the number of tourists.

Moreover, air and water pollution also causes economic losses to people due to the expenses spent on illness treatment and indirect costs due to the loss of labor days to both patients and caregivers. On the state side, the state suffers from economic burdens on the state budget due to its funding for activities to overcome and improve pollution and solid waste collection and treatment that still mainly comes from state subsidies. Sanitation fee contributed by households and production and business establishments is only enough to cover on-site collection.

### ***3.3. The impact of the COVID-19 pandemic on thinking changes in urban planning***

In the last days of 2019 and early 2020, the whole world was shocked by a virus whose spreading and danger level was worse than any other previous diseases. The COVID-19 pandemic was a tremendous shock that hit the economies of all countries around the globe and threatened the health and lives of millions of people. For governments, fighting the COVID-19 pandemic was no different from wartime. In addition to efforts in mobilizing the healthcare industry, adjusting factories' production to producing masks, hand sanitizers, and ventilators, and setting up a system of special care rooms. and on-site hospitals to minimise the number of deaths, governments launched fiscal and monetary policies to save the economy from crisis and being frozen due to blockade orders on a territory-wide scale. Many countries are preparing aids and economic stimulus packages worth trillions of dollars, extending the already abundant debt balance sheets. As of June 3, 2020, nearly 215 countries and territories had more than 6,497,029 cases, and more than 383,798 deaths. The United States became the largest epidemic region in the world, with 1,882,956 cases of COVID-19 and more than 108,194 deaths. In particular, the state of New York was considered the largest epidemic area in the country with a higher number of cases than any other country in the world and nearly half of all deaths in the United States. New York is the country's financial center with the most densely populated population and large number of foreign tourists. Millions of people come into contact with each other on the subway every day, while keeping a distance from public places is extremely difficult on crowded streets. In addition, each year New York receives more than 60 million visitors and is also their starting point when arriving in the US. That means that New Yorkers are the first susceptible to diseases by any tourist who brings COVID-19 from elsewhere.

Urban areas with high population density are also the main cause of the spread of COVID-19. Typically, the tiny island nation of Singapore, as of June 3, 2020 across the country had 34,884 cases positive for corona virus, 80% of whom were foreign workers living in cramped apartment complexes and at high risk of infection. There are more than 200,000 migrant workers from Bangladesh, India and other Asian countries working in Singapore. The crowded dormitories of migrant workers are the "blind spots" in the war

against the pandemic in Singapore. While extensive traceability, isolation and testing measures help Singapore minimize the number of infections among its residents, low-income immigrant labor communities which seem to be the weakest link are ignored. Thousands of new cases have been recorded in these crowded and crowded dormitories and believed to be signs that the disease could have spread for weeks without being detected. Therefore, Singapore conducts increased testing in areas where foreign workers are concentrated and continues to tighten blockade measures there.

During the evolution, survival and adaptation of modern humans, nature is something inseparable. In the history of architecture, ancient cities and sustainable lifestyles were all associated with nature and co-existent to develop. Modern humans evolved very similarly to the architectural forms associated with today's lifestyles in such a short period compared to the existence of nature. Therefore, even without the current pandemic COVID-19 (or the worst Spanish flu epidemic in history), good enough and sustainable living spaces that can help people overcome isolation or quarantine periods should be associated with nature. Open, friendly, psychologically and physically sustainable living spaces with self-sufficient food would be ideal. Where architecture can coexist and be associated with natural conditions with qualified light, trees, and fresh air will help us easily overcome the isolation period as today.

According to urban planning experts, the COVID-19 acute respiratory infection epidemic, which is spreading worldwide, may force many authorities to seriously consider such factors as population density and technology, food security and housing. In addition, countermeasures such as tightening border controls, imposing travel bans, blocking many cities, and promoting scrutiny using artificial intelligence-assisted technologies will also be used.

It is widely believed that that robots, drones, and big data will become fixed elements in future urban planning, helping to detect potential problems early such as diseases. These technologies will become the permanent elements of future urban planning, helping to detect potential problems early, thereby making them more responsive. In fact, countries including China, South Korea and Singapore are using robots, unmanned aircraft, and big data to track disease outbreaks, to disinfect hospitals and to deliver supplies. .

In addition, the traditional market management trend after the COVID-19 outbreak will be tighter in the future, especially in Asian countries such as China, Vietnam, Thailand, etc. As coronavirus causes diseases that can be transmitted from animals to humans, the rate of deforestation and rapid urbanization are the key factors promoting the spread of diseases in Asia. Besides, the strategic land fund for the construction of health facilities or temporary houses when necessary should also be considered by planners. In February 2020, China had to urgently build 16 on-site hospitals in the city of Wuhan so as to treat the growing number of patients at the time of the peak of the epidemic. The government of Hong Kong (China) has also requisitioned many community housing areas as isolation facilities, while officials in Genoa and Italy have also used a large ferry as an on-site hospital.

It can be said that this is not the first time an epidemic has led to changes in urban planning. In the history of world epidemics, cholera outbreaks in the 1830s led to better sewage treatment solutions in London (England) as well as many other cities, while tuberculosis in New York in the early 20th century paved the way for the improvement of public transportation systems and housing regulations.

In 2003, the SARS acute respiratory infection had the strongest impact on Hong Kong (China) or Singapore, which caused Singapore to realize the need to upgrade medical infrastructure and building disease tracing systems.

According to researcher Annie Wilkinson, from the British Development Research Institute, diseases have historically acted as catalysts to make changes in how to cope with diseases, especially in urban areas. More sensible population densities, application of more intelligent technologies and data to track global health trends will be further considered. At the same time, community involvement is a key element in effective disease control, transmission of reliable information, conducting surveys or restricting travel.

The COVID-19 pandemic will likely lead to changes in design thinking and urban planning. According to the UN's forecast, by 2050, more than 65% of the world's population will live in urban areas, higher than the current 56%. Therefore, in the future, urban planners will have to focus on the impact of the widening gap between the rich and poor, when millions of homeless people who live in slums are at higher risks of infection. The ability to achieve long-term changes in urban planning will depend on the improvement in the way people see, understand and evaluate the health and living conditions of this group.

#### **4. A number of recommendations and solutions for the tectonic government in sustainable urban development in response to the COVID-19 pandemic**

On the way of building the tectonic government, Vietnam has many advantages but also faces many difficulties and challenges; there are important factors that cannot be ignored such as economic and geopolitical factors and the time of economic development in the world. The key issue is to be aware of the role and function of the government in leading and evoking economic participants towards sustainable development. It is important to gradually improve capacity to ensure better performance of their roles and functions in the context of market economy development. It is because without a valid government, there cannot be a sustainable development country. The COVID-19 pandemic is a major event of the whole society affecting every aspect of life in the world and urban planning is also affected by the pandemic. This influence will also have a minor impact on the government's sustainable urban development policies and changes in planning thinking. The first change will be in the architectural designs of health facilities and public works on a large scale, where the function of the buildings can be interchangeable and flexible to different situations. Hereunder are a number of recommendations to promote the tectonic government's role in planning towards sustainable urban development in the context of the COVID-19 pandemic raging in the world and in Vietnam:

*Firstly*, a political system operates effectively led by leaders with high political determination and a consistent, feasible development vision and an effective, independent, autonomous, fully competent administrative apparatus without being dominated by group interests. In order to do so, along with building and improving the civil servants' capacity, it is necessary to set up and perfect the mechanism of controlling power internally and externally, to respect and ensure people's freedom and democracy, to build trust and gain advocacy among people. The government allows the establishment of supporting organizations, as a separate legal entity to encourage citizens to actively participate in the government's decision-making and management and to create conditions for citizens to have opportunities and responsibility in managing their community.

*Secondly*, the tectonic government of integrity should develop a specific quantitative system for service evaluation in order to streamline the work efficiency of civil servants and public employees; avoid subjective and unquantitative evaluation as today. This is an extremely important link in developing civil servants with good political quality, solid expertise, ability to coordinate and handle situations, especially with awareness of "serving" people and society. In that quantitative evaluation system, it is essential that all ministries, sectors as well as local authorities at all levels organize psychological evaluations when interviewing and recruiting staff. At the same time, incumbent officials will also have to go through psychological evaluations and counseling to help them improve their service. The psychological evaluation method will support recruitment and staffing, as it can help assess the ability to complete tasks based on the personality of each individual. On the other hand, psychological evaluation can also assist the "people's servants" to adjust their emotions, personalities and behaviors during their professional operations.

*Thirdly*, it is significant to build close relationships with the private sector, creating an environment with favorable conditions for businesses to develop together, increase competitiveness in the domestic and international markets, and at the same time have strict mechanisms of preferences, rational reward - punishment, develop accountability for successful, creative businesses in production and business as well as businesses that suffer from losses, and commit corruption, negatively affecting development. Urban development projects should be: urban residential development projects and infrastructure development projects. On a case-by-case basis, partners with sufficient financial and technical capabilities can be assigned to implement. These projects are required to ensure the quality of urban environment and to satisfy interest groups involved in development. Urban residential development projects are classified into two categories: New urban development projects associated with industrial and economic zones and existing residential redevelopment projects.

*Fourthly*, it is important to ensure accountability, openness and transparency of state activities, especially in human resource management, local land planning, financial management and responsibility of the state-owned enterprises, to avoid the situation that enterprises violate the law and may cause great losses to the country while competent authorities and powerful entities refuse responsibility and do not receive any punishment.

*Fifth*, it is essential to complete intervention methods suitable to the market. Accordingly, the state needs to solve the state - the market - society partnership, respect the rules of the market, change its functions from management, governance to regulation, serving the market and society, creating conditions and frameworks that encourage development instead of directly interfering with production and business activities, but focusing on macroeconomic management, building institutions for development and overcoming market failure.

*Sixthly*, granting permits for conversion of land use functions, compensation for site clearance and construction of architectural works is highly important. To limit uncontrolled land use, private investment licenses are strictly censored. Areas where feasible projects have been prepared with 1/500 planning are subject to mandatory land use regulations. Regulations on urban technical design allow for more flexibility but compliance with the standards and regulations of the general urban planning. The local municipal government implements items in the approved plan of decentralized state management. Road infrastructure with at least 4 lanes and projects on renovation and upgrading of urban residential areas of at least 50 ha shall be carried out by provincial authorities.

*Seventhly*, state agencies of planning and management should review cities across the country. Poor quality buildings or asynchronous infrastructure in urban areas need to be repaired, expanded and upgraded. For high-rise condominiums in urban areas, there are potential risks of safety because residents share public utilities which are full of and can also disperse risks. With the current living conditions of high-density apartments (especially in Hanoi or Ho Chi Minh City) at the time of this pandemic, shared living space will result in potential, hidden risks of disease spreading and outbreaks. However, we can still control and prepare for these situations when the design standards applied to the type of apartment building are accurately estimated, ensuring comfort and safety in medical emergency. The open space architecture is a basic need for human communication as well as creating the necessary social and cultural cohesion, so there is no distinction before or after a pandemic. Obviously, we need to breathe air no matter how polluted it is, and the problem is not how we stop breathing, but how we improve the air quality. Therefore, when approving urban construction projects, it is necessary to pay attention to economic, social, technical infrastructure, environment and natural conditions (topography, geology, hydrology and meteorology). In particular, it is important to prioritize and encourage projects with many trees and ecological balance to ensure the principles such as:

- Regarding spatial organization in the master plan to help mankind cope with the situation of long-term self-isolation by epidemics and bring nature close to humans: it is significant to respect nature and live with harmony with nature in order to help soften the "rough" aspects of an urban setting filled with buildings. Urban planning ought to create green spaces and water surface harmoniously between urban environment and nature, connection between separate architectural works and the common green space of each area and each functional area. The planning of lawns, lakes, shady trees combined with natural ventilation is an effective measure to minimize the "heat island" effect in urban areas. It is important to provide concentrated green areas, vegetation in areas that are less favorable for

construction. The percentage of land for green space should reach from 25 to 40% of the total land area, depending on the area, including public trees, trees in separate houses, trees planted on the sidewalk, lawns, etc. Each newly built dwelling unit must have at least one flower garden (possibly combined with outdoor sports grounds and community areas) to serve the whole unit with a minimum scale of is 5,000m<sup>2</sup> (according to QCXDVN 01: 2008 / BXD). Green spaces need to be connected to public spaces to create spaces for the urban residents' needs for rest, recreation, physical training, communication and other activities. It is necessary to apply automatic irrigation technology to save water and reuse rainwater and treated domestic wastewater to irrigate plants, wash roads, etc. Currently, large public areas are still meant to be used in cases of natural disasters or wars, but how they can be used for medical epidemics has not been considered specifically. For a predictive description of the design changes of these buildings, one can imagine the design of flexible removable modules in the interior space. Material technology and intelligent control in buildings also need to be emphasized.

- It is critical to have planning of circulation to ensure maximum time savings and travel expenses between different functional areas in the urban area. Urban service works serving residential units (schools, markets, parks, etc.) need to be within a radius of not more than 500m - 1000m so people can walk, ride bicycles, or use public transportation. Besides, trees should also be planted on both sides of the road for shading purposes. Internal roads in a particular area should have trees combined with green vegetation connecting roads and construction works. Travel by motorbikes and personal cars should be minimized. It is necessary to plan roads for pedestrians and non-polluting vehicles such as buses using clean fuels, bicycles, electric bicycles, etc. Information technology and other advanced technologies should be applied in building a smart traffic system to operate, manage traffic, provide traffic information for vehicle users, and control emission sources from vehicles.

- Regarding the planning of water drainage systems: it is necessary to select technological solutions to wastewater to save energy, operating costs and environmental sanitation. It is possible to make the most of the natural and artificial system of ponds and lakes, build a regulating lake for natural landscapes, ecological environment, and a reserve water source for environmental sanitation and plant watering. This will save and reduce the loss of clean water for domestic use.

However, it is difficult to do this in urban areas because it is a crowded place with a very dense population, and the infrastructure is always overloaded. Moreover, the cost of these types of works is often more expensive and sometimes conflicts with the investor's and user's economic interest. It is difficult to create perfect works meeting sustainability criteria such as the creation of complete subsistence modules, but we can gradually create more quality and sustainable living environments by changing people's perceptions right at the commence of constructions. In order for popularity of the sustainability features of architecture in the future, there is no other way than to enhance communication and awareness about the essentials and benefits of sustainability that impact on the lives of every person today as well as for future generations. It is not only in design or architecture, but also in everyone's lifestyle.

## 5. Discussion and Conclusion

Under the world context with extremely rapid and unexpected changes causing many positive and negative effects on all countries, especially developing countries, including Vietnam, it is important to be very flexible to adapt and integrate while ensuring integrity and principles so as not to lose oneself, and not to fall further behind than other countries. To do this, there is no other way that the whole society has to transform, in which civil servants are the central element of the reform. If the "direct service provider" team understands the necessity of the administrative reform, each of their actions will be a "brick" in the process of creating and developing the government. The government encourages civil servants to innovate and dare to think. At the same time, it is necessary to limit possible failures such as irrational vision, politically imposed will, disrespect of market rules, and delays and cumbersome procedures, impacts by interests of certain groups that dominate, manipulate, corrupt the organization and individual leaders, and minimize the role of the state and the political system.

In particular, the planning of policies for sustainable urban development aiming at improving people's quality of life and mitigating environmental pollution need to comply with national standards and standards. Besides, it is possible to integrate energy-saving programs, Green Building into urban planning, and development strategies to help achieve the criteria of green cities and eco-cities. Sustainable urban development or eco-urban is a new concept and if applied widely in Vietnam it will create a significant change in the quality of urban planning. Since then, it is recommended that manufacturers comply with green standards and processes, and then there comes the development of green technology industries and green materials in order to completely improve the sustainability factors for economic development, natural resources and the environment for generations to come.

## 6. References

1. Báo cáo Bộ Xây Dựng (2016), *Tổng kết thi hành pháp luật về quản lý phát triển đô thị ở Việt Nam. [Ministry of Construction report on Execution of legislation on urban development management of Vietnam]*
2. Chang, Ha.-Joon (1999), *"The Economic Theory of the Developmental State"*, Cornell University Press.
3. Christopher Watson (1993). K.B. Wildey; Wm H. Robinson, eds. Trends in urbanisation. Proceedings of the First International Conference on Urban Pests. CiteSeerX 10.1.1.522.7409.
4. Evans, Peter B. (1995), *"Embedded Autonomy: States and Industrial Transformation"*, Princeton. Princeton University Press.
5. El-Diraby, T., Osman, H., (2011), *A domain ontology for construction concepts in urban infrastructure products*, Autom, Constr. 20 (8), 1120-1132.
6. Johnson, Chalmers (1982), *MITI and the Japanese Miracle: The Growth of Industrial Policy 1925-1975*, Stanford University Press.



7. Jonhson, Chalmers (1985), *"Political institutions and economic performance: The government-business relationship in Japan, South Korea and Taiwan"*, Asian Economic Development: Present and Future, pp. 73-89.
8. Johnson, Chalmers (1999), *"The Developmental State: Odyssey of A Concept"*, Cornell University Press.
9. Martos, A. và cộng sự (2016), *"Towards successful environmental performance of sustainable cities: intervening sectors"*, A review, Renewable Sustainable Energy Rev. 57, 479-495.
10. Levi-Faur, David (2012), *States Making & Market Building for the Global South: The Developmental State vs. The Regulatory State?*, accessed, from <http://regulation.huji.ac.il/papers/jp44.pdf>.
11. Loriaux, MU Juul (1999), *"The French Developmental State as Myth and Moral Ambition"*, Cornell University Press.
12. Luật bảo vệ môi trường năm 2014, khoản 4, Điều 3. [Law on Environmental Protection 2014, provision 4, article 3]
13. Pang, Eul-Soo (2000), "The Financial Crisis of 1997-1998 and the End of the Asian Developmental State", *Contemporary South East Asia*. 22 (3), pp. 570-593.
14. Phạm Thế Anh, Đinh Tuấn Minh (2016), *Từ Nhà nước điều hành sang Nhà nước kiến tạo phát triển*, NXB Tri Thức, Hà Nội. [From regulating state to tectonic development state, Knowledge Publisher, Hanoi]
15. QĐ 1393/QĐ-TTg Chiến lược phát triển xanh, ngày 25.09.2012. [Decision 1393/QĐ-TTg. Green development strategy dated 25/09/2012]
16. Rami Nazer, Mona Abou Hana, Bruno Lanvin, Hiba Darwish (2018), *Inspire and Orchestrate: Innovation-Driven Government*, World Gouvenement summit, Editor^Editors.
17. Tổng cục môi trường (2020), *"Chất lượng môi trường không khí tại một số đô thị trong tháng 1 - 2 năm 2020"*, trang website của Cổng thông tin quan trắc môi trường, Tổng cục môi trường, truy cập ngày 01/6/2020, [http://vea.gov.vn/detail?\\$id=340](http://vea.gov.vn/detail?$id=340). [Vietnam Environment Administration (2020. "Air quality in some urban areas in January and February 2020", available at [http://vea.gov.vn/detail?\\$id=340](http://vea.gov.vn/detail?$id=340)]
18. WCED (1987), *Our common future. In: World Commission on Environment and Development*. Oxford University Press, Oxford.

# RESEARCH ON ROAD MAINTENANCE CAPITAL MANAGEMENT IN NINH BINH PROVINCE, VIETNAM

*PhD. Bui Thi Hoang Lan*

*lanbh@neu.edu.vn*

*Faculty of Environmental, Climate Change and Urban Studies,  
National Economics University*

## **Abstract**

*Effectively using Road Maintenance Fund, ensuring the publicity and transparency are the important objects in the road maintenance. For past five years, the exploitation and maintenance activities of road have achieved many objective results, especially in capital mobilization. However, due to the lack of regular maintenance capital, the capital mobilization faces a lot of difficulties. Basically, it only meets the essential requirements for ensuring the safe and smooth traffic without the prevention of the works' degradation. In terms of periodic repair, only seriously broken positions are given priority for repair (local nature, thorough solution can't be reached), the periodic repair volume has not been fully implemented in accordance with regulations. As a result, the arrangement and allocation of expenses from Road Maintenance Fund should be researched accordingly and accurately compared to the actual requirements in order to improve the efficiency of capital use from Road Maintenance Fund.*

**Key words:** *Road maintenance, maintenance capital, capital management, road, Ninh Binh province.*

## **1. Introduction**

*Road maintenance* is the assembly of tasks to ensure and maintain the normal operation and safety of the works in accordance with regulations of design during the process of exploitation and use. Those tasks include: checking, observation, quality accreditation, maintenance and repair of road construction works, excluding activities that change the performance and scale of the construction works.

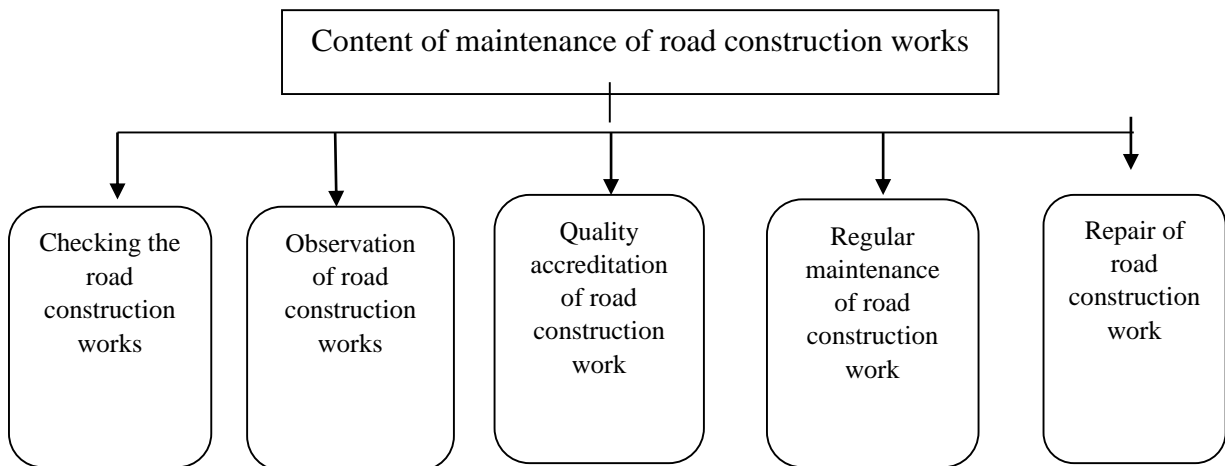
Thus, the road maintenance is the mandatory assurance in accordance with law on the quality to maintain the force bearing capacity, aesthetics; to maintain the use or operation of apparatus, construction work items which have operated under time and required by the design unit to be repaired, changes, restore, ensure the shelf life and operation safety.

The road maintenance requires large fund investment, long time of withdrawal, many risks during the investment process, revenues usually calculated by domestic currency, so the specific policies should be built in comparison with the investment in other economic sectors to attract fund investment.

## 2. Results

### 2.1. Contents of road maintenance

The road maintenance should be carried out in accordance with regulations on maintenance, norms, and technical standards on maintenance. The scale of maintenance shall decide the scale, requirement level of fund for this activity. Therefore, the content of road maintenance include the tasks such as: checking, observation, quality accreditation, maintenance and repair of road construction works, excluding activities that change the performance and scale of the construction works. In details:



**Figure 1. Contents of road maintenance**

*Source: Bui Manh Hung, Bui Ngoc Toan (2012), management of resources of work construction investment project, Construction Publisher, Hanoi.*

### 2.2. Management of road maintenance capital in Ninh Binh Province

#### 2.2.1. Regular road maintenance capital

*The regular road maintenance capital is very low, about 30%-40% of actual demand.*

From 2015 to 2019, the regular road maintenance capital is averagely about 32-35 mil/km/year.

- Local non-business economic capital: Based on the decision on assigning norms of eco-social development and estimate of State budget made by the provincial People's Committee, Department of Transportation assigned norms of plan on regular road maintenance for two Transportation Management Units. The specified figures from 2015 to 2019 are as follows:

**Table 1. Assigned norms of plan on regular road maintenance in Ninh Binh province**

No.	Item	Length of managed road	Expense (mil. VND)	Maintenance capital of 1 km road/year
<b>Year 2015</b>				
	Regular maintenance	<b>267.14</b>	<b>8,751.2</b>	<b>32.75</b>
1	Transportation Management Unit No. 1	139.8	4,251.5	30.41
2	Transportation Management Unit No. 2	127.34	4,499.7	35.33
<b>Year 2016</b>				
	Regular maintenance	<b>267.14</b>	<b>8,852.6</b>	<b>33.12</b>
1	Transportation Management Unit No. 1	139.8	4,351.5	31.12
2	Transportation Management Unit No. 2	127.34	4,501.1	33.71
<b>Year 2017</b>				
	Regular maintenance	<b>267.14</b>	<b>8,295.7</b>	<b>31.05</b>
1	Transportation Management Unit No. 1	139.8	4,225.6	29.56
2	Transportation Management Unit No. 2	127.34	4,070.1	31.64
<b>Year 2018</b>				
	Regular maintenance	<b>267.14</b>	<b>9,246.8</b>	<b>34.6</b>
1	Transportation Management Unit No. 1	139.8	4,823.5	34.4
2	Transportation Management Unit No. 2	127.34	3,723.3	34.8
<b>Year 2019</b>				
	Regular maintenance	<b>267.14</b>	<b>9,246.8</b>	<b>35.9</b>
1	Transportation Management Unit No. 1	139.8	5,004.8	35.8
2	Transportation Management Unit No. 2	127.34	4,596.9	36.1

*Source: Plan on regular road maintenance from 2015 to 2019 in Ninh Binh province*

From the above table, we can see that the annually regular road maintenance capital is low. In fact, this capital only meets about 30-40% of actual maintenance demand. Therefore, when applying it, the units failed to fully comply with standards and norms on regular road maintenance which resulted in the unsecured quality of regular maintenance.

At the same time, the Transportation Management Units were assigned to implement the annual regular maintenance by Department of Transportation under the managed routes. As a result, the Transportation Management Units were always in passive state, lack of inquiry, having no method for enhancing the product quality and competitiveness for units.

### 2.2.2. Periodic road repair capital

The periodic road repair capital is still limited, only meeting about 50% of actual repair demand.

From 2015 to 2019, the periodic road repair capital is averagely 99-135 mil/km/year and 5-6 mil/km/year for highway and provincial road, respectively.

The specific figures over the years are as follows:

**Table 2. Plan on periodic road repair fund in Ninh Binh Province**

*Unit: million VND*

No.	Type of road	Number of km road managed	Capital plan	Invested periodic road repair capital for 1 km /year
<b>I</b>	<b>2015</b>			
1	Highway	183.73	18,237	99.25
2	Provincial road	267.4	14,673	5.4
<b>II</b>	<b>2016</b>			
1	Highway	183.73	20,558	111.89
2	Provincial road	267.4	14,599	5.38
<b>III</b>	<b>2017</b>			
1	Highway	183.73	21,554	117.31
2	Provincial road	267.4	15,450	5.73
<b>IV</b>	<b>2018</b>			
1	Highway	183.73	22,734	123.73
2	Provincial road	267.4	16,120	5.99
<b>V</b>	<b>2019</b>			
1	Highway	183.73	24,865	135.33
2	Provincial road	267.4	17,765	6.65

*Source: Plan on periodic road repair from 2015 to 2019 in Ninh Binh Province*

The expense for periodic highway repair from 2015 to 2019 considerably increases from 99 mil/km to 135mil/km. However, the invested expense for periodic repair is still low, so the repair has been applied in some main tasks (road pavement repair without enhancing the force-bearing capacity of pavement and base), many bridge road works seriously degrade after many years due to lack of maintenance capital of the State.

### *2.2.3. Capital funded for unexpected repair*

The capital funded for unexpected repair mainly for make the storm consequences. Generally, the annual amount for this is not much, too small to meet the actual demand, causing many difficulties for maintenance and management, moreover, overloaded number of vehicles operating more and more resulting in damage to the road, unsafe traffic, negatively affecting the people's travel every day.

Due to very small capital funded for road maintenance every year compared to the capital planned for capital construction, therefore, due attention has not been given to the management of road maintenance capital, the Department is focusing mainly on management of construction capital. The road maintenance capital allocation is based mainly on the proposal by the transportation management unit, the management of road maintenance has not been good due to very few officers in charge of road maintenance, most of them are dual role employees.

## ***2.3. Results of road maintenance capital management in Ninh Binh Province***

### *2.3.1. General results*

The collection and payment of road fee from the automobile going through inspection stations based on the reports made by Vietnam Register and notice from the State Treasure. The State has not to fund big amount for the toll collection staff as it had to do before establishment of the Fund.

As a first step the operation of the Central Fund has been closely managed. Quarterly, the Central Fund Council holds a meeting to review the duties fulfilled in the quarter and direction, tasks to be completed in the next quarter. The capital use from the Fund has been regularly inspected and continuously with a view to minimizing the irregularities, loss of road maintenance capital.

The dissemination of information relating to collection - payment of road maintenance Fund to the units, fee payers who use the road and people have been organized in comprehensive manner, most of fee payers advocated this measure, strictly complying with this guideline, policy issued by the State.

The establishment and completion of the Fund management institution has been gradually completed; the coordination among the agencies assigned to manage, use the capital from the road maintenance Fund has come into play, well serving the road maintenance.

The establishment of payment plan in proactive and flexible manner has helped the direction of the Central Fund basically meet the actual demand on road maintenance and repair, facilitating the Directorate for Roads of Vietnam and localities to make good the storm consequences, ensuring safe transportation and settle other urgent works relating to road repair, maintenance.

Capital allocation plan from Central Fund to Local Fund has basically complied with all regulations. In 2015, 2016, 2017, 2018 and 2019, State Audit and Inspectors from the

Ministry of Finance have audited and inspected the Fund collection and payment and the Fund has been evaluated as effective and in compliance with applicable regulations.

### 2.3.2. Results gained from the Local road maintenance fund

Regarding capital: After 05 years of operation, step by step the Local road maintenance fund has been operated in stable manner, the annual amount paid for maintenance and other works in relation to the maintenance increases many times, particularly:

**Table 3. Payment from Local road maintenance fund in Ninh Binh Province**

*Unit: billion dong*

No.	Item	2015	2016	2017	2018	2019
<b>I</b>	<b>Payment from Local fund</b>	<b>23,530</b>	<b>44,746</b>	<b>51,828</b>	<b>59,493</b>	<b>63,817</b>
	- Payment for road maintenance	20,403	42,177	48,189	58,423	61,863
	- Other payment	3,127	2,569	3,639	1,070	1,954
<b>II</b>	<b>Forwarded to next year</b>	0,567	0,978	0,299	0,476	0,140
	<b>Ratio of payment in the years (%)</b>		<b>90.1</b>	<b>15.8</b>	<b>14.7</b>	<b>7.2</b>

*Source: Final payment settlement of Road Maintenance Fund in Ninh Binh province, 2015 - 2019*

Annually, the Central Fund Council makes the plan for fund allocation as 35% from the Central Fund to Ninh Binh road maintenance fund. Ninh Binh province has effectively used this fund and local budget for concentrative repairing the long-time damaged sections of road, hardenization of many sections of soil roads, consolidation and extension of many routes, repairing many bridges, guard rails, culverts and ditches, treatment of many spillways...contributing its part to eco-social development, ensuring safety for the people and promoting the road maintenance fund to come into play. After 05 years, the road maintenance fund of Ninh Binh province has gained following results:

- Regular maintenance and road repair:
  - Treated weak bridges: 05 bridges
  - Treated dangerous sections: 35 sections
  - Supplemented, replaced road signs: 1,850 signs
  - Built, repaired guard rails, retaining walls: 1,000m
  - Repaired and innovated water drainage system: 1,000m of culvert & 7,500m of ditches
  - Repaired pavement: 1,300,000m<sup>2</sup>
- Inspecting roads: previously, the roads have been inspected by observation and using simple tools and equipment but now the inspection has been supported with the software GovOne, bridge inspection car has been used in plot with the guidance and participation of the experts.

The inspection of work quality: The road maintenance fund has helped inspect 09 bridges on the provincial roads. At present, 02 bridges on the highway, which was authorized to manage, are being inspected.

Further, over the last 05 years the corrective actions for natural calamity, flood, storm, ensuring safe transportation, due attention and priority have been given by Central Road Maintenance Fund Council to Ninh Binh. Although the fund allocated to Ninh Binh was not as much as needed to make good the natural calamity, from 2013 to 2017 Ninh Binh Road Maintenance Fund Council carried out 02 projects for making good the consequences caused by storm and flood in Gia Vien district and Yen Khanh district, Thus, the capital allocated from the Road Maintenance Fund has contributed significant contribution for treatment of many urgent problems in order to ensure safety for people and the political-social works of national meaning to reach the target set by Party and Government.

Annual results as follows:

**Table 4. Results from Local road maintenance fund in Ninh Binh Province**

2015	2016	2017	2018	2019
Repaired 17 local road sections, including: -15 provincial road sections; -02 district road sections;	Repaired 19 local road sections, including: -17 provincial road sections; -02 district road sections;	Repaired 17 local road sections, including: -14 provincial road sections; -03 district road sections;	Repaired 17 local road sections, including: -15 provincial road sections; -02 district road sections;	Repaired 15 local road sections, including: -13 provincial road sections; -02 district road sections;

*Source: Final payment settlement of Road Maintenance Fund in Ninh Binh province, 2015 - 2019*

### 2.3.3. Difficulties in management and use of road maintenance capital

- *Difficulty in mechanism*

As stated above, the capital for technical infrastructure maintenance in general and road system in particular is mainly from State budget, therefore there are some difficulties in capital management and use as follows:

- The competent authorities have given due attention to the legal documents relating to road management, maintenance, improvement such as making, adjustment, supplementation to such legal documents, however, this has not been made in comprehensive manner;

- The authority delegation, responsibility allocation by the relating agencies are still in overlapped way. At present, there are many agencies in charge of managing a road section or a road section;



- Road management, maintenance process, economic-technical norm system have been issued for a long time, technologically backward;

- Capital allocation by the competent authorities have been made for each specific field, capital allocated for which field will be used only for such field. In case the road management units want to transfer such capital to other field, they have to submit application for estimation approval, causing delay in plan making, maintenance implementation;

- Final payment settlement is inspected and approved by the Department of Transport, however, over the year this was processed very slowly, at least after 03 years.

- *Difficulty in capital*

- The capital allocated for road maintenance, improvement is not adequate, cannot meet the needs. Therefore, every year the road management units maintain and improve the roads in the way repairing which is in damage only not regularly and periodically or plan for repair, overhaul on due date cannot be made as regulated due to insufficient capital.

- The mobilization of private capital for maintenance has been made by Ninh Binh People's Committee and related departments but it is not with high ratio.

- In the beginning of every year, the estimation applying for maintenance expenditure made by the units for the whole year has not classified and estimated for each certain section of road but for the whole road system, that means a road which has been put into use for many years with much damage and a new road have the same maintenance estimation. This resulted in the fact that a section of damaged road has no adequate capital for repair but it cannot know how to disburse the capital allocated for other section of road which is not damaged.

- The road maintenance over the years is carried out mainly with two methods: order and job allocation. The nature of selecting contractors relating to these two methods is contractor nomination, therefore, there is no competition, attracting many different qualified contractors. This may be the biggest shortcoming of the capital management and use for road maintenance in Ninh Binh today.

- The order is made every month based on the damaged sections of road determined at site. In fact, this determination is based mainly on the supervisor and contractor without proper and scientific assessment.

- The acceptance, evaluation of the work quality carried out by the contractor every month are also mainly based on the supervisors. As a result, the supervision, acceptance are not synchronized and comprehensive among the fields in the same management unit as well as among management units.

- At present, the management units and inspection agency consider the maintenance and repair as an investment project so it costs time to approve or carry out the repair not in timely manner, squandering time and money.

- Management skill is not the same in the units: some units have many employees with high experience while others, which have just been established, have few employees without experience.

## ***2.4. Limitation, shortcoming of road maintenance capital management in Ninh Binh Province***

### *2.4.1. General limitation, shortcoming of road maintenance capital management*

Beside the achievements there are still some limitation and shortcoming in need of corrective actions, as follows:

- There is no criteria, principles for capital allocation from the maintenance Fund and factors affecting the management and use of the Fund in public and apparent way, allocated to the right unit, minimizing contingency, in the context that capital is limited, cannot meet the needs.

- The plan of capital distribution from the Central Fund to Local Fund in the first step complies with the legal regulations but it should be more concrete and flexible. It should be studied further to have criteria for road maintenance fund allocation to be more accurate, suitable and apparent.

- Legal systems relating to the road maintenance Fund are not comprehensive and synchronized, causing difficulties to the operation of the Fund. There is change in the policy in relation to the Fund (Law on fee and charge, Decree No.120/2016/ND-CP providing guidance on implementation of the Law on fee and charge, Decree No.59/2015/ND-CP relating to construction investment management...) which caused the change in the operation of the Fund, the fact that some agencies, units who have not understood the nature of the road maintenance Fund and its target as regulated by National Assembly, Government as specified in the Law on Transport 2008 also caused difficulties to the operation of the Fund in respect of coordination and implementation. Previously, after collecting road maintenance fee the Register Center transferred it to the Central Fund's account at State Budget and then the Fund made payment based on the plans approved. From 01/01/2018 the road maintenance fee collected will be transferred to State Budget as considered as central budget. The payment plans are approved by the Ministry of Finance in compliance with the regulations on State budget management. Thus, from 2018 the annual maintenance plan will be approved after capital allocation by the Ministry of Finance, after the year-end meeting of the National Assembly. This regulation has limited the initiative in the road maintenance, affecting the efficiency of the Fund operation.

- The application of science and technology in road maintenance has made progress as increasing capital, however, it is still limitation, slow innovation. It is in need to find synchronized solutions to strengthen the application of science and technology in road maintenance.

- Human resource for road maintenance is insufficient and limitation in qualifications and capacity. Therefore, enhancement of the human resource quality is one of the urgent tasks of the road sector.

- Inspection and supervision of the Fund management and use must be more closely strengthened.
- Continue to complete the institution relating to road maintenance to be more suitable to the innovation process. For example, it is in need to have clearer legal frame when using PBC contract for the road maintenance; regulations on road maintenance management board.
- Further, there are some shortcomings and limitations as follows:
  - There is no mechanism for closely supervising the capital allocated by Central Fund to the Local Fund, facilitating the local funds to well manage the capital from the Central Fund.
  - Job allocation and acceptance, payment for regular maintenance and periodical repair, norms, public service, it is in need to make adjustment to the norms in workforce, material with a view to increasing productivity, decreasing cost price of material...
  - The capital source 35% are slowly carried out by the localities, the approval has been made through many procedures causing slow progress, many projects cannot be completed in the year, the capital has not been used effectively. After receiving the capital source 35% from the Central Fund, some localities have cut down the capital from local fund allocated for road maintenance causing difficulties to the road maintenance.

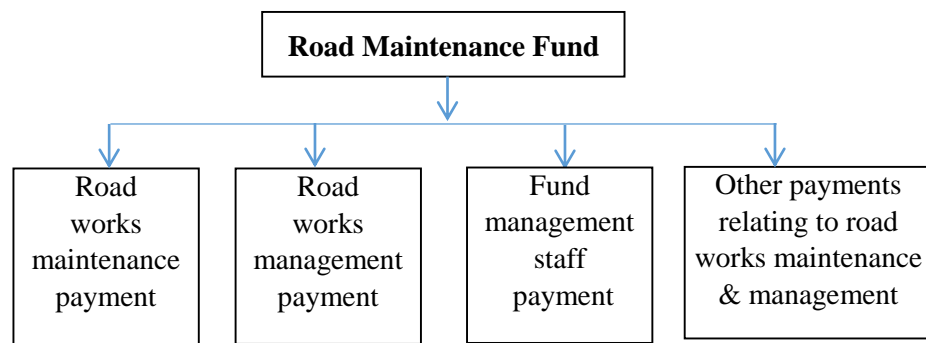
For the communication and propaganda, although the Central Fund Council has cooperated with some mass media agencies to fully propagandize and update information about route improvement projects, some issues relating to the Fund's operations have not been fully updated. As a result, some State management agencies as well as the people have not fully realized the positive aspects and social efficiency of Road Maintenance Fund, in some cases, the nature of matter has not been properly reflected.

Regarding the finance of 35% from Central Fund distributed to local Fund, the local Fund Council assigned Department of Transport to prepare plan and organize the implementation, while Offices of local Fund mainly organized and managed the activities of collecting road use charges from users of motor, motorcycle in local area. Hence, after the charge collection from users of motor, motorcycle (since 01/01/2016) was ended, most of Offices of local Fund faced difficulties in organizing the operation. In addition, PMUs of Department of Transports merged or changed into provincial PMU in accordance with Decree No. 59/2015/NQ-CP of Government on managing the construction investment, some Offices of Fund were merged with professional divisions, departments of Department of Transport. Due to the fact that during the time from its establishment under Decree No. 18/2002/ND-CP up to now, Offices of local Fund have faced difficulties in implementing tasks, especially in the year end when the settlement, disbursement, etc., are performed by the units.

#### *2.4.2. Limitations, difficulties in using road maintenance capital*

Capital for road management, maintenance was guaranteed by Road Maintenance Fund and used as follows: Central Fund was used for maintenance, management of highway system; local Fund was used for maintenance, management of local road system which was managed in accordance with hierarchy of provincial People's Council.

Fund was used for the following tasks:



**Figure 2.4. Details of payment by Road Maintenance Fund**

*Source: Bui Manh Hung, Bui Ngoc Toan (2012), management of resources of work construction investment project, Construction Publisher, Hanoi.*

- Payments for road works maintenance:

+ Regular maintenance payment.

+ Periodic maintenance payment (including: material repair, medium repair)

+ Unexpected repair: remedy consequence of natural disaster, flood, storm, remove black spots, potential traffic accident spots or other abnormal causes, site clearance payment (if any) for transport guarantee and road traffic safety in line with regulations.

+ Payment for inspection, observation, quality verification or road works in line with regulations; payment for process preparation and norms for management, exploitation of road works in use with specific requirements.

- Payments for road works management:

+ Payment for fixed and removable vehicle load checking stations, including: Regular operation expense, irregular operation expense (purchase, repair, equipment testing; station repair and improvement).

+ Support for ferry use service (priced-excluded expense) in line with regulations of competent authorities.

+ Payment for purchase, repair of vehicle, equipment in direct service of State management of road maintenance activities.

+ Payment for patrol outfit.

+ Payment for station repair and improvement.

+ Payment for inspection road traffic infrastructure (including support for local traffic inspectors who work at assigned national highways (if any)).

+ Payment for supporting vehicle load check by Directorate for Roads of Vietnam.

+ Payment for technology application and lease and purchase of technology products, services to enhance quality, efficiency of road works management and maintenance.

+ Payment for monitoring, maintaining road works in some specific cases as regulated.

+ Payment for speed humps and accident warning signs at intersections between road and railroad.

+ Payment for purchase, repair of vehicles, equipment serving the river crossing (ferry, steel ferry and motor boat) to ensure the smooth traffic in the road system in accordance with regulations.

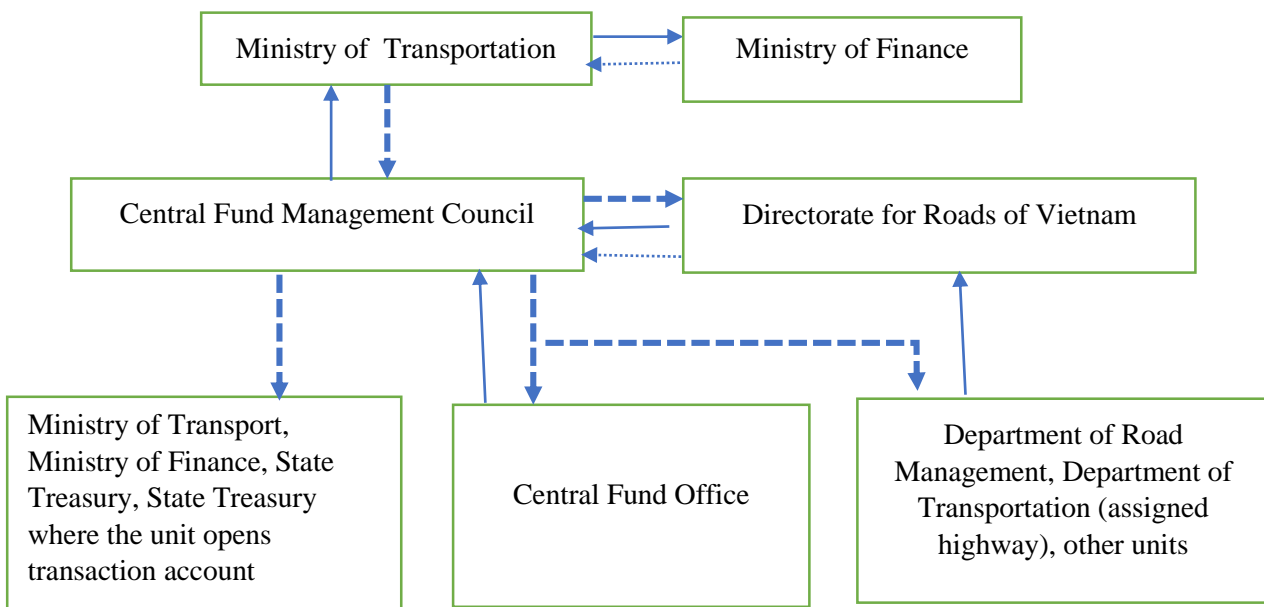
- Payments for Fund Management apparatus's operations: Apply the standard of the State agency (for personnel in charge) and other payments in accordance with current policies to ensure the operation of Road Maintenance Fund Management Council and its assisting apparatus.

- Other payments related to the road management and maintenance decided by the Fund Management Council.

*2.4.3. Limitations, shortcomings in preparation and delivery of payment estimation of road maintenance fund*

- Preparation, delivery of payment estimation for Central Fund

Layout of preparation and delivery of Maintenance Fund is showed in the Figure 2.5 below:



**Figure 2. Layout of preparation and delivery of Central Fund estimation**

Note:

- > report payment estimation
- .....> Notify/ deliver payment estimation

From the Figure 2, it can be seen that the procedures of maintenance capital location are complicated, through many levels, time of approval is long, therefore, the initiative to meet the maintenance faces a lot of difficulties and reduction of efficiency of capital use.

If the capital management and use are subject to the Fund Management Council's decision and responsibility to the Prime Minister and law, the management units and the contractors shall be more proactive during the course of maintenance; the maintenance and repair capital shall be regularly and continuously met, ensuring the settlement of unexpected situations and the enhancement of efficiency in capital use.

- Preparation, delivery of payment estimation for Local Fund

Central Fund management Council builds a plan to divide the road toll source to submit to the central budget (the local level where shall be benefited) for the period of budget stabilization and preparation of payment estimation allocation plan from annual road toll for each local level at the same time of budget estimation preparation to send to Ministry of Transportation, then send it to Ministry of Finance for synthesizing into annual budget estimation, then submit to the competent authorities for decision in accordance with the regulations of the State Budget Law.

Based on the payment estimate from the road toll source adding to the local levels approved by the competent levels, Ministry of Finance delivers the additional payment estimation from the Central budget to the local budget to grant capital for Local Fund.

Based on the road management and maintenance payment estimation added by the central budget for the purpose of Local Fund and payment demand on management and maintenance managed by the local level, Department of Transportation together with Department of Finance submits the payment estimation from the local budget for Local Fund to the Provincial People's Committee, city under the central government and regulates the preparation and assignment of payment estimation of Local Fund under decentralization of the People's Council of province, city under the central government.

### **3. Discussion and Conclusion**

For past five years, the exploitation and maintenance activities of road have achieved many objective results, especially in capital mobilization. However, due to the lack of regular maintenance capital, the capital mobilization faces a lot of difficulties. Basically, it only meets the essential requirements for ensuring the safe and smooth traffic without the prevention of the works' degradation. As a result, the arrangement and allocation of expenses from Road Maintenance Fund should be researched accordingly and accurately compared to the actual requirements in order to improve the efficiency of capital use from Road Maintenance Fund. Reasons for shortcomings and limitations as below

- Scientific and technical level is not high, equipment, technologies and machines used in the management and maintenance are out of date, new materials are not widely applied. The assessment norms used in the periodic road management and maintenance have not been accurate compared to the actual situation.

- The road management and maintenance capital is so much few compared to the demand and only meets 20% -30% of actual demand. The allocation of road management and maintenance capital is not based on a scientific basis, it is mainly due to calculations from experiments of divisions and sections of Ninh Binh Department of Transportation.

Over the past years, the capital was mainly allocated with the following ratio (in comparison with that of Directorate for Roads of Vietnam)

**Table 6. Task-based fund structure**

Name of tasks	Fund structure	
	Ninh Binh Province	Directorate for Roads of Vietnam
Regular management and maintenance	15%	25%
Periodic repair	80%	65%
Unexpected repair	5%	10%

*Source: The Comprehensive Innovation Project in management and maintenance of highway system of Ministry of Transportation)*

▪ However, the capital structure is inappropriate compared to that allocated by Directorate for Roads of Vietnam, it is essential to research to increase the capital ratio allocated for regular management and maintenance.

▪ The annual increase level in 2013-2017 is high due to capital of Road Maintenance Fund (however the Road Maintenance Fund is the unstable fund) but only meets about 25-34% of actual demand.

▪ Lack of fund results in difficult allocation in arrangement of maintenance task order.

▪ The reduction of many tasks in road management and maintenance seriously affects the quality, lifetime and efficiency of exploitation of routes.

▪ The inspection has not been usually and continuously implemented, therefore, the shortcomings in the management and use are not timely found resulting in fund loss and reduction in investment efficiency.

#### 4. References

1. Ministry of Transport (2015), *Circular number 37/2018/TT-BGTVT on 07<sup>th</sup> June 2018 regulation about Road work maintenance, exploitation operation and management.*
2. Government, *Decree number 56/2014/NĐ-CP on 30<sup>th</sup> May 2014 to modify and supplement some article of Decree Number 18/2012/ NĐ-CP on 13<sup>th</sup> March 2012 about Road maintenance Fund.*
3. Government, *Decree Number 18/2012/ NĐ-CP on 13<sup>th</sup> March 2012 about Road maintenance Fund.*
4. Statistics Department in Ninh Binh (2018), *Statistics annual yearbook*, Statistics Publisher, Hanoi
5. Bui Manh Hung, Bui Ngoc Toan (2012), *Management of resources of work construction investment project*, Construction Publisher, Hanoi.

# FACTORS INFLUENCING GREEN HOUSING PURCHASE BEHAVIOUR: A SURVEY FROM HANOI CITY, VIETNAM

*MSc. Nguyen Thanh Lan*  
*nguyenthanhlan@neu.edu.vn*

*Nguyen Minh Phuc*  
*wattenwaken96@gmail.com*

*Pham Kieu Loan*  
*phamkieuloan30031998@gmail.com*

*Tran Thi Tu Uyen*  
*uyenttt.neu@gmail.com*

*Faculty of Real Estate and Resources Economics,  
National Economics University, Hanoi, Vietnam*

## **Abstract**

*This study is focused on examining the impact of some factors on green housing behaviour (GHB) for urban consumers in Vietnam, an emerging economy. This research employs the extended Theory of Planned Behaviour (TPB) as the conceptual framework. The hypotheses are empirically tested using survey data obtained from consumers in Hanoi city, the capital of Vietnam. The findings indicate that all hypotheses received support from the data. Specifically, four factors including subjective norm, perceived GH value, health and environmental awareness media influences are found to have positive impacts on GHB. The research findings are discussed and implication for managers and policy makers are provided.*

**Keywords:** *Influencing factors, green housing, purchase behaviour, Theory of planned behaviour (TPB), Vietnam.*

## **1. Introduction**

Hanoi city is facing a conundrum puzzle to satisfy the rapid urbanization, population growth, increasing demand for living units but also the subsequent environmental issues. Broadly speaking, the problem can be addressed by adopting green approach in building. This approach has been influential in the real estate field in many other countries foremost because of the environmental friendliness, energy savings and promote a healthier life for residences.

In 2007, US Green Building Council defined GH as the “practice of creating and using healthier and more resource-efficient models of construction, renovation, operation, maintenance and demolition”.

In this research, the types of house we mainly discuss about is commercially built house which under the influence of investor sector, regulated by Hanoi People's Committee



and Vietnam policy. This will help us to gain more insight of Hanoi resident's predilection for the commercial green real estate and what can be done to promote this type of real estate.

Scholars worldwide set a trend on research about green product consumption. In Vietnam context, there are some pioneering studies on green consumption namely the intention to consume green products in Ho Chi Minh City (Nguyen The Khoi and Nguyen Thi Lan Anh, 2016), factors affecting green consumption behaviour of consumers in Hue (Hoang Trong Hung, Huynh Thi Thu Quyen and Hue Thi Nhi, 2018); research on consumption behavior of green industrial products in Vietnam (Chu Van Giap, 2018). Another scheme of research in Vietnam focuses on policy recommendations such as Le Thu Hien's thesis on economic tools in policies to promote sustainable consumption of residents, or "Green consumption policy in Vietnam by Nguyen Gia Tho. It must be noted that these studies revolve around green products which has a much lower price threshold than real estate and in conjunction with various difference in the buying behavior.

Other countries have noticed and explored these differences and initiated to investigate home buying behavior with various influencing factors such as cognitive ethical obligations (Chen & Tung, 2014; Dean et al., 2012; Dowd & Burke, 2013), environmental concerns (Hartmann & Apaolaza-Ibanez, 2012), value perception (Chen & Chang, 2012) and perceived risk (Han & Chung, 2014). Moreover, Hu et al. (2014) suggest that opinions and willingness to buy from potential home buyers need to be carefully considered. It should be further commented that the attitude towards the product is the first positive indicator for buying. There has been a lot of research on people's attitudes towards GH focusing on the aspects of awareness, cognitive behavior around the system of personal beliefs, values, understanding, contributions. As in the assessment of people's intention to buy sustainable housing in Malaysia (Tan, 2013), the author used the expanded TPB model and found the factors that have a positive impact on the buying intent is the "attitude" of "perceived behavioural control" and "self-image identify".

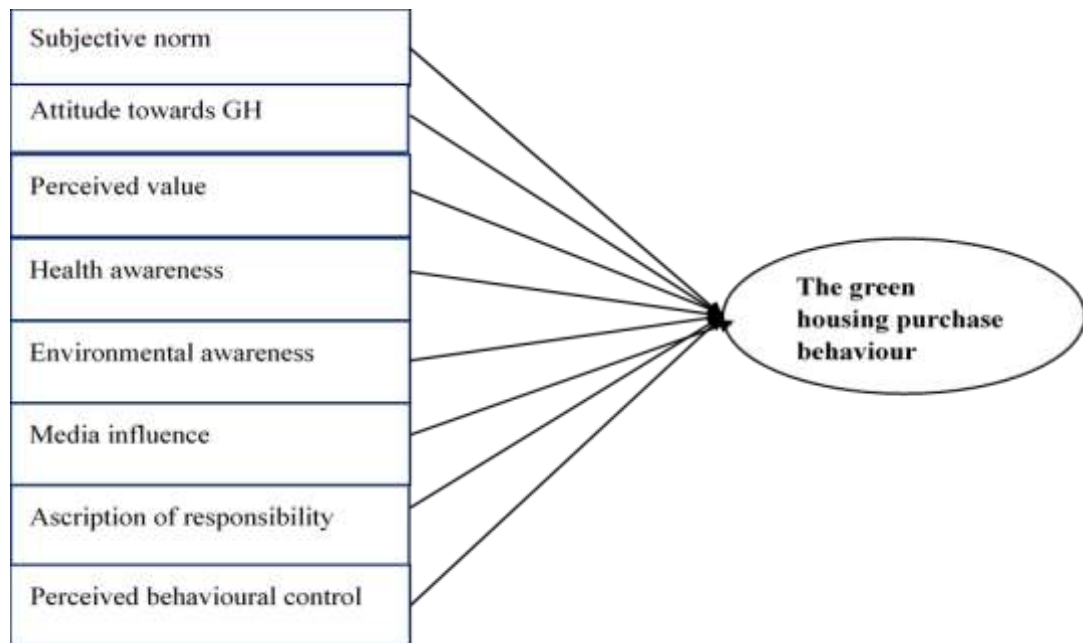
Another study conducted by Lebanon, Dagher and Itani (2014) assessed four factors that can influence purchasing intention: perceived environmental issue; perceived environmental responsibility; perceived the effectiveness of environmentally friendly behaviors and self-image identify. Only a few studies in Vietnam has picked up on these approaches and conduct a synthesizing research includes most closely related factor possibly affect Hanoi's resident intention to buy.

Moreover, research conclude demographic and socio-economic characteristics are also very limited in both other countries and Vietnam. The results of these topics are highly applicable and practical to governments and businesses, especially for marketers used to classify target customers. For example, Hu et al. (2014), by taking 1373 survey samples in Nanjing, China, confirmed that the socio-political profiles of different population groups had a clear relation to the intention to purchase. In another study, Anvar and Venter (2014) found buying intentions of different age groups. This research direction has not been implemented in Vietnam to identify potential customer files and secondly, it does not show the internal

correlation between demographic factors, such as gender, marital status, or education level how correlated with the intention to buy housing in green housing.

In addition, there is no specific definition for green housing in Vietnam. Many investors advertise their own real estate with green trees, parking lots, playgrounds, lakes, etc. but it has not verified which factors really work and which meet the needs of the people. This means that people's opinions about expectations and desires for green housing have not been investigated and statistical, despite the increasing demand and increasing environmental issues.

**Figure 2.1: The research model**



This study applies theory of planned behavior (TPB) and takes Hanoi as a case study. Based on the TPB model, with adjustments from previous empirical studies, some hypotheses are proposed the following research model:

- H1: Subjective norms positively influence the GH purchase behaviour
- H2: Attitude toward GH positively influence the GH purchase behaviour
- H3: GH perceived value positively influence the GH purchase behaviour
- H4: Health awareness positively influence the GH purchase behaviour
- H5: Environmental awareness positively influence the GH purchase behaviour
- H6: Media Influence positively influence the GH purchase behaviour
- H7: Ascription of responsibility positively influence the GH purchase behaviour
- H8: Perceived behavioural control positively influences the GH purchase behaviour

## **2. Method**

Theory of planned behaviour (TPB) is an extension of the theory of reasoned action (TRA), which provides a sufficient simulator to understand the decision-making process and being extensively used in studying green product purchasing. The theory comes up with three

determinants that explain a person's behavioural willingness: attitude towards behaviour (ATB), subjective norm (SN) and perceived behavioural control (PBC) (Ajzen 1991).

**Table 2.1: Measurement items of the variables**

Code	Construct	Items	Likert type scale	Source
SNO	Subjective norm	03	5	Maichum et al. (2016), Liobikienė et al. (2016)
ATT	Attitude towards GH	03	5	Tan (2013)
PVA	Perceived value	04	5	Chen và Chang (2012)
HA	Health awareness	02	5	Pukkapop Kongkajaroen, Supeecha Panichpathom, Atcharawan Ngarmyar (2014)
EA	Environment awareness	02	5	Newton et al (2015), Wee-Lee Tan and Yen-Nee Goh (2018)
MIM	Media influence	03	5	Durdyev and Ihtiyar (2019)
AR	Ascription of responsibility	03	5	Han (2015), Zhang et al. (2013)
PBC	Perceived behavioural control	02	5	Armitage and Conner (2001), Kim and Han (2010)
GHB	The green housing purchase behaviour	05	5	Schniederjans and Starkey, (2014), Tan, W. L., & Goh, Y. N. (2018), Sang, P., Yao, H., Zhang, L., Wang, S., Wang, Y., & Liu, J. (2019); Han et al., (2009); Wee-Lee Tan, Yen-Nee Goh, (2018)

*Source: Synthesis by the authors*

Based on these determinants and our proposed observation, the original research framework consists of 08 independent variables to explain for 01 dependent variable. While translated into the survey questionnaire, these variables utilized by a related set of measurable items collected by surveyor's answer. The variables were measured on a bipolar 5-point semantic differential Likert type scale where 1 = strongly disagree and 5 = strongly agree. We consulted some of the head experts in the real estate field to limit the biases and add up more dimension to the study. After refining our questionnaires, we spread it online, mostly in resident community group, real estate broker company, Hanoi real estate club. A total of 429 responses were collected evenly across different Hanoi areas and respondents come from various socio-group. However, after cleaning the data set, final 365 samples were selected.

Items generation began with theory development and a literature review. Items were evaluated through interviews with practitioners. For the development and exploratory evaluation of the measurement scales for the exploratory factor analysis (EFA) on entire set

and reliability estimation Cronbach's Alpha, which is one of the most widely used metrics for reliability evaluation (Koufteros, 1999). EFA was then used to determine how many latent variables underlie the complete set of items.

The Confirmatory Factor Analysis (CFA) was performed for the measurement model of the latent constructs. Especially, the overall fit of a hypothesized model can be tested by using the maximum likelihood Chi-square statistic provided in the Amos output and their fit indices such as the ratio of Chi-square to degrees of freedom, goodness of-fit index (GFI), the root mean square error of approximation (RMSEA), comparative fit index (CFI), normed fit index (NFI). After that, a hypothetical construct accounts for the inter-correlations of the observed variables that define that construct (Bollen & Lennox, 1991).

### 3. Results

#### 3.1 Descriptive Statistics

**Table 3.1 Demographic characteristics of the respondents (N=365)**

Variable		Gender			
		Male		Female	
		<i>Frequency</i>	<i>Percentage (%)</i>	<i>Frequency</i>	<i>Percentage (%)</i>
<b>Age</b>	18-25	49	30.2	146	71.9
	26-35	45	27.8	27	13.3
	36-45	52	32.1	24	11.8
	46-55	13	8.0	6	3.0
	> 55	3	1.9	0	0.0
<b>Education</b>	High school and below	5	3.1	5	2.5
	Junior College	13	8.0	4	2.0
	Bachelor's degree	99	61.1	177	87.2
	Master's degree or higher level	45	27.8	17	8.4
<b>Income (million VND/ month)</b>	<10	47	29.0	133	65.5
	10- 20	33	20.4	30	14.8
	20- 30	39	24.1	16	7.9
	30- 40	16	9.9	9	4.4
	40- 50	5	3.1	6	3.0
	>50	22	13.6	9	4.4
<b>Marriage status</b>	Married	88	54.3	49	24.1
	Single	74	45.7	154	75.9

*Source: The survey results*

To set the topic of this research, we constructed a set of real estate related questions about respondents' housing status. According to the survey, the most used type of housing is detached house voted by 237 respondents (accounted for 64,9%) followed by 25,8% respondents live in apartment, 7,1% live in mansion and 2,2% account for other type. For future purchase, detached house is people's most common choice and newly developed district on the city edge is the most desired area (accounted for 38,36%).

In the demographic variable, there are 202 male respondents and 162 female respondents. For education level, 61,1% of respondents possess bachelor's degree. Regarding the monthly income, 29,9% of respondents having the monthly income in the range of lower than 10 million VND/ month. In addition, 88 respondents are married and 74 of those are single.

The key findings of our research emerge when statistical reveals the expected features of a green housing on market from the homebuyers' point of view. According to the results, these following features (in a descending tendency order) were most alluring to homebuyers: Optimal ventilation and natural light design; Causing limited harmfulness to the environment when put in use; Household's energy consumption saving; Optimal space for plants and trees; Apply advanced waste treatment technology; Certified as green building; Building density below 40%; Sustainable materials.

**Table 3.2: Green-housing features of the respondents**

<b>Green-housing features</b>	<b>Frequency</b>	<b>Percent of Responses (%)</b>	<b>Percent of Cases (%)</b>
Household's energy consumption saving	270	15.3	74.0
Sustainable materials	64	3.6	17.5
Causing limited harmfulness to the environment when put in use	275	15.6	75.3
Optimal ventilation and natural light design	293	16.6	80.3
Building density bellows 40%	158	8.9	43.3
Optimal space for plants and trees	244	13.8	66.8
Certified as green building	199	11.3	54.5
Apply advanced waste treatment technology	265	15.0	72.6
<b>Total</b>	<b>1768</b>	<b>100.0</b>	<b>484.4</b>

*Source: The survey results*

### **3.2. Exploratory measurement results**

Researchers checked against Cronbach's alpha and Corrected Item-Total Correlation to ensure the reliability of all variables. The summary result of Cronbach's alpha value for each measure is shown in appendix. The reliability for each construct was significantly high

as above the value of .6, and KMO is 0.905, which is considered satisfy for basic research. The total value of the extracted variance of the sixth factor and the value of the eigenvalues convergence coefficient of this factor are both  $> 1$ , thereby showing that the initial observed variables have convergence at these 04 new dimensions, and these new factor group can be used to represent the variability of the survey data. Therefore, these factors ensure the ability to represent the original survey data.

**Table 3.3: The final factor loadings**

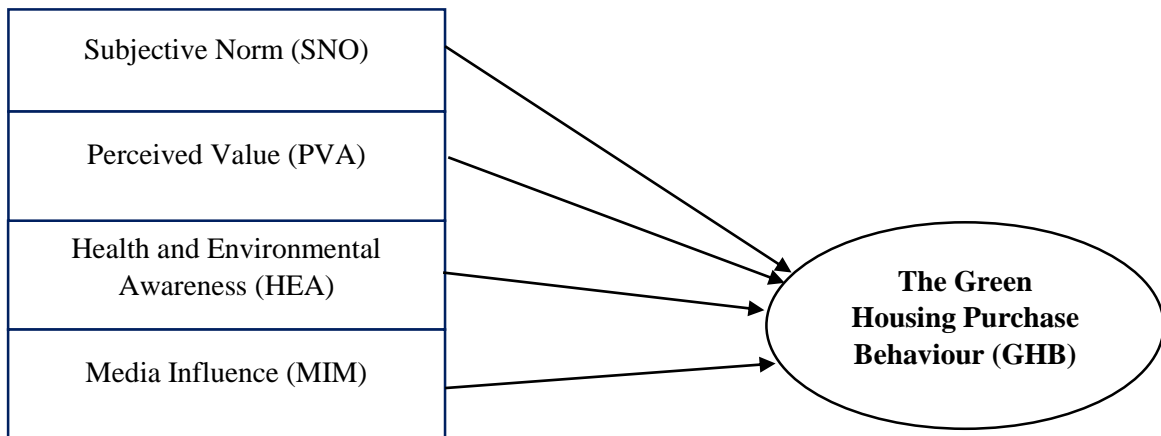
	Component			
	1	2	3	4
SN1	0.863			
SN2	0.789			
SN3	0.669			
HEA1		0.82		
HEA2		0.83		
HEA3		0.808		
HEA4		0.709		
HEA5		0.752		
HEA6		0.745		
MI1			0.724	
MI2			0.856	
MI3			0.831	
PV1				0.609
PV2				0.682
PV3				0.912
PV4				0.699
Eigenvalue	6.497	1.744	1.102	1.035
Cumulative (%)	40.608	51.508	58.394	64.861
Sig.= 0.000; KMO = 0.905				

The EFA was used to reduce these items to a smaller, more manageable set of underlying factors, which is helpful for detecting the presence of meaningful patterns among the original variables and for extracting the main factors, according to Hair et al. (2013). After 5 times processing data sample, there were 16 remain items loaded in 4 new components. Two of these components were untangled in compare with the original group factors, which are “Subjective norm” and “Media Influence”. The two new

components of factors generated were “Health and Environmental awareness” and “Perceived GH value”.

Based on the EFA results, the research team decided to fix research model and adopt the hypotheses.

**Figure 3.1: The final research model**



The new set of hypotheses proposed:

H1: Subjective Norms positively influence the GH purchase behaviour

H2: Perceived Value positively influence the GH purchase behaviour

H3: Health and Environmental Awareness positively influence the GH purchase behaviour

H4: Media Influence positively influence the GH purchase behaviour

### **3.3. Confirmatory factor analysis (CFA) results**

To refine the initial measures and test the internal consistency of the scale, a combination of exploratory factor analysis, confirmatory analysis (each construct individually) and item-to-total correlations were used. Depended on the results of these analyses, those items that had low item-to-total correlations were eliminated, as well as the items that had low factor loadings. Even though the value of GFI (0.869), TLI (0.886) and RMSEA (0.075) were quite low but CFI (0.903) with CMIN/df=3.048 (<5%) stand out to demonstrate that model provided acceptable fit to the data.

The correlation analysis results of the variables in the model show relation to each other. These coefficients have sig = 0,000 (<5%), meaning that the correlation results are statistically significant. In general, correlation coefficients (r) have values of  $r > 0$ , the correlation between independent variables is from 0.3 to 0.6. These variables are positively correlated with each other in the medium. The dependent variable "purchase behavior of green housing" also has a positive correlation with the independent variables ( $> 0.5$ ), especially the variable "perceived value of green housing" and "subjective norm". Thus, the above groups of factors are correlated with purchase behavior and appropriate to include in the regression model.

**Table 3.4: Coefficients table of regression analysis**

No.	Independent variable	Model 1	Model 2	Model 3
1	Health and Environmental Awareness	0.107***	0.038	0.211***
2	Perceived Value	0.350***	0.370***	0.347***
3	Media Influence	0.088***	0.067	0.114
4	Subjective Norm	0.406***	0.459***	0.285***
	Adjusted R Square	0.573	0.572	0.564
	Durbin-Watson Statistic	1.842	2.006	1.872
	F	123.008	68.052	53.014
	N	365	203	162

Notes: \*\*\* Significant at 0.05 level.

The regression models to test hypotheses including: (1) Model 1: Full model of variables; (2) Model 2: Model of testing hypotheses for female subjects; (3) Model 3: Model of testing hypotheses for male object.

From the results of analysing Model (1), it is shown that the total regression model is statistically significant, the change is also statistically significant, and the variables explained 57.2% of the change of the dependent variable. Green housing ( $R^2 = .573$ ,  $p < .001$ ; F of model = 123,008,  $p < .001$ ). All independent variables are positively related and statistically significant. The impact level of 4 factors is arranged in descending order, respectively: (1) Subjective norm ( $\beta$  normalized = 0.406); (2) Perceived value of green housing ( $\beta$  standardized = 0.350); (3) Health and environmental awareness ( $\beta$  normalized = 0.107) and (4) Media Influence ( $\beta$  standardized = 0.088). Specifically, the hypothesis test results are presented in the following Table 3.5:

**Table 3.5: Results of hypothesis testing**

Hypothesis	Statement	Result
H1	Subjective norm has a significant positive effect on the green housing purchase behaviour	Supported
H2	Perceived value has a significant positive effect on the green housing purchase behaviour	Supported
H3	Health and environmental awareness has a significant positive effect on the green housing purchase behaviour	Supported
H4	Media influence has a significant positive effect on the green housing purchase behaviour	Supported

It must be noted that Model (1) statistically provide better explanation for the independent variable.

In Model 2, only two independent variables have a positive and statistically significant relationship. The impact level of the two factors is arranged in descending order,



respectively: (1) Subjective norm ( $\beta$  normalized = 0.459); (2) Perceived GH value ( $\beta$  standardized = 0.370).

Meanwhile, in Model 3, the order of impact level of the independent variables is different from Model 1 and 2, besides the change is also statistically significant and the variables explained. the lowest among the 3 models is 56.4%. Accordingly, there are 3 independent variables that are positively related and statistically significant, sorted in descending order as follows: (1) Perceived GH value ( $\beta$  normalized = 0.347); (2) Subjective norm ( $\beta$  normalized = 0.285); (3) Subjective norm ( $\beta$  normalized = 0.211).

**Results of regression equation:** After checking the assumptions of the regression model, the results show that their assumptions are satisfied. The regression equation describing GHB is represented by the following formula:

$$\text{GHB} = 0.107\text{HEA} + 0.350\text{PVA} + 0.088\text{MIM} + 0.406\text{SNO}$$

## 4. Discussion and Conclusion

### 4.1. Discussion

Assessing GH features not only ranked these features but also pointed out the trend among Hanoi residents. Outer appearance such as optimal design, technology application, or green building certificates are of the most alluring. However, in the fact that homebuyers rely on green certificate for creditability, the number of residential building project registered for green certificate still account for a small proportion of the total number of building construction every year. According to the report of the Vietnam Green Building Council: “Out of 177 newly registered LEED projects in Vietnam as of the end of 2018, the office and industrial building only have collectively accounted for utmost 75% of the total project and 80% of the total floor area. In addition, sustainable materials are shown to be poorly aware by the people when it only accounts for a very small percentage of 3.6% (specific results in table 3.2). While in fact, the application of sustainable materials is an indispensable factor to evaluate a green housing. The information being streamed on the market about GH does not certainly reflect characteristics of green housing real estate.

Moreover, according to “World green building trends 2018” report conducted by Dodge - Data and Analytics, Vietnam ranks among the top five countries in terms of political barriers / lack of incentives and public awareness. Thus, this may explain why this market is not yet to keep up with the worldwide trend. Vietnam investor are not thoroughly comprehending the sustainable concept, nor do they find the encouragement from the government to conduct such green investment.

Under the H1 hypothesis, subjective norms are the most positively influential factor on Hanoi resident’s GH purchase behaviour. This result is broadly consistent with the fact that Vietnam has a collective culture, whose people rely heavily upon social interaction, collective knowledge and often honour the opinion of surrounding social network. This result is correlated with previous studies such as Schwartz (1977), Peidong Shan et al (2019), Wee-Lee Tan & Yen-Nee Goh (2018). In addition, Arts (2011) adds that when subjective

norm is activated it increases the awareness of ethical responsibility and therefore, green real estate is their preferred choice. Green housing comprises the notion of environmental protection, public health, and one's own health. Moreover, when viewed in a separate regression model, women tend to be under a much influence by the subjective norm than men.

Perceptions of the value of green real estate demonstrated in this study have a positive effect on people's buying behavior (H2), especially this effect is greater among men than women (details in the table). 3.4). When viewed from an economic perspective, the value of a green property will depend on the market. According to a previous study of Minnery (2003) and colleagues, the application of eco-design has adversely affected the behavior of people buying because it is not aesthetically attractive and might cause lost in value for the second sale. Our results contradict this statement, by asking the question "In the same area, the price of GH is higher than other commercial housing", people response imply good signal for this segment and is a good indicator for the market.

"Health and environmental awareness" ranked to be the third most significant factor drives the GH purchase behaviour in Hanoi. This factor has been verified in the research of Whang and Kim (2015) with the results "health awareness and environment are one of the most important factors affecting the green industry revolution". In addition, Peidong Shan et al. (2019) stated: "when consumers recognize the benefits of GH to the environment and resources, they are inclined to select GH directly from the ethical Obligation to environmental protection. Furthermore, GH's environmental benefits can motivate consumers to be responsible for the society and others and then fulfill their personal norm from an altruistic perspective". This allows the conclusion of purchasing and using green housing not only benefits to a single individual but also contributes to protecting the health of surrounding people and the community. GH should be developed in line with the need to improve the quality of the environmental, upgrade people's living standards and to alleviate fears about the environment health.

The factor "Media influence" with regression coefficient of 0.088 shows that this factor has a positive impact on the behavior of buying green houses. Commonly, the most popular, primary channels of information are created by investors such as advertising campaigns with targeted keywords, banners, slogans, video clips, official websites. Secondary information channel namely broker, agency, news, and social media posts. Although it has been identified as an influencing factor, the influence of the investor's advertising campaign is not yet strongly effective to homebuyers' intention in Hanoi. Furthermore, due to the limited regulation from the Vietnam officials, there is a tendency of casting misleading information. This has been previously mentioned that people are being exposed to the wrong impression about GH. While marketing actions is proofed to has positive influence on consumer's purchase intention (Serdar Durdyev, Ali Ihtiyar, 2018), government support reported to be a significant driver of the implementation of green practices. It is recommended that the government needs to take stronger actions such as ratifying regulations or offering incentives to promote GH towards sustainable development.

## **4.2. Conclusion**

In this study, we examined a research model that explains the green housing purchase behaviour. The sample collected are all from consumers in Hanoi, Vietnam. Specifically, we focused on the relationship between four factors and the purchase behaviour towards green housing. All hypotheses were supported which indicated that subjective norm, perceived value, media influence, health and environmental awareness have a significant positive on the green housing purchase behaviour.

To our knowledge, this is the first report defined of GH from the homebuyer's point of view in a transition economy, like Vietnam. We found the most alluring features of GH as following: Optimal ventilation and natural light design; Causing limited harmfulness to the environment when put in use; Household's energy consumption saving; Optimal space for plants and trees; Apply advanced waste treatment technology; Certified as green building; Building density below 40%; Sustainable material.

By testing the research model with the regression model combined with correlation analysis, EFA and CFA, the results show that the assumptions are accepted. The degree of impact of each factor on the act of buying green housing is different. All variables are positively related and statistically significant. This leads to the second contribution of this research is by confirming four factors positively influence Hanoian green GHB.

## **5. References**

1. Ajzen, I (1991), "The theory of planned behavior. *Organization Behavior and Human Decision Process*".
2. Armitage and Conner (2001), "Efficacy of the theory of planned behaviour: A meta-analytic review"
3. Broadhead-Fearn & White (2006), "The role of self-efficacy in predicting rule-following behaviors in shelters for homeless youth: A test of the theory of planned behavior"
4. Carrus, Passafaro & Bonnes (2008), "Emotions, habits and rational choices in ecological behaviours: The case of recycling and use of public transportation"
5. Chen & Zimitat (2006), "Understanding Taiwanese students' decision-making factors regarding Australian international higher education"
6. Chen and Chang (2012), "Enhance Green Purchase Intentions: The Roles of Green Perceived Value, Green Perceived Risk, and Green Trust"
7. Durdyev and Ihtiyar (2019), "Majoring in architecture, engineering and construction: a structural equation model of factors influencing student choice"
8. Fekadu và Kraft (2001), "Predicting intended contraception in a sample of Ethiopian female adolescents: The validity of the theory of planned behavior"
9. Fielding et al. (2008), "Integrating social identity theory and the theory of planned behaviour to explain decisions to engage in sustainable agricultural practices"

10. Han & Kim (2010), "An investigation of green hotel customers' decision formation: Developing an extended model of the theory of planned behavior", *International Journal of Hospitality Management*.
11. Han (2015), "Travelers' pro-environmental behavior in a green lodging context: Converging value-belief- norm theory and the theory of planned behavior"
12. Huong Thi Van Nguyen (2019), "LEED-Certified and LOTUS-Certified green buildings - Current situation and development trends in Vietnam"
13. Kim and Han (2010), "Intention to pay conventional-hotel prices at a green hotel—A modification of the theory of planned behavior"
14. Magnusson và cộng sự, (2001), "Attitudes towards organic foods among Swedish consumers"
15. Maichum, K., Parichatnon, S., & Peng, K.-C. (2016). Application of the extended theory of planned behavior model to investigate purchase intention of green products among Thai consumers
16. Newton et al (2015), "Environmental concern and environmental purchase intentions: the mediating role of learning strategy"
17. Nigbur et al. (2010), "Attitudes, norms, identity and environmental behaviour: Using an expanded theory of planned behaviour to predict participation in a kerbside recycling programme"
18. Nunnally (1978), *Psychometric theory* (2nd ed.). New York: McGraw-Hill
19. Peidong Sang, Haona Yao, Lin Zhang, Sen Wang, Yanjie Wang, Jinjian Liu (2018), "Influencing factors of consumers' willingness to purchase green housing a survey from Shandong Province, China"
20. Peterson, R. A. (1994). A meta-analysis of Cronbach's coefficient alpha. *Journal of consumer research*, 21(2), 381-391.
21. Pukkapop Kongkajaroen, Supeecha Panichpathom, Atcharawan Ngarmyarn (2014), "The Attitude of Intention to purchase Green Condominium by Generation Y consumers"
22. Qianwen Li, Ruyin Long, Hong Chen (2018), "Differences and influencing factors for Chinese urban resident willingness to pay for green housings: Evidence from five first-tier cities in China"
23. Serdar Durdyev, Ali Ihtiyar (2018), "Attitudes of Cambodian Homebuyers Towards the Factors Influencing Their Intention to Purchase Green Building"
24. Schniederjans and Starkey (2014), "Intention and willingness to pay for green freight transportation: An empirical examination"
25. Sheppard, Hartwick & Warshaw (1988), "The Theory of Reasoned Action: A Meta-Analysis of Past Research with recommendations for modifications and future research".

26. Slater (1995), "Issues in Conducting Marketing Strategy Research"
27. Squires và các cộng sự (2001), "Level of market development and intensity of organic food consumption: Cross-cultural study of Danish and New Zealand consumers"
28. Tan, T. H. (2013) "Use of structural equation modeling to predict the intention to purchase green and sustainable homes in Malaysia"
29. Tarkiainen & Sundqvist (2005), "Subjective norms, attitudes and intentions of Finnish consumers in buying organic food"
30. Wee-Lee Tan, Yen-Nee Goh, (2018) "The role of psychological factors in influencing consumer purchase intention towards green residential building", International Journal of Housing Markets and Analysis
31. Zhang et al. (2013), "Antecedents of employee electricity saving behavior in organizations: An empirical study based on norm activation model"

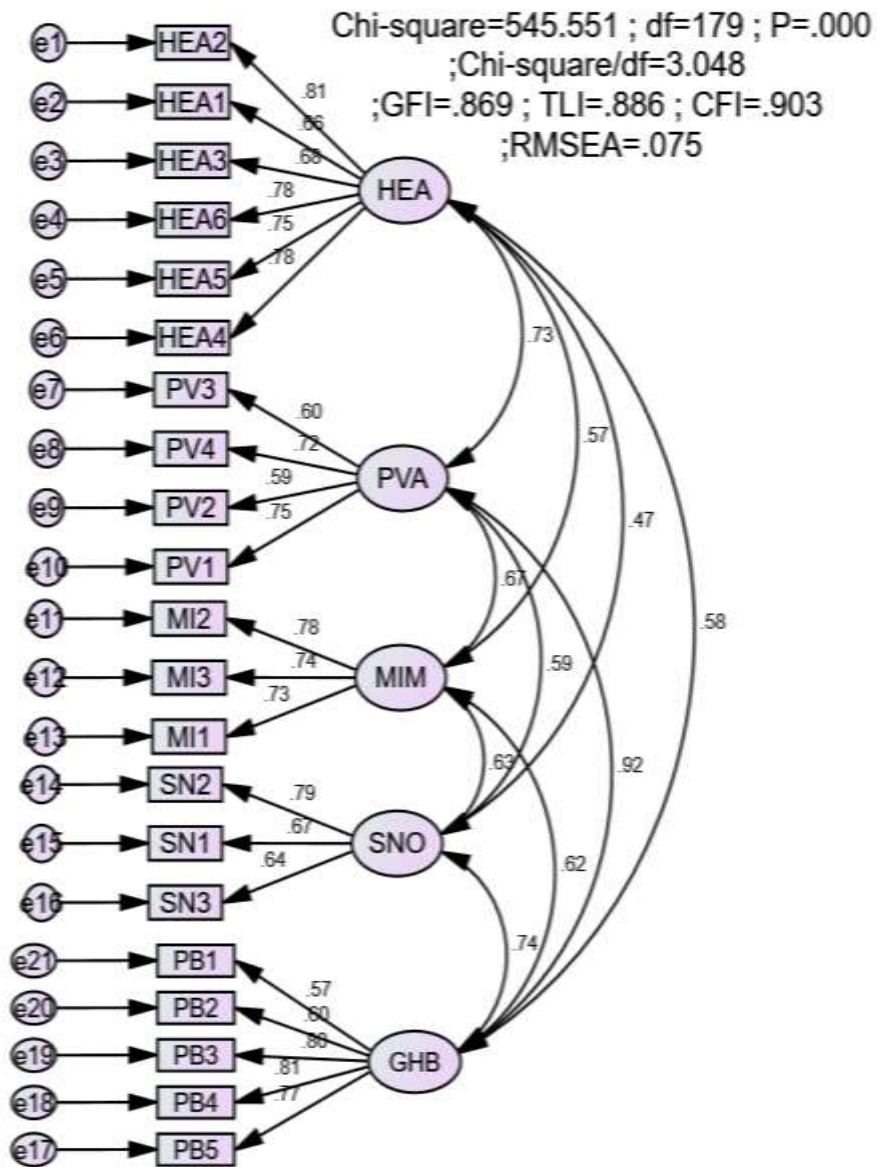
## Appendices

### 1. Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
<b>Cronbach's Alpha SNO = .729</b>				
SN1	7.11	2.81	0.503	0.7
SN2	7.3	2.519	0.666	0.501
SN3	7.53	2.893	0.494	0.708
<b>Cronbach's Alpha ATT = .677</b>				
ATT1	8.39	1.849	0.495	0.577
ATT2	8.41	1.748	0.518	0.546
ATT3	8.45	1.82	0.459	0.624
<b>Cronbach's Alpha EA = .757</b>				
EA1	4.44	0.561	0.615	.
EA2	4.37	0.734	0.615	.
<b>Cronbach's Alpha HA = .671</b>				
HA1	4.29	0.647	0.506	.
HA2	4.49	0.564	0.506	.
<b>Cronbach's Alpha MIM = .790</b>				
MI1	7.47	2.843	0.597	0.75
MI2	7.73	2.586	0.671	0.671
MI3	7.73	2.549	0.627	0.72
<b>Cronbach's Alpha AR = .843</b>				
AR1	8.95	1.918	0.722	0.768
AR2	8.74	2.09	0.711	0.78
AR3	8.74	2.027	0.693	0.796

	<b>Scale Mean if Item Deleted</b>	<b>Scale Variance if Item Deleted</b>	<b>Corrected Item-Total Correlation</b>	<b>Cronbach's Alpha if Item Deleted</b>
<b>Cronbach's Alpha PBC = .769</b>				
PBC1	4.21	0.664	0.625	.
PBC2	4.37	0.69	0.625	.
<b>Cronbach's Alpha P = .767</b>				
PV1	12.49	4.465	0.526	0.733
PV2	12.53	4.101	0.584	0.703
PV3	12.3	4.281	0.615	0.69
PV4	12.5	3.97	0.556	0.721
<b>Cronbach's Alpha GHB = .838</b>				
PB1	16.09	8.747	0.562	0.826
PB2	16.03	8.604	0.585	0.821
PB3\	15.95	8.33	0.68	0.797
PB4	16.12	7.626	0.725	0.781
PB5	16.12	7.63	0.663	0.801

## 2. Confirmatory factor analysis (CFA) results



## 3. Constructs' correlations

Construct	HEA	PVA	MIM	SNO
HEA	1**	0.547**	0.478**	0.381**
PVA		1**	0.490**	0.430**
MIM			1**	0.495**
SNO				1**
GHB	0.496**	0.626**	0.511**	0.641**

Notes: \*\* Significant at 0.01 level.



# GENTRIFICATION IN HUE CITADEL: URBAN DEVELOPMENT POLICY IN HERITAGE MANAGEMENT TASK

**Pham Manh Hung**

*pmhung123@gmail.com*

*PhD Candidate, Doctor of Philosophy Program in Social Science (International Program), Faculty of Social Sciences, Chiang Mai University, Thailand  
Faculty of Architecture, University of Sciences, Hue University, Vietnam*

## **Abstract**

*This research presents generally about the process of gentrification in the Hue Citadel - a world cultural heritage has listed by UNESCO in Hue city, Vietnam. Under the pressure of urbanization, gentrification is considered as a task of heritage management followings local government policy, which is conducted for a long term in order to protect the monuments. Based on the qualitative research with observational research, document analysis, and description method, the research examines and analyzes phenomenon and progression of gentrification process through evaluating the policies of heritage preservation and urban management. Gentrification in Hue citadel is supported by many regulations and this is a complicated process with participating of diversities of actors. The research indicates that there is a gap in the policies of the heritage management causing conflicts for urban development issue; the local government needs to have more specific policies in order to solve the remaining problems and exploit the heritage space effectively. Besides, gentrification is a concept coined by the Western, so it is needed to develop appropriately to the concrete context when applying to Asia countries, especially Vietnam.*

**Keywords:** *Gentrification, Heritage Management, Hue Citadel, Urban Development Policy*

## **1. Introduction**

### **Overview of Gentrification**

I begin the article by sketching the preliminary definitions about the concept of gentrification through the ideas of diverse academic scholar groups. The terminology gentrification was first coined by sociologist Ruth Glass in 1964 that referred to the property market in central London where the influx of middle-class people displaced lower-class worker residents in urban neighborhoods (Glass, 1964; Atkinson & Bridge, 2005). Until the 1980s of the 20th century, Smith defined gentrification as a “process by which working class residential neighborhoods are rehabilitated by middle class homebuyers, landlords, and professional developers” (Smith, 1982). These traditional definitions of gentrification are

relevant to direct displacement of the low-income class from their residential quarters (Hackworth & Smith, 2002).

Since this concept was engendered, it has become to relate to a multi-faceted phenomenon in social practice that can be defined in different ways. Gentrification can be seen under many perspectives depending on the field that the observers stand, such as five explanations of Palen and London (1984): demographic-ecological, sociocultural, political-economical, community networks, and social movements. The process of gentrification has metamorphosed and its variants have proliferated (Lees et al., 2008). Following to the history of studying gentrification concept, it can be classified into three academic groups of gentrification scholars. The traditional group looks gentrification as the physical, considers about the beauty. The second is inhabitant who is living in this space. And the third is considered with changing power relations.

More recent, definition of gentrification overcome the debilitating and rigid conceptual boundaries of their predecessors, which is more related to creating affluent space and upward class transformation in urban neighborhoods (Davidson & Lees, 2005; Smith, 1996). Hackworth and Smith (2002) defined gentrification as “the production of urban space for progressively more affluent users”. Similarly, Lees et al. (2008) integrates abandoned parcels of land as sites for the process into their definition of gentrification, thus allowing for the inclusion of new-build and other recent mutations of gentrification. Accordingly, gentrification is “the transformation of a working class or vacant area of the central city into middle class residential or commercial use”, which can now be observed globally (Smith, 2002; Atkinson and Bridge, 2005; Lees, 2012).

The term gentrification then could be developed and mutated that originally refers to a clearly defined irregularity in the London housing market, embrace facets as diverse as, for instance, “rural gentrification”, “new-build gentrification”, “heritage gentrification”, “studentification”, “tourism gentrification”, “weekend- and evening gentrification”, “marginal gentrification”, “super gentrification”, “coastal gentrification”, “provincial gentrification” and “state-led gentrification”. Thereby scholars have started both emphasizing how recent waves of gentrification pose a challenge to its conceptualization and debating how 21st-century gentrification might be defined (Davidson and Lees, 2005).

Nowadays, gentrification, a phenomenon in urban development process that relates to the change of capital issue, has been substantially supported by the state or local governments with reasoning as “urban restructuring” policies aim to disperse low-income residents out of the inner city and into the suburbs as well as redevelop the city to foster mobility between both the central city and suburbia as residential options (Lees et al., 2010). Within this process, there are three crucial effects which are emerged and cause many contestations for the urban, those are, displacement, social changes, and economic shifts<sup>1</sup>. In

---

<sup>1</sup> <https://en.wikipedia.org/wiki/Gentrification> [01.6.2020]

which, displacement of lower-income families as a result of gentrification has been a major issue for decades (Freeman, 2005).

### **The Hue Citadel - Heritage and Living Space**

This study was conducted in the Hue Citadel, one of the most important monuments in Hue city (Vietnam), located in the center of the city, which has acknowledged as a world heritage by UNESCO since 1993. Hue citadel encompasses numerous of other heritages inside (Imperial City, Forbidden Purple City, Royal Canal, palaces, fortress, moats, lakes, esplanade...) and more than 65,000 people of 4 wards (Thua Thien Hue Statistical Office, 2015), who stay among the heritages with their live activities of a contemporary society. Historically, the living of people in the Citadel has existed for more than a hundred years; however, the process of urbanization, especially after the “doi moi”<sup>2</sup> period, has led to the situation of population concentration overcrowded in this area. Since the early 90s of the XX century, when the important role of protecting the relics has emerged, at once the perception of value of living space of the residents has become more seriously. People not only have to exploit the heritage buildings for living (at Tang Tho Pavilion, Binh An Duong...), but also maintain their lives in places where they are not allowed to build their houses (on the wall of the Citadel, fortress...), and expand the architectural space illegally to meet the increasing demand of dwelling. The status of encroachment on heritage is due to the shift in perception of space of production and reproduction surrounding the term of capital accumulation (Lefebvre, 1991; Luxemburg, 2003).

Accordingly, Hue city in general and Hue citadel in particular have been confronting with controversies in the work of heritage-urban management. The increasing issue of population together with the economic value of the real estate causes the problem of encroaching and destroying the heritage to meet the living space demand in this area. In addition, regarding to the requirements of the heritage organizations from many levels, the task of displacement and reclaiming intact heritage put the imperativeness for the mission of heritage protection. By that situation, the local government has approved many regulations in order to preserve the heritage and control the urbanization process. However, the contestations are still happened among the local people, government, and other organizations. Each of group has their own thoughts and perspectives, and even the ways of practice to the heritage, thus there are many questions are emerged around this heritage. Within this article, I focus to investigate the policies of urban development in heritage preservation mission and explore the process of gentrification in the Hue Citadel.

---

<sup>2</sup> “Doi moi” is the name given to the economic reforms initiated in Vietnam in 1986 with the goal of creating a “socialist-oriented market economy” (retrieved from [https://en.wikipedia.org/wiki/%C4%90%E1%BB%95i\\_M%E1%BB%9Bi](https://en.wikipedia.org/wiki/%C4%90%E1%BB%95i_M%E1%BB%9Bi) [01.0.2020])



**Figure 1: A view of the Hue Citadel (Source: Internet<sup>1</sup>)**

## **2. Method**

This research is designed mainly as a qualitative research which involves data “in the form of words, pictures, descriptions” (Monette, Ullivan, and Dejong, 2005). The research was conducted within the locality of Hue citadel by observational research method to capture the situation of gentrification in the area. Besides, the methods as document analysis and description were also used. The data were collected on approaching the documents (governmental policy of conservation and urban management, heritage Laws, statistics, and maps of planning) from many organizations (governmental organization: People Committee, Division of Urban Management, Department of Construction, Institute of Construction and Planning; Monuments Conservation Centre; Other related organization such as educational organization and urban research center).

Gentrification in this case is a phenomenon in the process of moving the habitants on the heritage. This level of analysis is within the provincial policies base on the requirements of the nation and international levels. The study has chosen to examine and analyze phenomenon and progression of gentrification process through evaluating the policies of heritage preservation and urban management. The research is interested in the nexus among heritage site and living space which exist at once to form an urban space. This space is not only the interaction of among current social aspects but also the interaction between the value and social capital from the past to present and future. Through this level, the study explores the fundamental conflicts which are happened in this site.

## **3. Results**

### **Regulations Support the Gentrification**

Gentrification is a complicated process, so there are many documents as regulation and policy in many levels, such as the international community including UNESCO, as well as of the national, local authorities, which conduct the process. However, here I will present

---

<sup>1</sup> <https://thuathienhue.gov.vn/> [12.11.2018]

some crucial documents which are the main urban development policies that concern gentrification issue in the heritage site.

First of all, I have to mention about the “Convention Concerning the Protection of the World Cultural and Natural Heritage” (UNESCO, 1972) as an indirection regulation from the international level, which authorize to the lower levels as nation, province, and the local government. The governments of Vietnam and Thua Thien Hue Province have applied thoroughly all regulations set in the international framework to which Viet Nam was committed in the preservation of the Hue Heritage property, particularly the Operational Guidelines for the Implementation of the World Heritage Convention. At the same time, the Government of Vietnam issued the legal documents and regulations at central and local levels in order to give strong protection to the Outstanding Universal Value of the heritage property.

Secondary, it is the “Law on Cultural Heritage (No.28/2001/QH10) dated June 29, 2001” and “Law on amendment and supplement of Law on Cultural Heritage (No.32/2009/QH12) dated June 18, 2009”. “Decree No. 98/2010/NĐ-CP dated September 21, 2010 of the Government that detailing a number of Articles of the Law on Cultural Heritage and the Law amending and supplementing a number of Articles of the Law on Cultural Heritage”. Regarding to the gentrification in the heritage area of Hue citadel, the Law especially regulates for the management and protection of the core zone and buffer zone of the heritage property (Article 32). This contributes the basic to identify territory of the area that must be gentrified.

Besides, the three years after the site’s inscription in the World Heritage List, the “Master Plan for the Preservation and Enhancement of the Complex of Hue Monuments’ Values in the period 1996-2010” was officially approved by the Government of Vietnam. Following this, the “Adjusted Master Plan for the Preservation and Enhancement of the Complex of Hue Monuments’ Values in the period 2010-2020” was also approved in 2010, allowing a budget location of thousands of billion VND for the protection and promotion of the site, especially for the compensation, displacement, and preservation. By the “Decision No.1918/QĐ-UBND dated September, 2011 the People’s Committee of Thua Thien Hue Province on approving the renovation and embellishment of the Hue Citadel system”, this is a good opportunity for supporting the gentrification projects getting more effective.

There are still many decisions and decrees that support gentrification of the citadel which concerns many other fields of the urban management. Moreover, the assistance from many countries and international organizations are also very important for gentrifying the urban heritage. Nevertheless, all of the regulations from these supports are led by the laws mentioned above. Thus, gentrification process in Hue citadel is taken place with participating of many actors from various organizations of many levels. This referred to as government-sponsored which was quickly included in discussions of neoliberal urbanism as both paid a great deal of attention to the role of local government.

### **Process of Gentrification in Heritage Management Task**

In order to discuss on the gentrification in the Hue Citadel, I turn to stretch the heritage conservation work in this city. Vietnam joined the Convention Concerning the

Protection of the World Cultural and Natural Heritage in 1987. And since the Complex of Hue monument was inscribed on the World Heritage List at the 17th session of the World Heritage Committee in 1993, the role and mission of conservation work for the Hue monument complex are increasingly being actively concerned. Experiencing many events of history and natural calamities, besides the pressure of rapid speed of urbanization, Hue heritages have been facing many social conflicts. The problem of encroachment, transgression, and utilization of the heritage space, which happened from the war period in Vietnam until today, is one of the issues that need attention. On the other hand, as a world heritage, Hue Citadel is regarded as a common property not only locally or nationally that poses an outstanding task for conservation and heritage management. One of the most important assignments in preservation work that is the eviction and clearance of the residents who is living in/on the heritage site to reclaim the original status for the relic areas. This process is considered as one duty in order to satisfy the regulations of the Convention Concerning the Protection of the World Cultural and Natural Heritage (UNESCO, 1972) and the national Law on Cultural Heritage (2001, revised in 2009).

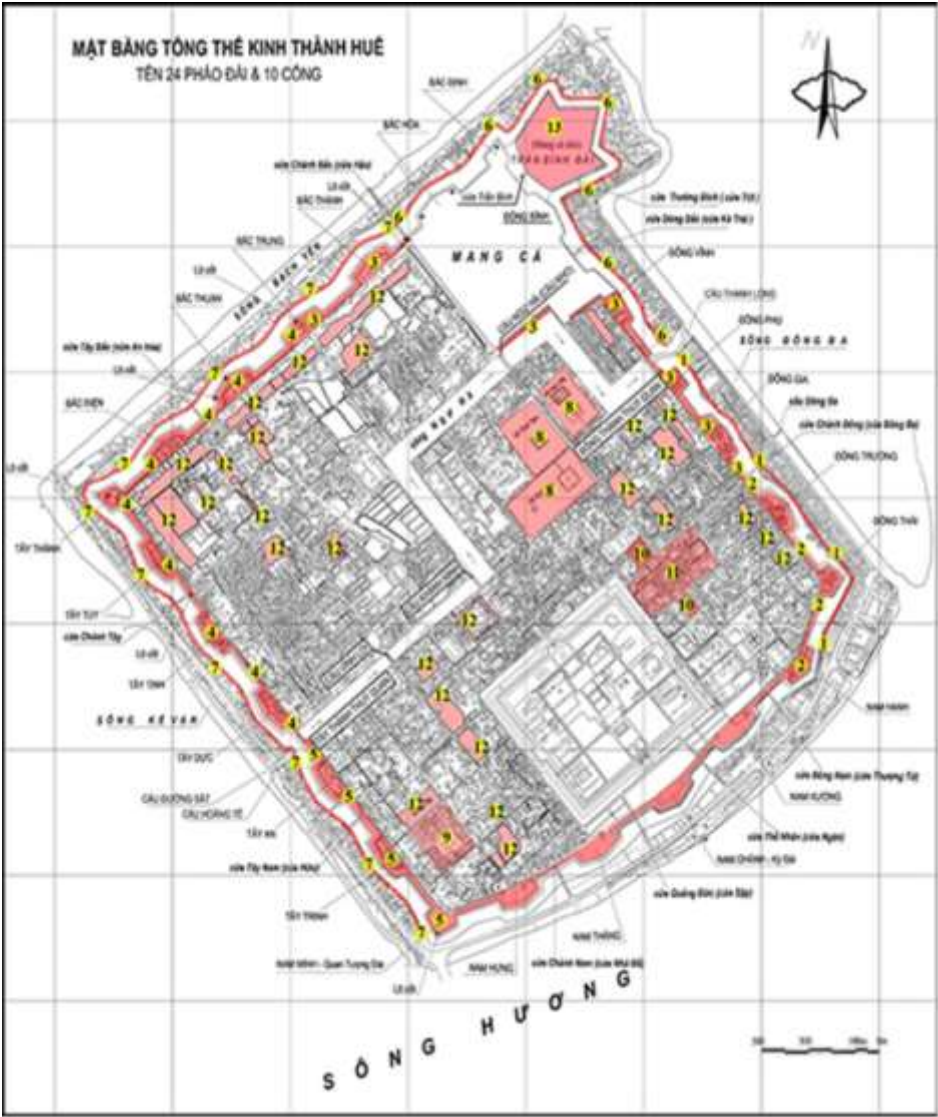
The item 3 of Article 32 of the Law on Cultural Heritage (2001, revised in 2009) clarifies as followings: “Protection Zone I must be protected in its original status quo in terms of layout and space. In special cases where works need to be constructed in service of the protection and promotion of the relic’s values, the construction must be approved in writing by the competent body in charge of ranking that relic. The construction of works for the protection and promotion of relics’ values in the protection Zone II must be agreed upon in writing by the presidents of the provincial-level People’s Committees for provincial-level relics and by the Minister of Culture, Sports and Tourism for national relics and special national relics. The construction of works as stipulated in this clause must not affect the relic’s original constituents, natural scenery and ecological environment of the relic.”



**Figure 2: Life in and on the Heritages (Source: Phan, 2015)**

The process of reclaiming the “original status quo in terms of layout and space” for the protected Zone I (Law on Cultural Heritage, 2001, revised in 2009) is a complicated process and always confronts many difficulties requiring consensus and cooperation from many sides to solve the problem in a reasonable way. This process often consists of many steps in the following order: compensation, resettlement, displacement, and renovation. This

work, on the one hand, is a task of preservation; on the other hand, it is a form of urban renewal or can be said as an urban gentrification process (Butler and Grabinski, 2015). Process of displacing the local (with almost are low-income people) then regenerating the area relates to creating affluent space and upward class transformation in urban neighborhoods - a thinking of gentrification (Davidson and Lees, 2005; Smith, 1996). Rather, the process here is conducted with the state actors using gentrification as a tool to change the social space and economic accumulation; thereby gentrification has mutated and concept of state-led gentrification has emerged (Hackworth and Smith, 2002; Lees, 2008; Uitermark et al., 2007). Adopting the term state-led gentrification to the case study in Hue city, although it is still strange for the work of urban management and heritage conservation here, but it may be favored by policymakers and scholars who take a less critical or class-based view of the process (Doucet, 2014; Lees, 2008; Posthumus, 2013).



**Figure 3: Master plan of displacement at the protected Zone I in the Hue Citadel**

*(Source: Internet<sup>3</sup>)*

<sup>3</sup> [http://daibieunhandan.vn/ONA\\_BDT/NewsPrint.aspx?newsId=411269](http://daibieunhandan.vn/ONA_BDT/NewsPrint.aspx?newsId=411269) [01.6.2020]

Following to the process, I attempt to describe the situation of this work that both government actors and the residents have been confronting many problems turning around social practice and power relation. Since 2002 until 2012, the process of displacement has carried out and almost 500 households have displaced at the zone I of heritage protected areas in the citadel. Yet there are still more than that number of households stay at the Zone I of the heritage. (Phan, 2015) Although in September 2011, Thua Thien Hue People's Committee issued Decision No.1918/QĐ-UBND on approving the renovation and embellishment of the Hue Citadel system with a total investment of over VND 1,282 billion (more than USD 60 millions) for conservation and displacement of the heritage until 2015. Nevertheless, the process has not been completing. The report in 2015 of the Hue Monuments Conservation Centre addressed that the displacement “is the ‘heaviest’ work, because it not only compensates for land clearance but also has to have land fund and budget to build resettlement housing for people, implement the policies on support to change jobs, support relocation... The implementation of land clearance is slow due to the size of the project, the number of affected households; there are many obstacles when applying between reality and current policy... so the implementation of the project also encountered many difficulties. Many households are not entitled to compensation for land, compensation and support costs are low; and many of them have no assets to be compensated or supported; therefore, the creation of new housing is difficult when deducting the purchase price of resettlement apartments, reducing the source of budget revenue to recreate the capital to continue investment of the project.” (Phan, 2015)



**Figure 4: The site after displacement two year (Source: Author)**

Thus, through strategy of eviction, the result is absolutely not as expected and the controversy has been continuing. There are many people still stay at the heritage sites and do not approve the displacement policy. In addition, the heritage spaces, which are displaced and cleared, are still fallowed causing the problem for urban aesthetic and heritage protection. These can be considered as conflicts among residents and governmental policy in term of urban development for gentrification practice. Since the term state-led gentrification has use as a policy for this research (Uitermark et al., 2007), the problem has shown above indicates that there is a gap in the policies of the heritage management. In other



words, it can be said that the documents and regulations which are used to support the gentrification for the citadel consisting many matters. Accordingly, the gentrifier, namely the local government, needs to have more specific policies in order to solve the remaining problems and exploit the heritage space effectively.

#### **4. Discussion and Conclusion**

Turning around the issue of urban development, through the briefly describing on gentrification process of the Hue Citadel, the work of reclaiming the “original status quo” of the heritage as requirement of the Law (2001 & 2009) embraces many contestations and difficulties. It is a complicated process that exacts issues of time, finance, and even investment of regeneration, protection, and promotion for the heritage after long term later. Time and plan for displacement process cause the local people in the core zones are exhausted. Besides, the work of zoning the heritage protected area leads to evict all the residents on the site, however in the reality, there are many households are not allowed to the policy. The questions has set out that how people negotiate to maintain their inhabitations at the evicted area; why they do not want to displace; and what they think about the heritage? In their practice of everyday life, people have many tactics to reach to their purpose of life (de Certeau, 1984). From the experts' point of view, community participation in heritage management is seen as part of sustainable development (Vongsa, 2006; Pattakiattichai, 2006). Thereby should the policy reconsider to let the people stay as a part of the heritage? (Winter, 2007; Herzfeld, 2016) In this way, the government would be not waste much budget and time to generate the urban and may support the local gentrify their space themselves then playing in the role to protect and promote the heritage.

The term gentrification was first begun from Western and then it spread widely into many countries on the world. Hitherto, in Vietnam, gentrification is mentioned as a very new concept and there is not exact translation or definition of gentrification (Dao and Nguyen, 2018). This concept actually is not popular to use in Vietnam in general and in Hue in particular so it is needed to develop appropriately to the concrete context when applying to Asia countries, especially Vietnam. Yet looking on the possessiveness, it is a way to renew and generate for the city. Certainly, practice within the complexity of social relation and the context of urbanization, gentrification confronts many problems that is difficult to solve. Consequently, the authorities need to investigate specifically to issue concrete policy which gathers the ideas and demands of all actors surrounding the process of gentrification in order to build the city towards to a sustainable development urban.

#### **5. References**

1. Atkinson, R. and Bridge, G. (Eds.), (2005), *Gentrification in a Global Context: the New Urban Colonialism*, London and New York: Routledge.
2. Butler, S. and Grabinsky, J., (2015), *The Anti-Poverty Case for “Smart” Gentrification, Part 2*, [www document] Retrieved from <https://www.brookings.edu/blog/social-mobility-memos/2015/02/11/the-anti-poverty-case-for-smart-gentrification-part-2/>[15.11.2018].

3. Dao, T. N., Nguyen, Q. T., (2018), *Gentrifications in Hanoi City Inner: Characteristics, Causes and Solutions*, Journal of Science and Technology in Civil Engineering NUCE, 12 (3): 89-101.
4. Davidson, M. and Lees, L., (2005), *New-build 'Gentrification' and London's Riverside Renaissance*, Environment and Planning A, 37 (7): 1165-1190.
5. Decision No.1918/QĐ-UBND, (2011), *Approving the Renovation and Embellishment of the Hue Citadel System*, Thua Thien Hue: Thua Thien Hue Provincial People's Committee.
6. Decree No. 98/2010/NĐ-CP, (9/2010), *Detailing a number of Articles of the Law on Cultural Heritage and the Law amending and supplementing a number of Articles of the Law on Cultural Heritage*, Vietnam: the Government.
7. de Certeau, M., (1984), *The Practice of Everyday Life*, Berkeley: University of California Press.
8. Doucet, B., (2014), *A Process of Change and a Changing Process: Introduction to the Special Issue on Contemporary Gentrification*, Tijdschrift voor Economische en Sociale Geografie 2: 125-139.
9. Freeman, L., (2005), *Displacement or Succession? Residential Mobility in Gentrifying Neighborhoods*, Urban Affairs Review, 40 (4): 463-491.
10. Glass, R., (1964), *London: Aspects of Change*, London: MacGibbon & Kee.
11. Hackworth, J. and Smith, N., (2002), *The Changing State of Gentrification*. Tijdschrift Voor Economische En Sociale Geografie, 92(4): 464-477.
12. Herzfeld, M., (2016), *Siege of the Spirits: Community and Polity in Bangkok*, Chicago: The University of Chicago Press.
13. Law on Cultural Heritage No. 28/2001/QH10 (6/2001) and Law on Amendment and Supplement of Law on Cultural Heritage No.32/2009/QH12 (6/2009), Vietnam: The Parliament of the Socialist Republic of Vietnam.
14. Lees, L., (2008), *Gentrification and Social Mixing: Towards an Inclusive Urban Renaissance?* Urban Studies 45: 2449-2470.
15. Lees, L., (2012), *The Geography of Gentrification: Thinking Through Comparative Urbanism*, Progress in Human Geography, 36(2): 155-171.
16. Lees, L., Slater, T., Wyly E., (2008), *Gentrification*, New York: Routledge/Taylor & Francis Group.
17. Lees, L., Slater, T., Wyly E., (2010)m *The Gentrification Reader*, London: Routledge.
18. Lefebvre, H., (1991), *Production of Space, Translated by Donald Nicholcon-Smith*, Oxford, UK: Blackwell Publishers.
19. Luxeburg, R., (2003), *The Accumulation of Capital, Translated by Agnes Schwarzschild*, London and New York: Routledge.

20. Monette, D. R., Sullivan, T. J., DeJong, C. R., (2005), *Applied Social Research (6th ed.)*, California: Brooks/Cole- Thomson Learning.
21. Palen, J. John and London, B., (1984), *Gentrification, Displacement, and Neighborhood Revitalization*, US: SUNY Press.
22. Pattakiattichai, P., (2006), *An Investigation of Local Heritage Conservation of Ko Kret : From Suffer to Survive to ... Sustain? In Proceeding of International Conference on Sustainable local Heritage Conservation: The Trandisciplinary Approach and ICOMOS Thailand Annual Meeting 2006*, Bangkok: Amarin: 160-171.
23. Phan, T. Hai, (2015), *Monument Management in the Hue Citadel: Eo Bau and Thuong Thanh Area. Report at the Workshop Hue Citadel into the Future: Managing Natural Hazards, Environmental Pollution, Tourism and Community Resettlement*, Thua Thien Hue: Hue University of Sciences.
24. Posthumus, H., (2013), *Displacement Myths. The Real and Presumed Effects of Forced Relocations Resulting from Urban Renewal*, Utrecht: Utrecht University.
25. Smith, N., (1982), *Gentrification and Uneven Development*, *Economic Geography*, Vol. 58 (2): 139-155.
26. Smith, N., (1996), *The New Urban Frontier: Gentrification and the Revanchist City*, London: Routledge.
27. Smith, N., (2002), *New Globalism, New Urbanism: Gentrification as Global Urban Strategy*, *Antipode*, 34(3): 427-450.
28. Thua Thien Hue Statistical Office, (2015), *Thua Thien Hue Provincial Yearbook 2015*, Thua Thien Hue: Statistical Publisher.
29. Uitermark, J., Duyvendak, J. W., Kleinhans, R., (2007), *Gentrification as a Governmental Strategy: Social Control and Social Cohesion in Hoogvliet, Rotterdam*, *Environment and Planning, A*(39): 125-141.
30. UNESCO (United Nations Educational, Scientific and Cultural Organization), (1972), *Convention Concerning the Protection of the World Cultural and Natural Heritage*, Retrieved from <http://whc.unesco.org/archive/convention-en.pdf> [01.6.2020].
31. Vongsa, M., (2006), *Sustainable Local Heritage Conservation: The Transdisciplinary Approach. In Proceeding of International Conference on Sustainable local heritage conservation: The Trandisciplinary Approach and ICOMOS Thailand Annual Meeting 2006*, Bangkok: Amarin.
32. Winter, T., (2007), *Post-Conflict Heritage, Postcolonial Tourism: Culture, Politics and Development at Angkor*, London and New York: Routledge.

# CONSUMERS' PURCHASING INTENTION TOWARD ORGANIC COSMETICS: INSIGHTS FROM HANOI

*M.A Nguyen Thu Nga*

*thunga10181@gmail.com*

*Do Thuy Dung*

*dothuydung99.ck@gmail.com*

*Phan Thi Quynh*

*quynhnb456@gmail.com*

*Le Ngoc Binh*

*lebinhnb1998@gmail.com*

*Le Anh Dung*

*leanhungvtvp@gmail.com*

*School of Trade and International Economics,  
National Economics University, Hanoi, Vietnam*

## **Abstract**

*The organic industry continues increasing year on year, and organic cosmetics has been emerging as a new trend. This qualitative study investigated the factors that affect Hanoi consumers' purchasing intention toward organic cosmetics based on the Theory of Planned Behavior (TPB). Data collected from 286 individuals from Hanoi were analyzed using multiple regression analysis via Statistical Package for the Social Sciences (SPSS) version 20.0. The results revealed that attitude, subjective norms and perceived behavioral control have a direct influence on consumers' purchasing intention of organic cosmetics whereas health consciousness was found to directly influence attitude. The findings of this research potentially benefits organic cosmetics enterprises in developing business strategies to attract consumers.*

**Keywords:** *consumers' purchasing intention, Hanoi, organic cosmetics, Theory of Planned Behavior*

## **1. Introduction**

### ***The rationale of the study***

In modern - days, beauty and health are constantly concerned in each stage of economic development (Hatfield & Sprecher, 1986; Joy & Venkatesh, 1994; Picot-Lemasson, Decocq, Aghassian, & Leveque, 2001). Particularly, using cosmetics as a beauty method has become a trend among the current generations and adults since using cosmetics could reflect their comfortable and flexible lifestyle (Eze, Tan, & Yeo, 2012). Actual consumption amount of cosmetics has been increasing as the result of rapid economic

growth, higher living standards and a substantial increase in consumers' attention to beauty care segment (Kim & Lee, 2016).

As for consumers, they are likely to prefer organic cosmetics rather than conventional ones because it removes of benign skin lesions (Beharrell & MacFie, 1991). Consequently, organic cosmetics were launched to meet the consumers' requirements for safe and clean beauty (Seo Bo Kyung, 2012).

On the other hand, Vietnam's population has exceeded 96 million people, creating a quite potential market for cosmetics companies (National Population and Housing Census, 2019). Past research from Mintel showed that the Vietnam cosmetic market in 2019 is worth 2,3 billion USD. Revenue in the Cosmetics segment amounts to 506,9 USD in 2020 and the market is expected to grow annually by 5,3% (CAGR 2020-2023). Following the global beauty trend, Vietnamese are more willing to stretch their budget for organic cosmetics because of its usefulness.

As the cosmetics industry continues to expand, it has led to face competitiveness and rising consumer expectation. So, understanding consumer purchasing intention - an important predictor of actual buying behavior plays an important role in creating effective strategies (Lu, Chang & Chang, 2014). In Vietnam, there have been a handful of studies on factors influencing the intention to buy cosmetics but not many ones have examined intention to buy organic cosmetics, especially in the Hanoi market (Hong Thi Nguyen, 2017, 562). Therefore, we have set out study **Consumers' purchasing intention toward organic cosmetics: Insights from Hanoi**, the second most crowded city in Vietnam that is likely to be a huge potential market for organic cosmetics companies. The research objectives can be specified as follows i) examine the factors that influence Hanoi consumers' purchasing intention toward organic cosmetics ii) assess the importance of each factor influencing Hanoi consumers' intention to buy organic cosmetics.

### *Literature review*

According to Zeithaml (1988), purchasing intention refers to the readiness of consumers to buy a product. Based on this opinion, we define "purchasing intention toward organic cosmetics" as "the readiness of consumers to buy a cosmetic product". From past literature, we see that there is much research studying on consumers' intention to buy organic products as well as organic cosmetics. We categorise factors investigated when studying about it into four types:

- Factors adapted from Theory of Planned Behavior: "attitude toward behavior", "subjective norm", "perceived behavior control"
- Health - related factors
- Environment - related factors
- Other factors related to cognitive

### **1. Factors from Theory of Planned Behavior - “attitude toward behavior”, “subjective norms” and “perceived behavior control”:**

Theory of Planned Behavior (TPB) was proposed by Ajzen (1985). The theory states that attitude toward behavior, subject norms, and perceived behavioral control, together shape an individual's behavioral intentions and behaviors. TPB is used widely to understand the key determinants of human behavioral intentions (Kim, 2009). Numerous researchers have used TPB as theoretical framework when researching on consumers' intention to buy organic products. The relationships between “attitude”, “subjective norms”, “perceived behavior control” and “consumers' intention toward purchasing organic products” have been examined in previous researches (Maloney et al., 2014; Yadav & Pathak, 2016; Justin Paul et al., 2016; Mai et al., 2016). In context of organic personal care and cosmetic products, most of researches demonstrated the positive relationships between those factors and consumers' purchasing intention (Kim & Chung, 2011; Fauzi & Hashim, 2015; Hsu et al., 2017).

### **2. Health - related factors:**

In numerous studies on consumers' organic products purchasing intention, health related cues are considered important factors. “Health value” was found exerts positive effect on “repurchasing intention” of organic personal care products (Ghazali et al., 2017). Specific studies on organic cosmetics purchasing intention found that “health consciousness” is a determinant of “attitude” or “health consciousness” indirectly influence on “purchasing intention” through “attitude” (Kim & Chung, 2011; Saleem & Recker, 2014; Fauzi & Hashim, 2015). Such studies indicated that consumers show a high level of health consciousness, they primarily intent to purchase organic cosmetics because they believed it has greater healthy benefits than conventional cosmetics

### **3. Environment - related factors:**

Environment related factors are supported as important predictors of intention to purchase organic, green or natural products. Azizan & Suki (2013); Yadav & Pathak (2016) pointed out that “environmental consciousness” and “environment literacy” have a positive influence on “green consumption intention”. “Environmental attitude” was also found to exert positive effect on intention to buy green products (Chan Yew Ling, 2013)

Besides that, in other studies on purchasing intention toward organic cosmetics, it's argued that the relationship between environments related factors and consumers' purchasing intention is mediated by “attitude”. The level of the environmental consciousness has become an important factor in predicting one's attitude toward purchasing organic cosmetics (Kim & Chung, 2011; Fauzi & Hashim, 2015).

### **4. Other factors related to cognition:**

Other factors related to cognition are mainly supposed to indirectly affect purchasing intention through attitude. “Perceived expensiveness” (Maloney, 2014), “perceived authority support” (Jacky Chin, 2018) was found to exert indirect influence on American consumers' organic products purchasing intention through “attitude” (Maloney, 2014). Research of Kim & Chung (2011) indicated that “appearance consciousness” positively

affects consumers' "attitude" toward purchasing organic personal care products. "Self-image consciousness" which is quite similar to "appearance consciousness" was also proposed to have impact on "attitude"; however, results of the research show that there is no significant relationship between them (Fauzi & Hashim, 2015).

### ***Summary and Critique of the Literature***

Much of the research on consumers' purchasing intention to organic products in general and organic cosmetics uses TPB as theoretical framework. The relationships between "attitude", "subjective norms", "perceived behavior control" and "consumers' intention toward purchasing organic cosmetics" have been supported in numerous studies. Furthermore, many researchers tried to extend TPB by proposing factors (health - related factors, environment - related factors and other factors related to cognitive) expected to directly affect or indirectly affect consumers' purchasing intention to organic cosmetics through attitude.

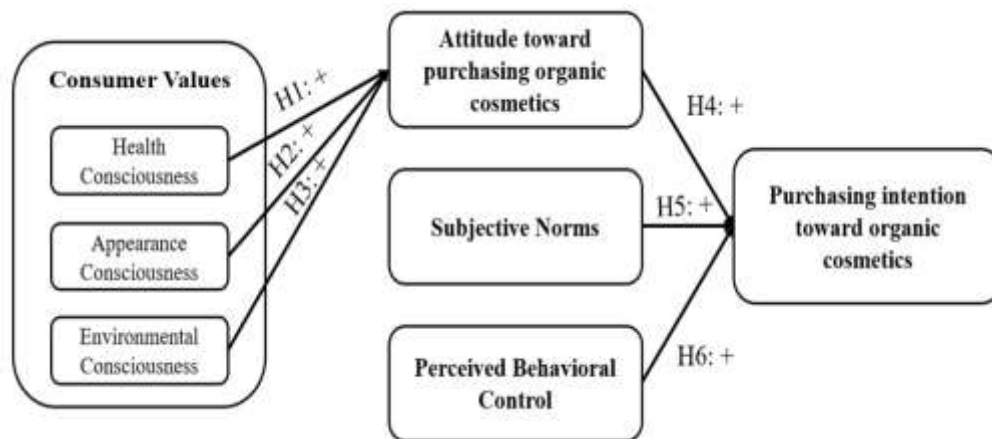
However, there is still limitation in past literature. Therefore, this research provided contributions in the following aspects: i) research on organic cosmetics was quite limited; ii) few researches studied the relationship between consumer values and purchasing intention toward organic cosmetics; iii) study on organic cosmetics has not examined users in Vietnam, specifically in Hanoi.

### ***Research framework and hypothesis development***

Many researchers have used the Theory of Planned Behavior (TPB) or its components to examine consumers' purchasing behavior in regard to organic products (Arvola et al., 2008; Vermeir & Verbeke, 2008), organic personal care products (Kim, 2009; Kim & Chung, 2011; Saleem & Recker, 2014) and organic hair/skincare products (Mombeini et al., 2015). Current studies about the same topic have included "consumer values" (health consciousness, environmental consciousness, and appearance consciousness) which were proposed to have a major influence on attitude toward purchasing intention of organic cosmetics (Kim & Chung, 2011; Saleem & Recker, 2014). This research uses three variables from the TPB model (attitude, subjective norms, and perceived behavioral control) to examine consumers' purchasing intention toward organic cosmetics and includes three variables of "consumer values" to examine attitude. After discussion, we propose the following research framework (see figure 1).

Rokeach (1973) defined the value concept as "an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence". On the basis of Rokeach's definition, value has been studied in consumer behavior by many researchers. In this context, it's called "consumer value" (Kahle et al., 1986).

Ever since the formation of the concept, "value" has been placed in relationships with "attitude" and "behavior" (Rokeach, 1973). Homer and Kahle (1988) developed the value - attitude - behavior hierarchy, that means attitude mediate the relationship of value and behavior. Value can affect the formation of an individual's attitude by guiding them to find things that satisfy their value (Grunert & Juhl, 1995).



**Figure 1: Research Framework**

“Consumer values” were found to have crucial influence on consumers’ attitude toward organic cosmetics (Kim & Chung, 2011; Saleem & Recker, 2014). In this research, we consider “consumer values” on three aspects: i) Health consciousness; ii) Environment consciousness; iii) Appearance consciousness. These three factors were found to affect consumers’ attitude toward purchasing organic cosmetics (Kim & Chung, 2011; Maria, 2011; Ong, 2012).

**Health Consciousness (HC)** HC assesses the readiness of an individual to undertake healthy actions. HC guides people to engage in healthy behaviors (Becker et al., 1977).

HC is a factor that strongly motivates consumers’ attitude toward purchasing organic products (Tsakiridou et al., 2008), implying that consumer with a high level of HC would consider purchasing organic products (Grankvist & Biel, 2001; Newsom et al., 2005)

In the context of purchasing skin/hair care products, consumers with high HC might consider whether a product is safe to their skin and body; therefore, they may be seriously concerned with the types of ingredients used to make the product (Johri & Sahasakmontri, 1998). Saleem and Recker (2014); Fauzi and Hashim (2015) suggested that HC positively affects consumers’ attitude toward purchasing organic personal care and cosmetic products. Therefore, a hypothesis is proposed as below:

**H1: Health consciousness (HC) positively affects consumers’ attitude toward purchasing organic cosmetics (AT).**

**Appearance Consciousness (AC):** AC leads people to be interested in cosmetics and clothing that express or alter their images (Lee and Lee, 1997). As stated by Todd (2004), consumption of beauty products is a purchasing behavior satisfying needs to improve personal appearance.

Kim and Chung (2011) highlighted the importance of AC in predicting attitude toward purchasing organic personal care products. It is well documented AC positively influence attitude toward purchasing organic cosmetics, that when consumers face abundance of options for cosmetics, they prefer to choose the one that is expected to help them improve their appearance (Ong, 2012). Therefore, a hypothesis is proposed as below:



***H2: Appearance consciousness (AC) positively affects attitude toward purchasing organic cosmetics (AT).***

***Environmental Consciousness (EC):*** EC refers to one's degree of emotional attachment to environmental issues (Benton, 1994) and guides consumers to greener behavioral intent (Schlegelmich et al., 1996).

Specific studies on behavior toward green products found that environmental concerns have strong influence on consumers' attitude toward green products (Chan, 2001; Mostafa, 2007; Ishaswini & Datta, 2011).

Research of Fauzi and Hashim (2015) indicated that EC is a strong determinant of consumers' attitude toward green cosmetic and skin care products. Other researches' results also support the positive relationship of EC and consumers' attitude toward purchasing organic personal care and cosmetic products (Kim and Chung, 2011; Maria, 2011; Saleem & Recker, 2014). Therefore, a hypothesis is proposed as below:

***H3: Environmental consciousness (EC) positively affects attitude toward purchasing organic cosmetics (AT).***

***Attitude (AT)*** AT refers to personal evaluations being favorable or unfavorable to perform the behavior and it is determined by attitudinal belief and outcome evaluation (Ajzen, 1985).

According to TPB (Ajzen, 1985), an individual is more likely to perform a certain behavior if they have positive attitude toward that behavior. The positive relationship between consumers' attitude and behavioral intentions for green consumption has been supported in numerous studies conducted in different cultures, different product categories such as organic foods or timber - based products (Chen, 2007; Mangnusson et al., 2003; Michaelidou & Hassan, 2008; Tarkiainen & Sundqvist, 2005).

Besides, past researches proved that there is a positive relationship between consumers' attitude and intention toward purchasing organic personal care products (Kim, 2009; Saleem & Recker, 2014). Research by Maria (2011) also indicated that attitude is an important predictor of consumers' purchasing intention toward organic cosmetics.

Therefore, a hypothesis is proposed as below:

***H4: Attitude positively affects consumers' purchasing intention toward organic cosmetics.***

#### ***Consumer Values***

***Subjective Norms (SN):*** SN refer to the perceived social pressure to perform or not to perform the behavior (Ajzen, 1991). The more an individual appreciates others' opinion about a behavior, the more likely he/she follows them into engaging such behavior (Ajzen, 1991)

Researches of Kim & Chung (2011), Jacky Chin (2018) both concluded that SN positively affects consumers' purchasing intention toward organic personal care products. SN was also proved to enhance environmentally friendly purchasing intention of the young generations. (Lee, 2008). Moreover, SN was found to have influence on

repurchasing intention of personal care products containing ingredients of natural origin (Ghazali et al., 2017). A research conducted in Vietnam again confirmed that SN positively impacts on purchasing intention toward organic cosmetics (Nguyen et al., 2017). Therefore, a hypothesis is proposed as below:

***H5: Subjective Norms (SN) positively affects on consumers' purchasing intention toward organic cosmetics (PI).***

***Perceived Behavioral Control (PBC):*** PBC refers to an individual's perception of the necessary conditions or opportunities to perform a specific behavior easily (Ajzen, 1991; Armitage & Conner, 1999). Individuals with a higher degree of control over their behavior would have a stronger behavioral intention (Ajzen, 1991). When a consumer lacks the ability to perform the action, he/she would not likely intend to take such action regardless of other objective conditions namely resources or opportunities is good or not (Ajzen, 1989; Schifter & Ajzen, 1985)

PBC is a direct predictor of behavioral intent (Armitage & Conner, 2001). Besides, a number of researchers studying about environmental behavioral intentions claimed that PBC could partially predict the intention to perform a certain behavior relating to the environment (Fielding et al., 2008; Kanchanapibul et al., 2014). Past literature also demonstrated that PBC has a positive effect on green product purchasing intention, even affecting the intention more than subjective norms (Yadav & Pathak, 2016)

In the context of purchasing organic skin/hair care products, PBC was found to positively influence purchasing intention (Mombeini et al., 2015). A study conducted by Kim & Chung (2011) argued that PBC was a strong factor affecting consumers' intention to purchase organic personal care product (Kim & Chung, 2011). Therefore, a hypothesis is proposed as below:

***H6: Perceived Behavioral Control (PBC) positively affects consumers' purchasing intention toward organic cosmetics.***

## **2. Method**

### ***2.1. Data collection and sample***

Data were collected from a simple random sample of citizens living in Hanoi through a questionnaire. The questionnaire was designed and divided into 3 sections. In the first section, the questions related to awareness of organic cosmetics and purchasing intention toward organic cosmetics were presented through multiple choice tests. In the second section, the questions were used to assess the viewpoints of respondents related to seven mentioned variables based on five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). In the third section, demographic questions were designed to obtain respondents' socio - demographic information. The data was collected by directly survey with the 349 respondents in Hanoi during the period from March 4th 2020 to March 16th 2020, in which 286 samples were valid and used for analysis.

**Table 1: Demographic Characteristics of Respondents.**

	<b>Demographics</b>	<b>Frequency</b>	<b>Percent</b>
<b>Gender</b>	Female	220	76,9
	Male	66	23,1
<b>Marital Status</b>	Married	269	94,1
	Single	17	5,9
<b>Age</b>	Below 20	66	23,1
	20-29	205	71,7
	30-39	9	3,1
	40-49	5	1,7
	50-59	1	0,3
<b>Education</b>	Over 60	0	0
	High School	17	5,9
	University	259	90,6
	After University	10	3,5
<b>Purchasing intention toward organic cosmetics</b>	Yes	259	80,1
	No	57	19,9

*Sources: According to the authors' research*

## ***2.2. Data analysis and research instruments***

Methods of primary data analysis: SPSS version 20.0 software

### ***Step 1: Statistics describe the items of variable***

The items are measured by a five-point Likert scale, which is used to allow individuals to express their level of opinion specifically.

### ***Step 2: Reliability test***

The reliability of the scales is tested by Cronbach's Alpha coefficient

### ***Step 3: Exploratory Factor Analysis (EFA)***

The purpose of exploratory factor analysis (EFA) is to summarize data so that relationships and patterns can be easily interpreted and understood.

### ***Step 4: Correlation statistics***

We use the Pearson correlation coefficient to conduct Correlation statistics. This step is to measure the relationship between variables. From there we would test real independent factors that correlate with the dependency and bring those factors into regression.

### ***Step 5: Regression analysis***

Regression analysis used to estimate the equation best suited to the observed result set of dependent and independent variables.

### 3. Results

Before collecting data for the main survey, a preliminary survey was conducted with 195 participants in which 158 samples are valid and used for analysis. After testing Cronbach's Alpha and the Exploratory Factor Analysis (EFA), we removed 4 items PBC1, PBC2, HC5 and SN4. Then we adjusted the questionnaire and conducted an official survey. The analysis results of the official survey are listed below:

**Table 2: Mean and Standard Deviations of factors**

Construct	Item		Mean	Std. D
<i>Health consciousness (HC)</i> 1. Gould (1990) 2. Cash & Labarge (1996) 3. H.Y.Kim (2009)	HC1	I reflect on my health a lot	4,29	,702
	HC2	I'm generally attentive to my inner feelings about my health	4,17	,699
	HC3	I'm involved with my health.	3,61	,816
	HC4	I'm aware of the state of my health throughout the day	3,63	,822
<i>Appearance consciousness (AC)</i> 1. Cash & Labarge (1996) 2. Fenigstein, Scheier, & Buss (1975) 3. H.Y.Kim (2009)	AC1	What I look like is an important part of who I am	3,93	,762
	AC2	My appearance is responsible for much of what has happened to me in my life	3,79	,815
	AC3	If I could look just as I wish, my life would be much happier	3,80	,904
	AC4	I'm usually aware of my appearance	3,99	,654
<i>Environmental consciousness (EC)</i> 1. Mostafa (2009) 2. Yadav and Pathak (2016)	EC1	The balance of nature is very delicate and can be easily upset	3,84	,729
	EC2	When humans interfere with nature, it often produces disastrous consequences	3,95	,851
	EC3	Humans must live in harmony with nature in order to survive	4,25	,654
	EC4	Mankind is severely abusing the environment	4,24	,717
<i>Attitude (AT)</i> 1. Conner, Warren, Close, & Sparks (1999) 2. H.Y.Kim (2009)	AT1	I (dislike/like) the idea of purchasing organic cosmetics	3,73	,906
	AT2	Purchasing organic cosmetics is a (bad/good) idea	4,14	,833
	AT3	I have a (bad/good) attitude toward purchasing organic cosmetics	4,09	,849

Construct	Item		Mean	Std. D
<i>Subjective norms (SN)</i> 1. Chen, 2007 2. Teng & Wang, 2015	SN1	My family members think it is a good idea for me to buy organic cosmetics.	3,50	3,40 ,695 ,780 ,829
	SN2	My friends think I should buy organic	3,41	
	SN3	Most people who are important to me think that I should buy organic cosmetics.	3,30	
<i>Perceived behavioral control (PBC)</i> 1. Chen, (2007) 2. Ghazali, Soon, Mutum, & Nguyen (2017)	PBC3	If organic cosmetics were available, nothing would prevent me from buying them	3,61	3,44 ,799 ,860 ,931
	PBC4	I have the resources and ability to buy organic cosmetics	3,37	
	PBC5	I am confident that if I want organic cosmetics, I can buy them	3,35	
<i>Purchasing intention toward organic cosmetics (PI)</i> 1. Michalidou and Hassan (2008) 2. Lin (2007)	PI1	It is likely that I will purchase organic cosmetics in the future	3,38	3,47 ,734 ,710 ,888
	PI2	If organic cosmetics was available, I would buy it.	3,89	
	PI3	I plan to buy organic cosmetics.	3,16	

Sources: According to the authors' research

Statistical data from Table 2 shows that EC has the highest mean of 4,07 and SN has the lowest of 3,4. The mean values of the remaining AT, HC, AC, PI and PBC are respectively 3,98; 3,93; 3,88; 3,47 and 3,44

**Table 3: Exploratory Factor Analysis and Reliability Test**

Factor	Factor loading	Item-total correlation	Eigenvalues	Cronbach's Alpha
<i>Health consciousness</i>			5,019	,811
HC1	,762	,666		
HC2	,730	,604		
HC3	,785	,677		
HC4	,749	,581		
<i>Appearance consciousness</i>			1,918	,783
AC1	,729	,553		
AC2	,846	,664		
AC3	,828	,662		
AC4	,628	,496		

<b>Factor</b>	<b>Factor loading</b>	<b>Item-total correlation</b>	<b>Eigenvalues</b>	<b>Cronbach's Alpha</b>
<i>Environmental consciousness</i>			2,451	
EC1	,620	,468		,753
EC2	,809	,624		
EC3	,711	,540		
EC4	,783	,581		
<i>Attitude</i>			1,794	,843
AT1	,820	,681		
AT2	,858	,757		
AT3	,839	,691		
<i>Subjective norm</i>			1,485	,816
SN1	,785	,612		
SN2	,837	,712		
SN3	,839	,692		
<i>Perceived behavioral control</i>			1,153	,607
PBC3	,655	,330		
PBC4	,704	,397		
PBC5	,804	,534		
<i>Purchasing intention toward organic cosmetics</i>			1,948	,722
PI1	,841	,603		
PI2	,789	,518		
PI3	,786	,529		

*Sources: According to the authors' research*

Table 3 shows that most of the factors have Cronbach's Alpha coefficient higher than 0,7 and the Corrected item-total Correlation coefficients are greater than 0.3. Therefore, it can be concluded that the scales are mostly quite reliable and can be used in the next analysis steps.

The EFA method is used to evaluate the convergence of each factor scale. The observed variables that do not meet the factor loading greater than 0.5 will be removed to keep the scales with high adhesion. EFA analysis does not rely on the relationship between dependent variables and independent variables but only on the correlation between variables, so we decided to analyze EFA for all variables at the same time.

According to table 3, the factor loading is greater than 0.5 and the total value of the extracted variance of 6 groups of factors equals to 65.807%. It means that explanatory factors could explain 65.807% of the variables (> 50%). The Eigenvalues coefficients of these groups of factors are greater than 1. It can be concluded that the observation variable has converged on 6 groups of factors.

**Table 4: Pearson correlation**

Factor	PI	AT	HC	AC	EC	SN	PBC
PI	1**	0,479**	0,296**	0,304**	0,144*	0,473**	0,400**
AT		1**	0,249**	0,180**	0,153**	0,386**	0,110
HC			1**	0,324**	0,359**	0,240**	0,322**
AC				1**	0,222**	0,102	0,170**
EC					1**	0,176**	0,162**
SN						1**	0,274**
PBC							1**

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

Sources: According to the authors' research

The correlation between the independent variables is from 0.1 to 0.5. These variables are positively correlated with each other in the medium. The dependent variable "Purchase Intention" is also significantly positively correlated with the independent variables. So they have a rather close relationship.

**Table 5: Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2,242	,390		5,753	,000
HC	,239	,079	,193	3,037	,003
AC	,127	,075	,104	1,706	,089
EC	,078	,080	,060	,976	,330

a. Dependent Variable: Attitude

Note.  $\Delta R^2 = .066$

Sources: According to the authors' research

The influences of HC, AC, EC on AT. From Table 5, the analysis results are presented below:

- *Health consciousness* affects positively ( $\beta=0,193$ ) and significantly purchasing intention (Sig = 0,003 < 0,005). Therefore, **the hypothesis H2 is strongly supported.**

- *Appearance consciousness* doesn't affect purchasing intention (Sig = 0,089 > 0,005). Therefore, **the hypothesis H5 is strongly rejected.**

- *Environmental consciousness* doesn't affect purchasing intention (Sig = 0,330 > 0,005). Therefore, **the hypothesis H6 is strongly rejected.**

Therefore, the model with a dependent variable is Attitude (AT) was presented as follows:

$$AT = 2,242 + 0,239 * HC + e_1 \text{ (Adjusted } R^2 = 0,066)$$

For the model, the results of the analysis show that the health consciousness variable explains 6,6% of the variation of the Attitude variable.

**Table 6: Coefficients<sup>b</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	,518	,217		2,391	,017
AT	,289	,041	,347	6,969	,000
SN	,247	,049	,260	5,043	,000
PBC	,281	,046	,291	6,092	,000

b. Dependent Variable: Purchasing intention toward organic cosmetics

Note.  $\Delta R^2 = .399$

Sources: According to the authors' research

To test the hypothesis of our research, we use two regression analysis models (with two dependent variables AT and PI) by the method of least squares (OLS). Estimated results from survey data can be shown as follow:

The influences of AT, SN and PBC on PI: From Tab 6, the analysis results are presented below:

- *Attitude* affects positively ( $\beta=0,347$ ) and significantly on the Purchasing intention toward organic cosmetics (Sig = 0,000 < 0,005). Therefore, **the hypothesis H1 is strongly supported.**

- *Subject Norm* affects positively ( $\beta=0,260$ ) and significantly on the Purchasing intention toward organic cosmetics (Sig = 0,000 < 0,005). Therefore, **the hypothesis H5 is strongly supported.**

- *Perceived Behavior Control* affects positively ( $\beta=0,291$ ) and significantly on the Purchasing intention toward organic cosmetics (Sig = 0,000 < 0,005). Therefore, **the hypothesis H6 is strongly supported.**

Therefore, model with dependent variable is Purchase Intention (PI) was presented as follows:

$$PI = 0,518 + 0,289*AT + 0,247*SN + 0,281*PBC + e_2. \text{ (Adjusted } R^2 = 0,399)$$

For this model, independent variables explain 39,9% of the variation of Purchase Intention.



**Table 7: Summary of the hypotheses test results**

	<b>Hypothesis</b>	<b>Result</b>
<b>Part 1</b>		
H1	Health consciousness → Attitude	Supported
H2	Appearance consciousness → Attitude	Not Supported
H3	Environmental consciousness → Attitude	Not Supported
<b>Part 2</b>		
H4	Attitude → Purchasing intention toward organic cosmetics	Supported
H5	Subjective norm → Purchasing intention toward organic cosmetics	Supported
H6	Perceived behavioral control → Purchasing intention toward organic cosmetics	Supported

*Sources: According to the authors' research*

#### **4. Discussion and conclusion**

##### ***4.1. A discussion relating the results to the literature***

This research aims to investigate the factors affecting Hanoi consumers' purchasing intention toward organic cosmetics based on Theory of Planned Behavior (TPB). The research findings in the relationship between consumer values and attitude toward organic cosmetics revealed that only health consciousness have a significant effect on attitude ( $\beta = 0.193$ , Sig. = 0.000). This result contrasts with such findings from research by Kim & Chung (2011) and Fauzi & Hashim (2015) which argued that attitude is significantly affected by appearance consciousness and environmental consciousness while health consciousness does not influence attitude. Hanoi consumers have higher health consciousness than environmental consciousness and appearance consciousness. The difference might be caused by that the research sample is not highly representative. Errors in the translation process that made participants misunderstand the items of variables could also be another reason. Additionally, the lack of organic cosmetics market coverage might lead to consumers' unconsciousness of the relationship between using organic cosmetics and environmental issues. Moreover, this environmental unconsciousness also exists because of the low environmental awareness of Hanoi consumers and the lacking of scientific evidence of organic products' environmental friendliness.

##### ***4.2. Implications for Practice***

###### **Recommendations related to introductory stage of product's life cycle**

One reason prevents consumers from buying organic products is that they are not well-informed about the products. Therefore, this study helps businesses adopt efficient methods to raise consumers' awareness about organic cosmetics in the introductory stage of product's life cycle. The recommendations for raising customers' awareness could be divided into three groups: advertising, public relation and sales promotion.

### ***Recommendations for advertising***

#### ***Advertising through social network:***

Social network has become a popular media for many businesses. The form of advertising that we highly recommend for businesses is video marketing on social networking platforms (e.g Facebook, Youtube, Twitter, etc). In addition to product information, businesses should pay special attention to visual and audible content of the video to attract active social network users.

#### ***Advertising through newspapers and magazines:***

Due to the vast number of readers, newspapers and digital magazines are typically ideal media to reach thousands and even millions of potential customers. Therefore, organic cosmetic companies should spend budget on advertising campaigns on renowned newspapers and magazines in Vietnam, such as VnExpress, Zing or Kenh14.vn The campaign could include advertising banners, in-depth articles about the products,...

#### ***Advertising on search engines:***

As people become reliant on search engines, spending money on advertisement on search engines can be a wise move. If the website of the company is shown on the top position of the search results, it will have a great chance to reach users when they search for the keywords related to organic products. This type of advertising helps businesses save costs and target potential customers. The method is suitable for organic cosmetic startups with limited financial resources to increase product coverage.

#### ***Recommendations for Sales Promotion: Increase customers' experience for organic cosmetics***

In order to increase customers' experience for organic cosmetics, a plan that businesses should consider is developing combined sale activities called co-marketing with conventional cosmetic products (for example, a bonus organic makeup remover for customers who buy makeup cosmetics). This strategy may raise potential consumers' awareness and experience of organic cosmetic products. In addition, businesses should give customers a chance to try their products at shops, commercial centers, beauty fairs and exhibitions and arrange customer consultants teams in place.

#### ***Recommendations for Public Relation: Sponsorship marketing***

Sponsorship marketing are the financial or in - kind support of activities to reach specific business goals. As for organic cosmetics enterprises, beauty contests or events related to environmental protection are worth considering as a pragmatic approach to reach potential consumers.

### **Recommendations related to the variables in the research model**

As mentioned above, attitude, subjective norms and perceived behavioral control all have significant positive effects on consumers' purchasing intention toward organic cosmetics, in which attitude is the most influential factor. It suggests that creating a positive

attitude toward purchasing organic cosmetics could be a great strategy to stimulate consumers' purchasing intention of such products. As a result, this study suggests that organic cosmetics manufacturers develop effective marketing strategies emphasizing ecological beauty or product safety to satisfy the potential consumers' values. This research found that health consciousness is the only determinant of consumers' attitude toward buying organic. Therefore, a suggestion to organic cosmetic manufacturers is to introduce more products that are safer for health.

In marketing, marketers should highlight the health-related attributes of the products to meet consumers' requirements. These will make customers more interested in buying organic cosmetics as they know using such cosmetics could benefit their health.

*Acquire organic certifications for the products.*

Raising consumers' awareness about the healthy value of organic cosmetics can contribute to improving their attitude toward the consumption of said products. Companies and manufactures should consider applying for organic certifications offered by top organic certificates worldwide such as the USDA organic seal, ECOCERT, and BDIH organic certification for cosmetics before launching new products.

Businesses should pay attention to highlight the organic cosmetics' health safety features, especially the certificates that have been granted for the products.

*Eco-labelling for organic cosmetic products*

Most respondents are concerned about the environmental friendliness of organic cosmetics. Companies should pay particular attention to the environmentally - friendly attitude which has existed on consumers. We recommend organic cosmetics companies apply for a green label on their products to help consumers easily recognize the difference of organic cosmetics compared to conventional ones. This also helps businesses naturally earn consumers trust in the eco friendliness of such product type. The criteria of Vietnam green label for companies' product are regulated in Circular No. 41/2013/TT-BTNMT dated December 2, 2014 of the Ministry of Natural Resources and Environment on providing orders, procedures and certification of eco-labels for environment - friendly products.

*Using green packaging and bags*

Organic cosmetics products can be wrapped in bags made from environmentally friendly materials such as bark, non-woven bags or biodegradable nylon bags rather than petroleum - based packaging as before. Such materials could also be used to make cosmetics packing or lids. This would contribute to environmental protection and cut back on input costs for producing the goods. Businesses should run schemes at their branches of the organic cosmetic retailers which organizing recycling contests from used bags or accepting empty packaging from their beauty products in return for a certain percent discount.

Subjective norms were also proved to exert a significant positive influence on consumers' purchasing intention toward organic cosmetics. Therefore, we suggest that enterprises should use influencer marketing. Nowadays, one of the most influential

individuals on organic cosmetic consumers is Beauty Blogger - who shares their experience in beauty area in a blog platform. Beauty bloggers provide consumers important information when they want to learn about personal care products and cosmetics. Therefore, organic cosmetic enterprises should co-operate with some famous beauty bloggers in Vietnam. Moreover we recommend a collaboration between an organic cosmetic and a public figure to launch new organic cosmetic collections to solve the growth problem in the long run.

It is noteworthy that perceived behavior control plays an important role in predicting organic cosmetics purchase intention. Organic cosmetics companies should realize that to distribute their products more widely and conveniently for customers. This gives customers more opportunities to approach and buy the products. Companies should develop locations in shopping centers and big supermarkets in Hanoi, especially setting up its store near other stores of leading international cosmetics brands to make use of consumers visiting these stores. Another option is that brand's official stores should sit on some of the glitziest shopping street in Hanoi or the areas that are located many buildings and offices to attract a colossal number of potential consumers.

Companies could consider modeling a multichannel distribution. Apart from the POS channel, businesses should outsource a professional team to design an official homepage site with website speed enhancement that optimizes the customer purchasing experience. We also recommend companies focus on developing sales through three Vietnamese ecommerce platforms among most visited sites namely Shopee, Tiki and Lazada in order to enlarge consumers' accessibility to the products.

#### ***4.3. The Limitations of the Present Study***

First, due to the unexpectedly coronavirus outbreak, it was a bit difficult to approach consumers. The survey was mainly conducted online. Not many old people could take part in the survey because they don't usually use the Internet. The proportion of women in the sample is also much larger than those in Hanoi's population. These may reduce the representative of the research sample. Secondly, there were still a small number of participants being confused about the term "organic cosmetics" and this may affect their assessment. Lastly, three factors proposed as consumer values seem not enough to predict the attitude of consumers (only health consciousness is found to exert influence on attitude and it just explains 6,6% the variation of consumers' attitude).

#### ***4.4. Suggestions for future research***

Based on the findings of this study and its limitations, several suggestions for future research could be considered:

*About sample size:* For better generalization, future research should attempt to obtain responses from diverse population groups in terms of nationality, ethnicity, age, education level, income, and residential area.

*About methodology:* Researchers should refine the survey instruments and consider other data collection methods such as the mall intercept, in-depth interview, ... to increase

the validity of the results. Offline surveys could be used to compensate for the weakness of online surveys.

*About the research framework:* The TPB model is open to the addition of predictors (Ajzen, 1991). Other variables could be integrated to the TPB model to provide more valuable theoretical and practical implications. TPB could be enhanced by incorporating past experiences with organic products into the model. Future research could extend an application of the TPB by examining the moderating influence of perceived behavioral control on the relationship between attitude toward buying organic cosmetics and purchase intention for them and other socio-demographic variables.

Variables of the TPB model could also be used to explore the factors that influence consumers' attitudes and purchasing intentions toward stores offering organic products (H.Y. Kim, 2009). Future research might help organic product retailers understand consumers' intention to increasing consumers' store purchases as well as enhancing store preferences.

*About the research topic:* Another line of research that deserves attention is the study on consumers' behavior toward organic cosmetics. Moreover, we recommend that researchers could conduct a study to examine whether consumer's purchasing intention positively affect their actual behaviors.

Research on organic cosmetics purchasing intention between a developing country or emerging market and a developed country is also an interesting topic for future research. It has been recommended for future research to refine other organic product categories to gain more varieties in organic product pattern behavioral intent.

#### ***4.5. The overall significance of the study:***

The findings of this study show that organic cosmetics purchasing intention is directly affected by three variables adapted from the TPB model (attitude, subjective norms, perceived behavioral control). It should be noted that health consciousness also has a direct effect on attitude.

This study provides several valuable implications.

*From a theoretical perspective,* this study investigates factors influencing consumers' purchasing intention towards organic cosmetics by applying the TPB model. We conclude that TPB is significantly beneficial for understanding consumers' purchasing intention toward organic cosmetics.

*From a managerial perspective,* based on the research findings on purchasing intention toward organic cosmetics, this paper could form the basis for effective marketing strategies that are directed by consumer preferences which increase their intention of purchasing.

## **5. References**

1. Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In *Action control* (pp. 11-39): Springer.
2. Ajzen, I. (1989). Attitude structure and behavior. *Attitude structure and function*, 241, 274.

3. Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179-211.
4. Armitage, C. J., & Conner, M. (1999). Distinguishing perceptions of control from self-efficacy: Predicting consumption of a low-fat diet using the theory of planned behavior 1. *Journal of Applied Social Psychology*, 29(1), 72-90.
5. Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British journal of social psychology*, 40(4), 471-499.
6. Arvola, A., Vassallo, M., Dean, M., Lampila, P., Saba, A., Lähteenmäki, L., & Shepherd, R. (2008). Predicting intentions to purchase organic food: The role of affective and moral attitudes in the Theory of Planned Behaviour. *Appetite*, 50(2-3), 443-454.
7. Azizan, S. A. M., & Suki, N. M. (2013). Consumers' intention to purchase green product: Insights from Malaysia. *World Applied Sciences Journal*, 22(8), 1129-1134.
8. Becker, M. H., Maiman, L. A., Kirscht, J. P., Haefner, D. P., & Drachman, R. H. (1977). The Health Belief Model and prediction of dietary compliance: a field experiment. *Journal of Health and Social behavior*, 348-366.
9. Beharrell, B., & MacFie, J. (1991). Consumer attitudes to organic foods. *British food journal*.
10. Benton Jr, R. (1994). Environmental knowledge and attitudes of undergraduate business students compared to non-business students. *Business & Society*, 33(2), 191-211.
11. Chan, R. Y. (2001). Determinants of Chinese consumers' green purchase behavior. *Psychology & Marketing*, 18(4), 389-413.
12. Chen, M.-F. (2007). Consumer attitudes and purchase intentions in relation to organic foods in Taiwan: Moderating effects of food-related personality traits. *Food Quality and preference*, 18(7), 1008-1021.
13. Chin, J., Jiang, B. C., Mufidah, I., Persada, S. F., & Noer, B. A. (2018). The investigation of consumers' behavior intention in using green skincare products: a pro-environmental behavior model approach. *Sustainability*, 10(11), 3922.
14. Eze, U. C., Tan, C.-B., & Yeo, A. L.-Y. (2012). Purchasing cosmetic products: A preliminary perspective of Gen-Y. *Contemporary management research*, 8(1).
15. Fauzi, N. F. S. N., & Hashim, R. A. (2015). Generation X and purchase intention toward green cosmetic and skin care products. *OUM International Journal of Business and Management*, 1(2), 1-14.
16. Fielding, K. S., McDonald, R., & Louis, W. R. (2008). Theory of planned behaviour, identity and intentions to engage in environmental activism. *Journal of environmental psychology*, 28(4), 318-326.
17. Ghazali, E., Soon, P. C., Mutum, D. S., & Nguyen, B. (2017). Health and cosmetics: Investigating consumers' values for buying organic personal care products. *Journal of Retailing and Consumer Services*, 39, 154-163.
18. Grankvist, G., & Biel, A. (2001). The importance of beliefs and purchase criteria in the choice of eco-labeled food products. *Journal of Environmental Psychology*, 21(4), 405-410.
19. Grunert, S. C., & Juhl, H. J. (1995). Values, environmental attitudes, and buying of organic foods. *Journal of economic psychology*, 16(1), 39-62.

20. Hatfield, E., & Sprecher, S. (1986). *Mirror, mirror: The importance of looks in everyday life*: Suny Press.
21. Homer, P. M., & Kahle, L. R. (1988). A structural equation test of the value-attitude-behavior hierarchy. *Journal of Personality and social Psychology*, 54(4), 638.
22. Hsu, C.-L., Chang, C.-Y., & Yansritakul, C. (2017). Exploring purchase intention of green skincare products using the theory of planned behavior: Testing the moderating effects of country of origin and price sensitivity. *Journal of Retailing and Consumer Services*, 34, 145-152.
23. Ishaswini, N., & Datta, S. K. (2011). Pro-environmental concern influencing green buying: A study on Indian consumers. *International Journal of Business and management*, 6(6), 124-133.
24. Johri, L. M., & Sahasakmontri, K. (1998). Green marketing of cosmetics and toiletries in Thailand. *Journal of consumer marketing*.
25. Joy, A., & Venkatesh, A. (1994). Postmodernism, feminism, and the body: The visible and the invisible in consumer research. *International Journal of Research in Marketing*, 11(4), 333-357.
26. Kahle, L. R., Beatty, S. E., & Homer, P. (1986). Alternative measurement approaches to consumer values: the list of values (LOV) and values and life style (VALS). *Journal of consumer research*, 13(3), 405-409.
27. Kanchanapibul, M., Lacka, E., Wang, X., & Chan, H. K. (2014). An empirical investigation of green purchase behaviour among the young generation. *Journal of Cleaner Production*, 66, 528-536.
28. Kim, H. Y. (2009). Effects of consumer values and past experiences on consumer intention to buy organic personal care products: An application of the theory of planned behavior. Ohio State University,
29. Kim, H. Y., & Chung, J. E. (2011). Consumer purchase intention for organic personal care products. *Journal of consumer Marketing*.
30. Kim, P.-J., & Lee, J.-Y. (2016). A study on the Effects of Perceived Quality on whitening cosmetics' Satisfaction and Repurchase: Focused on University students. *The Journal of Business, Economics, and Environmental Studies (JBEEES)*, 6(2), 15-22.
31. Kyung, S. B. (2012), The impact of consumer innovativeness, attitude, and subjective norm on cosmetic buying behavior: evidence from APU female students, unpublished Master thesis, Ritsumeikan Asia Pacific University, Japan.
32. Lee, K. (2008). Opportunities for green marketing: young consumers. *Marketing intelligence & planning*.
33. Lee, M. and Lee, E. (1997), "A study on appearance interest and self-confidence of elderly women associated with demographic variables", *The Korean Society of Clothing and Textiles*, Vol. 21, pp. 1072-81.

34. Ling, C. Y. (2013). Consumers' purchase intention of green products: an investigation of the drivers and moderating variable. *Elixir Marketing Management*, 1, 14503-14509.
35. Lu, L.-C., Chang, W.-P., & Chang, H.-H. (2014). Consumer attitudes toward blogger's sponsored recommendations and purchase intention: The effect of sponsorship type, product type, and brand awareness. *Computers in Human Behavior*, 34, 258-266.
36. Magnusson, M. K., Arvola, A., Hursti, U. K. K., Åberg, L., & Sjöden, P. O. (2003). Choice of organic foods is related to perceived consequences for human health and to environmentally friendly behaviour. *Appetite*, 40(2), 109-117.
37. Maloney, J., Lee, M.-Y., Jackson, V., & Miller-Spillman, K. A. (2014). Consumer willingness to purchase organic products: Application of the theory of planned behavior. *Journal of global fashion marketing*, 5(4), 308-321.
38. Maria, K. (2011). Attitudes and Intention toward Organic Cosmetics in Greece: An Exploratory Study. School of Economics & Business Administration.
39. Michaelidou, N., & Hassan, L. M. (2008). The role of health consciousness, food safety concern and ethical identity on attitudes and intentions towards organic food. *International journal of consumer studies*, 32(2), 163-170.
40. Mombeini, H., Sha'abani, R., & Ghorbani, R. (2015). Survey the Effective Factor on Attitude & Purchase Intention of Organic Skin and Hair Care Products. *International Journal of Scientific Management & Development*, 3(1), 819-826.
41. Mostafa, M. M. (2007). A hierarchical analysis of the green consciousness of the Egyptian consumer. *Psychology & Marketing*, 24(5), 445-473.
42. Newsom, J. T., McFarland, B. H., Kaplan, M. S., Huguet, N., & Zani, B. (2005). The health consciousness myth: implications of the near independence of major health behaviors in the North American population. *Social Science & Medicine*, 60(2), 433-437.
43. Ong, S. C. (2012). The Moderating Role of Price Consciousness on How Attitude and Subjective Norm Affect Purchase Intention-A Case Study of Organic Cosmetic Products in Malaysia. 成功大學國際經營管理研究所碩士班學位論文, 1-80.
44. Paul, J., Modi, A., & Patel, J. (2016). Predicting green product consumption using theory of planned behavior and reasoned action. *Journal of Retailing and Consumer Services*, 29, 123-134.
45. Picot-Lemasson, A., Decocq, G., Aghassian, F., & Leveque, J. (2001). Influence of hairdressing on the psychological mood of women. *International journal of cosmetic science*, 23(3), 161-164.
46. Rokeach, M. (1973). The nature of human values. Free press.
47. Saleem, B., & Recker, A. (2014). The Effects of Consumer Knowledge and Values on Attitudes and Purchase Intentions: A Quantitative Study of Organic Personal Care Products Among German Female Consumers. In.
48. Schifferstein, H. N., & Ophuis, P. A. O. (1998). Health-related determinants of organic food consumption in the Netherlands. *Food Quality and preference*, 9(3), 119-133.



49. Schlegelmilch, B. B., Bohlen, G. M., & Diamantopoulos, A. (1996). The link between green purchasing decisions and measures of environmental consciousness. *European journal of marketing*.
50. Tarkiainen, A., & Sundqvist, S. (2005). Subjective norms, attitudes and intentions of Finnish consumers in buying organic food. *British food journal*.
51. Todd, A. M. (2004). The aesthetic turn in green marketing: Environmental consumer ethics of natural personal care products. *Ethics and the Environment*, 86-102.
52. Tsakiridou, E., Boutsouki, C., Zotos, Y., & Mattas, K. (2008). Attitudes and behaviour towards organic products: an exploratory study. *International Journal of Retail & Distribution Management*.
53. Thi Hong Nguyen, Thi Minh Nga Phan, Thi Thuy Phuong Le (2017), "The Influence of Attitude, Control on Availability, Subjective Norm and Green Trust on Young Vietnamese Consumers' Organic Cosmetic Purchase Intention", Proceeding of the 4th International Conference on Finance and Economics, Ton Duc Thang University, Ho Chi Minh City, Viet Nam
54. Thi Hong Nguyen, Thi Minh Nga Phan, Thi Thuy Phuong Le (2017), "The Influence of Attitude, Control on Availability, Subjective Norm and Green Trust on Young Vietnamese Consumers' Organic Cosmetic Purchase Intention", Proceeding of the 4th International Conference on Finance and Economics, Ton Duc Thang University, Ho Chi Minh City, Viet Nam
55. THI TUYET MAI, N., VU HUNG, N., HOANG LINH, N., & HOANG MINH, N. Materialism and Green Purchase Intention: A Study of Urban Vietnamese Consumers. *Journal of Economics and Development*, 19(2), 89.
56. Vermeir, I., & Verbeke, W. (2008). Sustainable food consumption among young adults in Belgium: Theory of planned behaviour and the role of confidence and values. *Ecological economics*, 64(3), 542-553.
57. Viet Nam Ministry of Natural Resources and Environment, 2014. Providing orders of, procedures for and certification of ecological labels for environment-friendly products. Hanoi, (41/2013/TT-BTNMT)
58. Yadav, R., & Pathak, G. S. (2016). Young consumers' intention towards buying green products in a developing nation: Extending the theory of planned behavior. *Journal of Cleaner Production*, 135, 732-739.
59. Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence. *Journal of marketing*, 52(3), 2-22.

# TOWARD SUSTAINABLE GRADE A OFFICE BUILDINGS: A CASE STUDY IN HANOI

*MSc. Nguyen Le Dieu Linh*

*nldlinh@hunre.edu.vn*

*Faculty of Land Management, Hanoi University of Natural Resources and  
Environment, Vietnam*

## **Abstract**

*In Vietnam, the office market has become very diversified and varied in type and quality, including Grade A, B, C and below Grade C office market. In which Grade A office market in big cities such as Hanoi has been active recently, thanks to attractive design and reasonable market rent of high quality office buildings. However, investors are gradually keen on sustainability and green development when developing their projects in Vietnam. According to Solidiance, green building adoption has been limited in Vietnam, with only 41 buildings receiving certifications to date. Green office buildings in Vietnam are either aimed at attracting high-paying tenants or are part of larger green industrial facility. This study provides the systematic review of experimental evidence on sustainability benchmark: a case study in Grade A Hanoi Office market in Vietnam. We focus on studies which buildings are considered to be assessed via Lotus certification system. Based upon the market research and case study analysis, broad areas that a developer and landlord must consider to maximize the value of the development. Finally, there are some solutions for green building culture of Grade A office market to take root in Vietnam. Firstly, we should show that environmental concerns require sustainable building practices, develop market and public education awareness. Secondly, cooperation should Demonstrate return on investment (ROI) of green projects, help government agencies to be proactive. Thirdly, we assess the demand for green building projects, improve cross-sectorial cooperation between market and government, instigate legislation, governmental support and initiative.*

**Key words:** *sustainability, Grade A, office market, net absorption, rent, occupancy, benchmark, Lotus certification system.*

## **1. Introduction**

Nowadays environmental degradation and climate change are threats to every sector of the economy. On the 3rd December 1998, the Government of Vietnam was ratified “United Nations Framework Convention on Climate Change”, indicating its commitment to environmentally sustainable development. In addition, Vietnam has also participated in the “Asia Least-cost Greenhouse Gas Abatement Strategy” which encourages energy efficiency as a key priority. The office sector in Vietnam are currently accounting for about 22% of certified green building in the country, and are therefore a target for increasing number of

green office building. As the result of an economic boom in Vietnam, there is a shortage of commercial buildings in general and of office buildings in particular. This is most evident in Hanoi which is enjoying substantial economic growth. Recently, a real estate project in Bac Tu Liem District in Hanoi has been granted an EDGE certificate by IFC belonging to the World Bank Group. This is one of very few projects which went through the examination to be granted the green certificate. According to the Ministry of Construction (MOC), Vietnam currently has 87 buildings meeting green certificates. Of these, 13 works have EDGE, 53 LEED and 21 LOTUS. Meanwhile, many new office buildings are therefore being constructed in this city, making their level of sustainability of particular importance. Although there is a growing awareness among Vietnamese developers of environmental issues and hence the recognition of the need for planning and development of low energy environmentally friendly buildings, there is a lack of readily available information and design tools to enable the design community to achieve this.

This study will analyze the Hanoi office market, in terms of 03 Grade A Office Building in Hanoi. The paper will focus on studying each project specification's and hence propose some solutions to promote the green construction industry and to achieve green building ratings.

This study's main objectives focus on: to describe the Hanoi Grade A office market overview; to measure 03 office buildings' sustainability; to propose solutions to encourage the green construction industry.

## **2. Methods**

Firstly, this paper will use a series of statements or questions in a questionnaire or an interview. Surveys target some developers, which are the people who are the owner of construction works. Because the number of developers are usually quite large, I will target a sample, which is a part of a developers that represents the whole. This paper will demonstrate the interview results of 22 developers of Grade A office buildings, and 03 of them are qualified to be examined thoroughly. Once our sample is selected, I design a plan for asking questions and recording answers. With an interview, I personally ask subjects a series of questions and gives participants the freedom to respond as they wish. Both questionnaires and interviews can include open-ended questions (allowing the subjects to respond freely), or close-ended questions (including a selection of fixed responses). Secondly, this paper will use statistical method to collect datas from 22 office buildings, in terms of rent, occupancy and net absorption, then analyze by assessing them via Lotus certification system

## **3. Results**

### **Hanoi Office Market Analysis**

In 1Q19, the Hanoi Grade A office market consisted of nearly 529,000 sqm from 22 projects, including both for leased and for owner-occupied space. Half of the total came on

stream before 2011. Approximately 26,000 sqm of new Grade A office supply came on stream in 2008-09 period. The market was fairly quiet and not yet established during this early stage of the market.

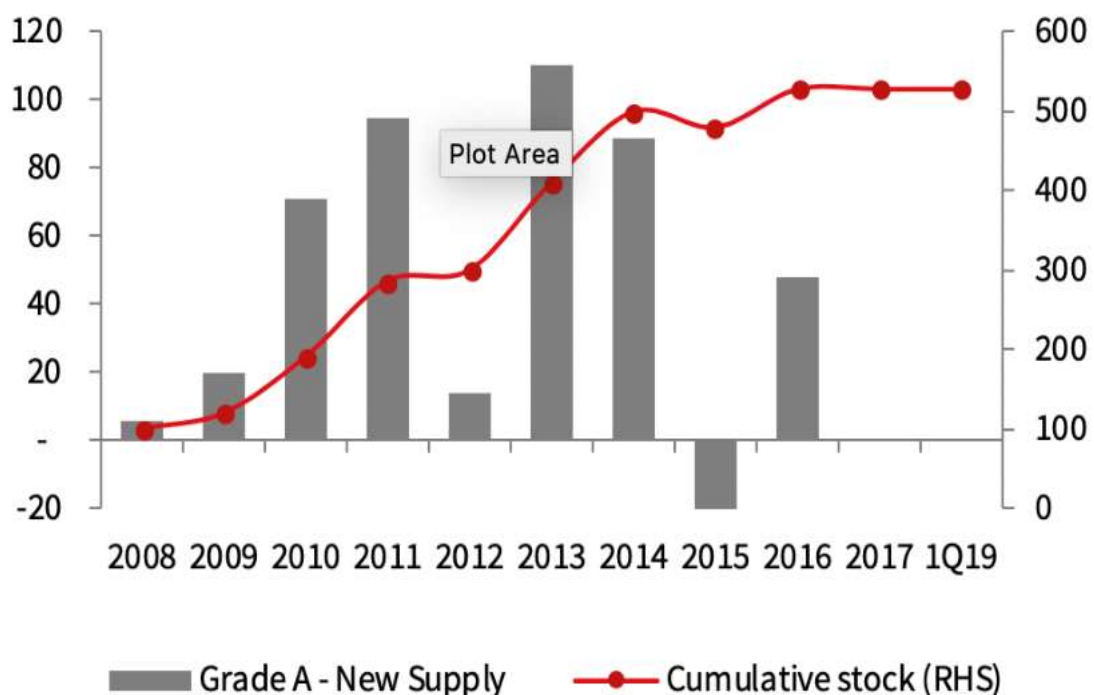
From 2010 onwards, the Hanoi Grade A office market welcomed a wave of new supply, with approximately 58 thousand sqm newly completed each year. Notably, in 2011, the Hanoi Grade A office market welcomed more than 95,000 sqm of new Grade A office space coming from the largest skyscraper of the city, namely Keangnam Hanoi Landmark Tower.

Over the 2013-14 period, approximately a total of 199,000 sqm of Grade A office space entered the Hanoi market, with three Grade A buildings completed each year. Of that, CornerStone Building, one of the best quality office building on the market, and Lotte Center Hanoi, a large scale mixed-use development developed by Lotte, were the most prominent properties during the period.

The downgrade of Hong Ha Center in 2015 owing to its weak tenant profile and low achievable rental level resulted in a reduction of 19,800 sqm of Grade office space in this year.

New supply in 2017 started to slow down after a period of abundant supply and the total supply remained unchanged by 1Q19 at 528,931 sqm.

**Chart 1. Grade A new supply and cumulative stock ('000 sqm), 2008-1Q19**



Prior to 2010, the Hanoi Grade A office market achieved a high occupancy rate at more than 90% each year, due to the limited premium office supply. There were only eleven Grade A office buildings and almost all of these properties located in the CBD sub-market. In the meantime, demand for expansion and setting up new office space were recorded to

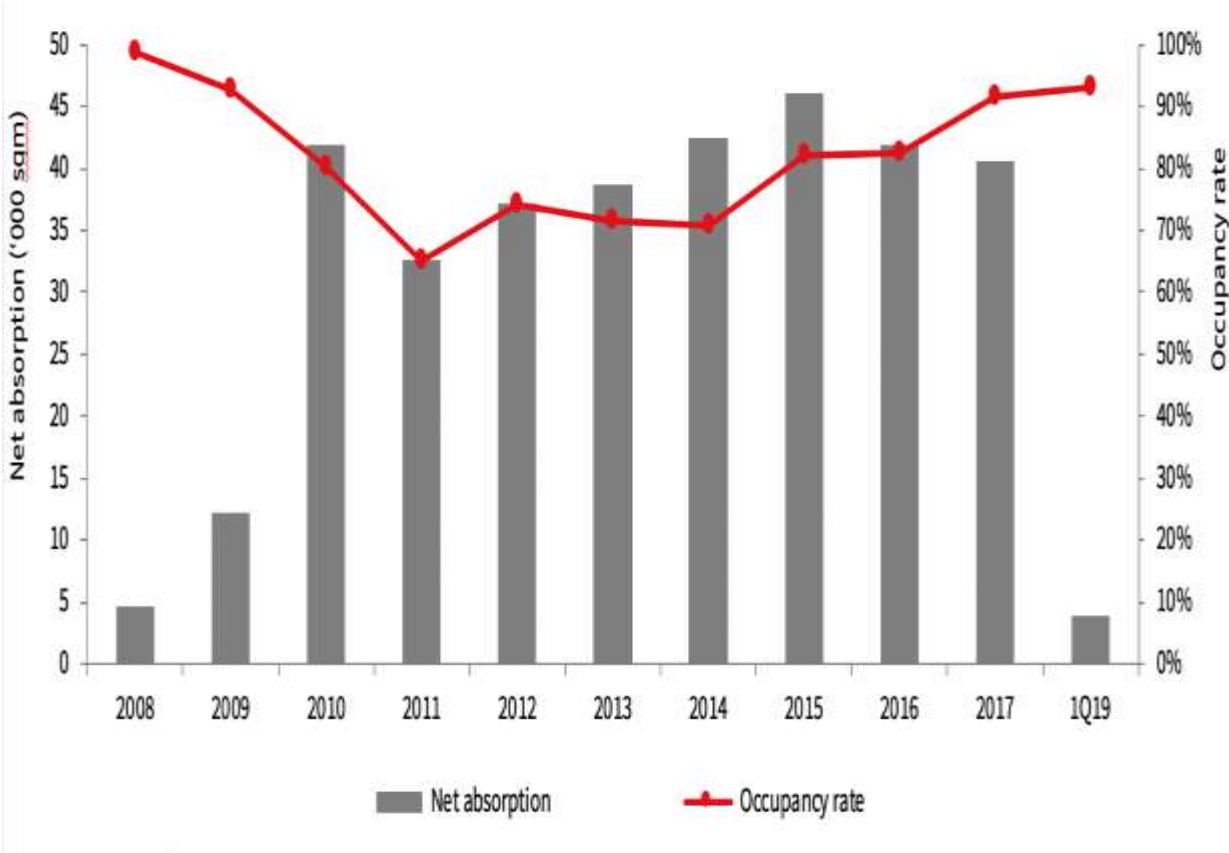
increase, and this helped to push the occupancy rate of existing office buildings to a high level in this period.

Despite the good leasing performance with high level of net absorption, the average occupancy rates of Hanoi Grade A office market declined significantly in 2010 and 2011. It was the result of substantial new completion, especially from Charmvit Tower and Keangnam Hanoi Landmark Tower.

During the 2012-14 period, average occupancy rates of Grade A buildings remained quite stable at around 74%. From 2015 onward, thanks to the excellent leasing performance of several large buildings, such as Keangnam Hanoi Landmark Tower, Lotte Center Hanoi, PVI Tower, CornerStone, the Grade A segment showed a significant improvement of occupancy rate at an average of 87%.

In 2Q18, the overall occupancy rate of Grade A office market averaged 93.1%, up 36 bps q-o-q and 522 bps y-o-y. Tenants with expansion and relocation purposes continued to be the main drivers of the Hanoi Grade A office market in 1Q19. Tenants typically expand or set up new office space in line with their increasing company size. While most vacant spaces existed in non-CBD Grade buildings, the mentioned trend occurred mostly in Grade A buildings in CBD area, implying the CBD area still being the most desirable area by tenants.

**Chart 2. Net absorption ('000 sqm) and occupancy rate (%), 2008-1Q19**



The Hanoi Grade A office market witnessed net absorption of more than 40,000 sqm each year over the 2010-17 period, nearly five times higher than the average figure in the 2008-09 period. The low level of net absorption in 2008-09 could attribute to the limited new supply and influence of the economic crisis in this period.

Generally, Hanoi office is a supply-led market with notable net absorption recorded anytime new supply introduced into the market. This mostly is thanks to many promotions and attractive rents being offered by the landlords of new completion to attract tenants. This helped to induce demand, especially the office expansion or relocation purpose on the market. This trend is statistically supported by the highly correlated movement of net absorption and the new supply over the 2014-17 period. The Hanoi Grade A net absorption showed a high level of more than 42,000 sqm per year, in tandem with the increase of new supply during this period.

### Case study overview

This section will cover in-depth analysis of following office buildings

**Table 1. Projects' general information**

No.	Projects	Year of Completion	Office - Total GFA (sqm)	Current asking rent (*) (USD/sqm /mth)	Current occupancy rate (%)	Project type	Owner
1	63 Ly Thai To	1998	11,000	45	100%	Standalone office	HongKong Land
2	Sun Red River	2004	19,200	31.8	100%	Standalone office	Hasegawa Co., ltd
3	Pacific Place	2007	18,500	36.6	89%	Standalone office	Mapletree
4	Keangnam Landmark	2010	140,000	29	97%	Mixed-use	AON Vina Holdings
5	CornerStone	2014	34,604	36	99%	Standalone office	Daibiru Corporation
6	Lotte Center Hanoi	2014	63,511	36	100%	Mixed-use	Lotte Group

*Include serviced charges but exclude VAT*

## Project 1: 63 Ly Thai To

**Table 2. Project specification overview**

General building structure	Corridor width	<ul style="list-style-type: none"> <li>1.8m</li> </ul>
	Ceiling height	<ul style="list-style-type: none"> <li>2.65m</li> </ul>
	Floor loading (kg/ sqm)	<ul style="list-style-type: none"> <li>450kg/sqm</li> </ul>
	Typical finishing scope of work	<ul style="list-style-type: none"> <li>External and internal building wall finish (external and internal)</li> <li>Internal office, lift and toilet wall</li> </ul>
	Other finishings	<ul style="list-style-type: none"> <li>Ceiling boards and runners</li> <li>Light fittings</li> <li>Lift</li> </ul>
Mechanical and electrical system	Electrical outlet capacity	
	Emergency power	<ul style="list-style-type: none"> <li>Emergency lighting on battery backup power</li> <li>Type of backup power: Generator</li> <li>100% cover leased area &amp; common area</li> <li>Duration of feeding backup power: Full time</li> </ul>
Mechanical and electrical system	Lighting system	<ul style="list-style-type: none"> <li>Exit and emergency lighting on backup battery power</li> <li>Emergency lights available</li> <li>Lighting control by occupancy and building management system</li> <li>Fluorescent lamps, LED are installed</li> <li>Security lighting in place and controlled</li> </ul>
	Fire prevention	<ul style="list-style-type: none"> <li>Assembly area marked</li> <li>PIV's and hydrants maintained appropriately (FDC marked)</li> <li>Halon fire suppression systems</li> <li>Sprinkler</li> <li>24/7 smoke, heat detectors installed and linked to operated place (Addressable detector)</li> <li>Evacuation alarm</li> <li>Equipped with central fire hose reels</li> <li>Fire-extinguishers provided by landlord according to local legal requirements</li> <li>Floor plan with evacuation routes after fit-out</li> </ul>
Mechanical and electrical system	Security	<ul style="list-style-type: none"> <li>Mitigation installations e.g. barriers, bollards or Automated Number Plate recognition</li> <li>Equipped with electronic access control system</li> <li>The perimeter of the building protected by a CCTV system linked to</li> <li>Alarms installed</li> <li>24/7/365 security guards service</li> </ul>
	Number of elevator	<ul style="list-style-type: none"> <li>3 passenger lifts, 1 freight lift</li> </ul>

Being completed quite early since 1998, the 63 Ly Thai To building has always been fully occupied because of prime location and reputation of the operator. In 2014, the occupancy of the building decreased slightly as Maybank left and vacant space was 100 sqm at that time. The building is expected to remain high occupancy in the future as most of tenants in the 63 Ly Thai To building have a long-term contract until 2022. The average rent of 63 Ly Thai To building was the highest among Grade A Office in the past 10 years, at USD 66.5 per sqm. This building is always the first choice for the working environment of world-class organisation and businesses. Tenants are mainly prestigious banking institutions

and embassy. World Bank is the most dominant well-known tenant in this building. In 2009, being impacted by market downturn and economic crisis, the average rent of 63 Ly Thai To building decreased significantly in 2009 to USD 53.5 per sqm per month, a drop by nearly 20% from USD 66.5 per sqm per month from the preceding year. The rent remained quite stable after that with no new tenants recorded.

The building locates at the intersection of Ly Thai To and Hai Ba Trung streets and is within walking distance of Hoan Kiem Lake, Government Office, Trang Tien Plaza, Opera House and Sofitel Metropole. 63 Ly Thai To building was completed in 1998 by a joint venture between HongKong Land and its domestic partner, Kinh Do One-Member Limited Company. Started operation three years after the first project (i.e. Central Building), 63 Ly Thai To is the second project of HongKong Land in Hanoi. The building has professional property management with a frequently updated monitoring system. Notably, the security system is implemented professionally and strictly to meet security requirements of large corporation and organisations.

**Table 3. Sustainability benchmark according to Lotus certification system**

	<b>Criteria</b>	<b>Project 63 Ly Thai To</b>
<b>LOTUS NC v3</b>	For new construction or major renovation project with Gross Floor Area (GFA) from 2500 m <sup>2</sup> and above (LOTUS NC v3 is applicable for both residential and non-residential projects)	Not appropriate to assess
<b>LOTUS BIO</b>	LOTUS BIO assesses any building that has been in operation for more than 18 months and has over 50% occupancy	Appropriate to assess
<b>LOTUS Homes</b>	LOTUS SB assesses all types of non-residential buildings that have a GFA lower than 2500 sqm	Not appropriate to assess
<b>LOTUS SB</b>	LOTUS Homes assesses single family dwellings (villas, terraced house or traditional rural house)	Not appropriate to assess
<b>LOTUS Interiors</b>	LOTUS Interiors assesses all types of interior fit-out projects	Appropriate to assess
<b>LOTUS Small Interiors</b>	LOTUS SI assesses interior fit-out projects which are limited in size and/or in scope	Not appropriate

According to table 3, 63 Ly Thai To's sustainability could be able to be assessed via LOTUS BIO and LOTUS Interiors thanks to their criterias. The system provides a framework for design, construction and operation of buildings from a whole-building



perspective and recognize performance in 7 key areas. Points are awarded for achievement of credit requirements in each of these areas. In addition, there are certain prerequisites under each category that the project must meet in order to qualify for consideration of other credits. However, to calculate the number of points in each area such as energy, water, material and resources, health and comfort, site and environment, the building should be observed in long term of operation.

## Project 2: Sun Red River

**Table 4. Project specification overview**

General building structure	Corridor width	<ul style="list-style-type: none"> <li>2m</li> </ul>
	Ceiling height	<ul style="list-style-type: none"> <li>2.4m</li> </ul>
	Floor loading (kg/ sqm)	<ul style="list-style-type: none"> <li>250 - 300 kg/sqm</li> </ul>
	Typical finishing scope of work	<ul style="list-style-type: none"> <li>External and internal building wall finish</li> <li>Internal office, lift and toilet wall</li> </ul>
	Other finishings	<ul style="list-style-type: none"> <li>Bare floor levelled</li> <li>15 cm raised floor (provided by landlord since 2016)</li> <li>Ceiling boards and runners</li> <li>Light fittings</li> <li>Lift</li> </ul>
Mechanical and electrical system	Emergency power	<ul style="list-style-type: none"> <li>Emergency lighting on battery backup power</li> <li>Type of backup power: Generator</li> <li>100% cover leased area and common area</li> <li>Capacity: 1000 kVA</li> <li>Duration of feeding backup power: Full time</li> </ul>
	Lighting system	<ul style="list-style-type: none"> <li>Exit and emergency is provided at the public areas, plants rooms, corridors and exit staircases.</li> <li>Lighting control by occupancy (building standard) and Building management</li> <li>Lighting level: 500 lux in 1m-height in office area</li> <li>Fluorescent lamps, LED are installed</li> <li>Security lighting in place and controlled</li> </ul>
	Air-condition	<ul style="list-style-type: none"> <li>Chiller water air conditioning system including Chiller/FCU</li> <li>Air grilles shall be 600x600 size, powder coated aluminium to same standard of building</li> <li>Building Management System (BMS) in operation to enable automatic reduction in HVAC levels when the building is unoccupied</li> <li>Fan-coil units installed in the office area via BMS</li> </ul>
Mechanical and electrical system	Fire prevention	<ul style="list-style-type: none"> <li>Assembly area marked</li> <li>Providing Fire Drencher System</li> <li>Providing Fire Hydrant System</li> <li>24/7 smoke, heat typed GENT or Siemens Analog by zoning areas</li> <li>Sprinkler system is applied Vietnamese Construction Standard, QCVN 06-2010/BXD</li> <li>Evacuation alarm</li> <li>Equipped with central fire hose reels</li> <li>Fire-extinguishers provided by landlord according to local legal requirements</li> <li>Floor plan with evacuation routes after fit-out</li> </ul>
	Security	<ul style="list-style-type: none"> <li>The perimeter of the building protected by a CCTV system linked to, with 30 images stored</li> <li>Alarms installed</li> <li>Premises are located on 9<sup>th</sup> floor</li> <li>24/7/365 security guards service</li> </ul>
	Number of elevator	<ul style="list-style-type: none"> <li>4</li> </ul>
	Lifts loading capacity	<ul style="list-style-type: none"> <li>1,150kg</li> </ul>
Others	Telephone & Internet Services	<ul style="list-style-type: none"> <li>Glass fiber</li> <li>Telephone lines to external provider</li> <li>Main coming cable lines are Telecom data riser IDF (intermediate distribution frames), located on each level</li> </ul>

Sun Red River building has high occupancy since its operation in 2004 thanks to its prime location and a sustainable tenant list with many large-space tenants in the building. However, the occupancy saw a decrease in 4Q09 at 93% as a result of new supply in the area and economic crisis. From 4Q09, the average occupancy rate remained quite stable at around 97% each year until 4Q14. In 2015, the building had more vacant space as some large tenants withdrew from building such as Obayashi and ADB. The occupancy decreased by 74% at the end of 2015, down by 16% y-o-y.. The building was fully occupied once again since 4Q16 thanks to the new lease of Polysus Company in the building and has maintained its full occupancy since then. Due to the economic crisis in 2008, the average rent declined significantly from USD 45 per sqm to USD 36 per sqm. The average rent remained unchanged over 2009-2011 period, then increased slightly to around USD 40.9 per sqm. A further downward trend was seen from 4Q12-4Q15 in consequence of abundant supply in the area, as the rental price decreased from USD 40.9 to 30 per sqm. The average rent remained quite stable since 2015 and increased by 6% q-o-q in 2Q18, in line with its high occupancy rate.

The building situates on Phan Chu Trinh Street, one of the most convenient streets in the city. The building is easily connected with the central areas such as Hoan Kiem Lake, Hanoi People’s Committee, Opera House, Old Quarter are, Dong Xuan Market, etc. The building is designed by a Japanese architect, which comprises a 9-storey block of office area. The ACT Company changed the exterior design of the building from granite material to Fluxalum Aluminum Alloy. The renovation gives the building more modern and durable appearance based on Japanese architecture design. The building has a complete system of facilities including the four high-speed Mitsubishi elevators, international standard central air conditioning system and fire protection system. The ground floor is home to banks, mini-mart, and a restaurant to attract customers and improve business activities.

**Table 5. Sustainability benchmark according to Lotus certification system**

	<b>Criteria</b>	<b>Project 63 Ly Thai To</b>
<b>LOTUS NC v3</b>	For new construction or major renovation project with Gross Floor Area (GFA) from 2500 m2 and above (LOTUS NC v3 is applicable for both residential and non-residential projects)	Not appropriate to assess
<b>LOTUS BIO</b>	LOTUS BIO assesses any building that has been in operation for more than 18 months and has over 50% occupancy	Appropriate to assess
<b>LOTUS Homes</b>	LOTUS SB assesses all types of non-residential buildings that have a GFA lower than 2500 sqm	Not appropriate to assess

	<b>Criteria</b>	<b>Project 63 Ly Thai To</b>
<b>LOTUS SB</b>	LOTUS Homes assesses single family dwellings (villas, terraced house or traditional rural house)	Not appropriate to assess
<b>LOTUS Interiors</b>	LOTUS Interiors assesses all types of interior fit-out projects	Appropriate to assess
<b>LOTUS Small Interiors</b>	LOTUS SI assesses interior fit-out projects which are limited in size and/or in scope	Not appropriate

According to table 4, Sun Red River's sustainability is appropriate to be assessed via LOTUS BIO and LOTUS Interiors. LOTUS BIO assesses any building that has been in operation for more than 18 months and has over 50% occupancy while LOTUS Interiors assesses all types of interior fit-out projects.

### Project 3: Pacific Place Building

**Table 6. Project specification overview**

<b>General building structure</b>	<b>Corridor width</b>	<ul style="list-style-type: none"> <li>• 2m</li> </ul>
	<b>Ceiling height</b>	<ul style="list-style-type: none"> <li>• 3m</li> </ul>
	<b>Floor loading (kg/ sqm)</b>	<ul style="list-style-type: none"> <li>• 250kg/sqm</li> </ul>
	<b>Typical finishing scope of work</b>	<ul style="list-style-type: none"> <li>• External and internal building wall finish (external and internal)</li> <li>• Internal office, lift and toilet wall</li> </ul>
	<b>Other finishing</b>	<ul style="list-style-type: none"> <li>• Raised floor (provided by landlord since 2016)</li> <li>• Ceiling boards and runners</li> <li>• Light fittings</li> <li>• Lift</li> </ul>
<b>Mechanical and electrical system</b>	<b>Electrical outlet capacity</b>	<ul style="list-style-type: none"> <li>• 20 kA</li> </ul>
	<b>Emergency power</b>	<ul style="list-style-type: none"> <li>• Emergency lighting on battery backup power</li> <li>• Type of backup power: Generator</li> <li>• 100% covered leased area and common area</li> <li>• Duration of feeding backup power: Full time</li> </ul>
	<b>Lighting system</b>	<ul style="list-style-type: none"> <li>• Exit and emergency lighting on backup battery power</li> <li>• Emergency lights available</li> <li>• Lighting controlled by BMS</li> <li>• Lighting level: 350-400</li> <li>• Fluorescent lamps (T8), LED are installed</li> <li>• Architectural lighting installed</li> <li>• Security lighting in place and controlled</li> <li>• Providing natural light harvesting and use of daylight sensors for automatically controlling lighting levels</li> </ul>
	<b>Air-condition</b>	<ul style="list-style-type: none"> <li>• Design temperature in summer-time: 24 Celsius degree</li> <li>• Design temperature in winter-time: 26 Celsius degree</li> <li>• 28390m<sup>3</sup>/m<sup>2</sup> room exchange are provided per hour</li> <li>• Air-conditioning system for total building</li> <li>• Building Management System (BMS) in operation to enable automatic reduction in HVAC levels when the building is unoccupied</li> <li>• Fan-coil units installed in the office area via BMS</li> <li>• Temperature difference in open plan office from coldest to hottest place: 6</li> <li>• Filter management program to change out and proper waste disposal</li> </ul>

The building recorded high occupancy rate at around 95% over the 2008-4Q12 due to limited office supply back then. The occupancy started to experience downward trend from end-2012, a result of abundant supply on the market and the economic downturn, and then reach a bottom at end-2014. On the back of positive economic prospects, the building's occupancy rate improve notably from 4Q15. The occupancy rate in 2Q18 remained stable at 89% despite the fact that rent went up slightly. In 2008, Pacific Place was one of Grade A building that has the highest rent in central districts with average monthly asking rent at around USD 65 per sqm. The average rent of Pacific Place decreased significantly over 2008-09 period mostly owing to the economic crisis. The building then managed to increase their rent in the 2009-11 period to USD 60 per sqm per month at end-2011, before dropping to half that figure in 2015. This significant reduction in rent was in tandem with the lessening occupancy rate of the building, implying the landlord's effort in securing the tenants provided the aftermath of the prolonged economic recession in preceding years and notable new supply on the market. From 2015 onward the performance of the site was quite stable as the rent increased slightly to around USD 33.8 per sqm.

The location of Pacific Place is easily connected to Opera House, Hoan Kiem Lake and Metropole Hotel. The location is very convenient for customers to set up their representative offices and/or international trading purposes. The 19 storey building is owned by Jaccar Bourbon Group, managed by IMO Management and designed by Archetype Group, the leading architecture company in Vietnam. The design is inspired by classic style combined with the trend of contemporary integration which meets international standards, one of the top priorities for tenants to consider in leasing office spaces. Pacific Place is the first building in Hanoi has five basements, offering spacious and airy parking space with modern lift system. Notably, 2,000 sqm of ground floor used for retails and F&B with international brands can create attractive façade design and increasing office rents above. The building also facilitates relaxation for tenants with a swimming pool and gym studio on the top floor.

**Table 7. Sustainability benchmark according to Lotus certification system**

	<b>Criteria</b>	<b>Project 63 Ly Thai To</b>
<b>LOTUS NC v3</b>	For new construction or major renovation project with Gross Floor Area (GFA) from 2500 m <sup>2</sup> and above (LOTUS NC v3 is applicable for both residential and non-residential projects)	Not appropriate to assess
<b>LOTUS BIO</b>	LOTUS BIO assesses any building that has been in operation for more than 18 months and has over 50% occupancy	Appropriate to assess

	<b>Criteria</b>	<b>Project 63 Ly Thai To</b>
<b>LOTUS Homes</b>	LOTUS SB assesses all types of non-residential buildings that have a GFA lower than 2500 sqm	Not appropriate to assess
<b>LOTUS SB</b>	LOTUS Homes assesses single family dwellings (villas, terraced house or traditional rural house)	Not appropriate to assess
<b>LOTUS Interiors</b>	LOTUS Interiors assesses all types of interior fit-out projects	Appropriate to assess
<b>LOTUS Small Interiors</b>	LOTUS SI assesses interior fit-out projects which are limited in size and/or in scope	Not appropriate

According to table 7, Pacific Place’s sustainability is appropriate to be assessed via LOTUS BIO and LOTUS Interiors.

## **6. Discussion and Conclusion**

This study provides the systematic review of experimental evidence on sustainability benchmark: a case study in Hanoi Office market in Vietnam. We focus on studies which buildings are considered to be assessed via Lotus certification system. Based upon the market research and case study analysis, broad areas that a developer and landlord must consider to maximise the value of the development can be outlined as below:

**Location-Location-Location:** Up to 90% of Grade A buildings with high occupancy locate are in prime, convenient locations and easy to connect to the city centre. Most of the analysed Grade A office buildings have two frontages or locate in the main street. This is supported by the fact that almost Grade A buildings with high occupancy are located in the central district, such as 63 Ly Thai To, Sun Red River, CornerStone, etc. The average rents in Hoan Kiem District, the core CBD district of the city, is also usually higher than other areas.

**Supporting facilities and amenities:** It is imperative for buildings to have good supporting facilities to help attract tenants. These may include convenience stores, coffee shops and food outlets. While there is no clear statistic supporting this, based on JLL’s market insight regarding the office leasing activity on the local market, we are of the opinion that supporting facilities are vital in achieving the better rental and occupancy rates. This factor is especially important in office development in the non-CBD area where the supporting facilities and amenities in surrounding area is less developed compared to the city centre. For prime-location buildings, parking is another matter that also has a critical impact on the leasing decision of the potential tenants.

Attractive and efficient design: There are many Grade A Office buildings beginning to focus on this factor. Taking advantage from the size and scale of the project, many Grade A office buildings in CBD and non-CBD area have built the image of the building as a symbol, catching the attention of many significant local tenants and foreign tenants with high reputation.

While the deal size has increased over the time, the deal size of 250-500 sqm is still the most popular and dominates the number of leasing enquiries for office space on the market. Consequently, the design of the building should be relevant to the potential tenants and be dividable in a manner that allows all tenants natural light, access to the lift core and other appropriate services such as bathrooms and kitchen areas if available. In this regard, it is apparent that square floor plates, with central columns, are the preferable option as is identified in the case studies listed and in office markets across the globe. Each floor must also be designed to ensure that the services provided to be sufficient for the number of tenants and, ultimately, office users who are on each floor. Additionally, there must be an appropriate number of bathrooms, lifts, fire escapes and so forth, so that all tenants have the necessary services at their convenience.

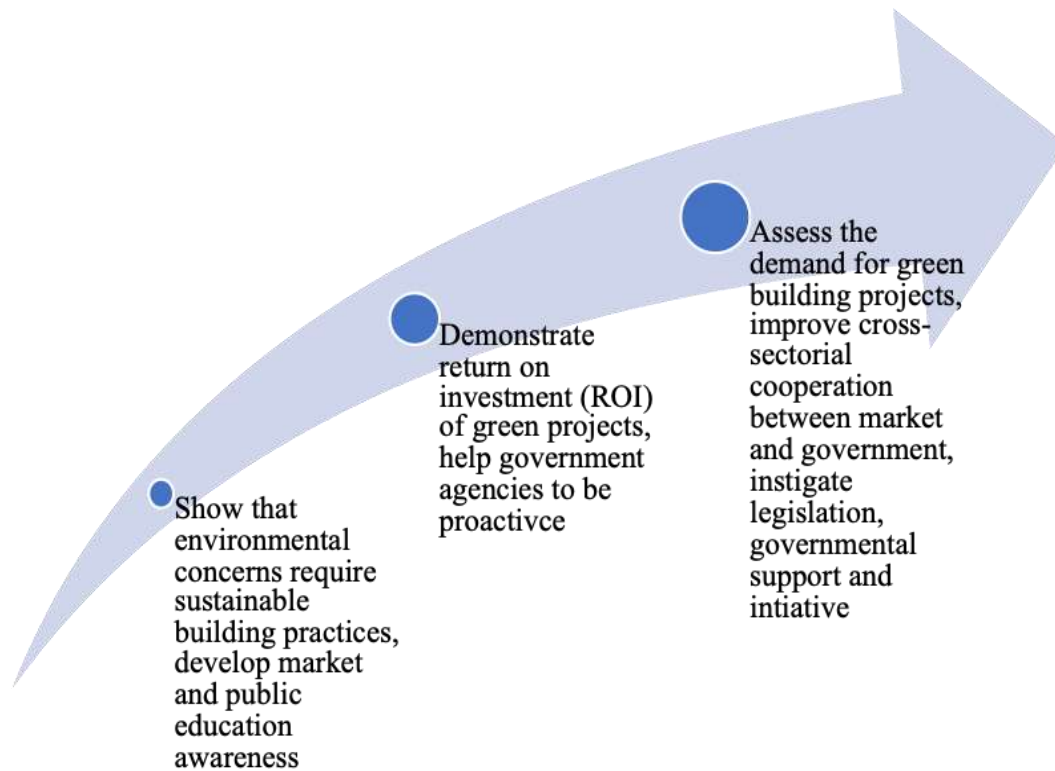
Additionally, the entrance of the building is particularly critical. The entrance of the building is the first view and opinion that a potential tenant will have of a building. Likewise, it is also the first view of the tenants that their potential guests/clients will have of them. All buildings examined in the case studies manage to have entrance facilities of a high standard.

Technical conditions of the premises meet international standards:

All Grade A buildings in the market have high-quality heating, ventilation, an air-conditioning system as well as fire protection. Some Grade A office buildings also provided free raised cable flooring to tenants to create clean, tidy and neat working environment and saving cost when the layout change. High-speed elevators are also paid attention in high-rise buildings, with waiting interval not exceed 30 seconds.

Environmental & sustainability considerations: In developed countries, the adoption of Sustainability standards is compulsory for Grade A office buildings. However, this factor has not yet been considered when classifying a Grade A office building in Vietnam. Most of the building do not have renewable technology on-site (e.g. Solar water or solar photovoltaic), or do not have waste segregated. In order to improve the ability to market the building and achieve a premium on price it is necessary to position the building as international Grade A and have it built to a standard that is competitive in any Asian market. Hence, we recommend that Lotus certification system could be an ideal benchmark to evaluate the sustainability in Grade A office buildings thanks to seven criterias of friendly-environmental areas.

In my opinion, there are some solutions for green building culture of Grade A office market to take root in Vietnam. I suggest the procedure as following:



## 7. References

1. Vietnam Green Building Council, *Lotus Certification System*.
2. Albrecht J. (1998), *Environmental costs and competitiveness. A product-specific test of the Porter hypothesis*, working paper, University of Ghent.
3. Ambec S. and P.Barla, (2005), *Can Environmental Regulations be Good for Business? An Assessment of the Porter Hypothesis*, Cahier de recherche 0505.
4. Berman E. and L.Bui (1998), *Environmental Regulation and Labor Demand: Evidence from the South Coast Air Basin*, National Bureau of Economic Research Working Paper No.6776
5. Department for Business, Enterprise and Regulatory Refor, (2008), *Material Security: Ensuring Resource Availability for the UK Economy*, BERR.
6. Bimonte S., (2009), *Growth and environmental quality: Testing the double Convergence hypothesis*”, *Ecological Economics*, 68, 2406-241.
7. Costanza R., Voinov A., *Interaction between Econmoics and the Environment from the Point of View of Sustainable Development*.
8. Carraco C., De Cian E. et. Al, (2009), *Human Capital Formation and Global warming Mitigation: Evidence from an Intergrated Assessment Model*, CESIFO WP.
9. Choudhury K. and L.Jansen, (1997), *Terminology for integrated resources planning and management*. Rome, FAO, Soils Resources Management and Conservation.

10. BMI Research, (2018), *Vietnam Country Risk Report*
11. Ministry of Natural Resources and Environment, (2016), *National Environmental Situation 2016: Urban environment*.
12. General Statistics Office, (2018), *Socio-economic development in 2018*.
13. General Environment Department, (2011-2015), *Report, updated statistics of 3 national environmental indices: air, water, sea water*.
14. World Economic Forum, (2013-2014), *Global competition ranking*.
15. The World Bank, (2018), *Vietnam economic development update*.
16. Tim E., Mallika I. et.al, (2010), *Economic Growth and the Environment*, Defra Evidence and Analysis Series”.



# ACCESS TO CREDIT MARKETS AND SELECTION OF CREDIT SOURCES OF RURAL HOUSEHOLDS: THE CASE STUDY OF THE RED RIVER DELTA, VIETNAM

**Ta Nhat Linh**

*tanhatlinh@gmail.com*

**Phan Thu Trang**

*trangpt912@gmail.com*

**Nguyen Thanh Huyen**

*thanhhuyen89@neu.edu.vn*

*School of Banking and Finance,*

*National Economics University, Hanoi, Vietnam*

**Philippe Lebailly**

*Philippe.Lebailly@uliege.be*

*Economic and Rural Development Unit,*

*Gembloux Agro-Bio Tech, University of Liege, Gembloux, Belgium*

## **Abstract**

*The role of agriculture sectors in the economic development of a country is undeniable, especially in developing and least- developed ones, ensuring food supply, increasing national income, export earnings and poverty reduction. Vietnam is known as an emerging market, depending directly on agriculture-related activities for their livelihood. However, the issue of rural credit access still remains a confounding problem. The paper focuses on identifying the determinants of credit access in rural areas of Vietnam using the Red River Delta as the case study, including formal and informal credit. The paper uses data from Vietnam Household Living Standard Survey 2018 (VHLSS 2018) of General Statistics Office of Vietnam. The probit and linear regression models are applied to investigate the factors that determine household credit accessibility, i.e., the households' decision to borrow and borrowing amounts. Results of this analysis reveal the different significant determinants of formal and informal credit market access. The implications of these findings for enhancing formal credit accessibility and reducing reliance on informal markets are considered.*

**Keywords:** *access to credit, developing countries, rural credit market, Vietnam*

## **1. Introduction**

In many developing countries, agriculture is regarded as one of the most crucial sectors of the whole economy, especially in developing nations, as it is believed to be of importance for not only internal food security but also employment growth and poverty reduction. Vietnam is known as a developing country with the high rural penetration rate, at nearly 65% of total population. Moreover, in rural areas, the proportion of household in

which main income derives from agriculture account for approximately 48% (GSO, 2020). Nevertheless, the access to credit for farmers in rural areas in emerging countries still appeared to be of difficulty, which can lead to a more severe consequence due to capital shortage: decline in total output and GDP and lower national food security (Godfray et al., 2010; Malik & Nazli, 1999). In rural areas of Vietnam, formal and informal credit markets commonly exist, in which informal ones are prone to be prevalent to the formal one. The formal credit constraints is possibly due to market imperfections as well as the lending procedures.

The Red River Delta (RRD) is the flat low-lying plain formed by the Red River and its distributaries in the northern of Vietnam. The Delta has the smallest area but highest population density among 8 regions of Vietnam. The RRD is the economic center of northern Vietnam with Hanoi as the capital of Vietnam. Although the RRD makes up only 5% of Vietnam land, about 15,000 square kilometers, 30% of the country's populations live there. Moreover, 80% of the population are employed in agriculture with the proportion 65% of total agricultural output of Vietnam, which implies the important role of agriculture in raising income and increasing farmers' livelihood (GSO, 2017).

In practice, farming households, especially poor and low-income rural households are often limited to access formal credit because they do not have enough collateral as well as cannot borrow on the basis of their income. The number of research aiming at the importance of rural credit in some provinces of Vietnam has strongly increased in recent years. However, there have been few studies conducted in rural areas of this important northern delta as a whole. Therefore, significant results of this study will arise.

Based on the consideration above, the aim of this study is to find out the determinants of household credit accessibility in rural areas of Vietnam with the case in the Red River Delta. The rest of this paper is organized, as follows. Section 2 summarizes some previous literature on rural credit access of Vietnam and some developing countries. Section 3 is the description of rural credit markets in Vietnam. Section 4 presents the methodology used in this paper. Some results and discussion about the determinants of the research site are shown in section 5. Based on that, some implications proposed to accelerate formal credit access of households for agriculture production and conclusions are presented in section 6.

## **2. Literature Review**

### ***2.1. The perception of access to credit markets***

Credit sources are generally divided in three categories: formal, semi-formal and informal credit sources. The semi-formal ones make up a very small share in the total so, it is the reason that they are excluded in the study. Formal institutions in the rural markets are commercial banks or credit funds while informal sources can come from moneylenders, local sellers, informal credit associations, relatives or friends.

Households' access to rural credit markets can be simply defined as approaching credit services (Zeller et al., 1996). In other words, rural credit access means that households

have access to specific sources among many available ones. Subsequently, access to credit is measured by the amount of money that a household can borrow from lenders (Diagne & Zeller, 2001). Formal credit accessibility of farming households should be considered under the two main actors: borrowers—households/credit demand and lenders—credit suppliers (Zeller, 1994), in which the demand factors are to provide information if a household is constrained to a credit source or not, while the supply factors present the amount that borrowers can obtain from the given source. In some other studies, credit constraints are considered to measure credit accessibility, in which there is a mismatch between borrowers' credit demand and lenders' lending decisions (Lin, Wang, Gan, Cohen, & Nguyen, 2019). However, there are some differences of between the meaning of credit constraints and credit accessibility in some research.

## *2.2. Determinants of rural credit access*

Determinants of credit access are factors of household characteristics and capacities that affect household credit demand and decisions to participate in the credit markets. In other words, credit-side and supply-side factors should be taken into account (Zeller, 1994). Credit-side or household-related factors are demographic characteristics which often affect households' credit demand while supply-side factors are often socio-economic characteristics or capacities which the lenders employ as criteria in selecting and screening potential borrowers who are eligible to receive loans (T. G. Evans, A. M. Adams, R. Mohammed, & A. H. Norris, 1999).

Households' socio-economic characteristics have been recognized in several studies with empirical results from many developing countries. Diagne indicates the significant impact of household asset composition to credit accessibility (Diagne, 1999). To be more specific, the more share of land and livestock of total assets, the less formal credit borrowers can access. Notably, the author also figures out that informal and formal credit are not perfect substitutes as different types of credit meet the different demand of household and resource transferability. Okurut suggests that the poor have limited access to formal as well as semi-formal financial sectors (Okurut, 2006). Research results also points out female borrowers, educational level, household size and household's expenditure per capita have significantly negative relation to formal credit access. The results is also congruent with the case of Eastern Cape Province in South Africa (Baiyegunhi, Fraser, & Darroch, 2010), the case of China (Lin et al., 2019), the case of Zanzibar (Mohamed, 2003) and the case of Madagascar (Zeller, 1994). Farmer's awareness of lending institutions also positive impact to microcredit access in the research of Northern Ghana (Anang, Sipiläinen, Bäckman, & Kola, 2015).

In short, age, number of family members, household income, family size, bank distance, loan duration, loan processing, interest rate, and loan size are factors affecting households' credit accessibility all affect access to rural credit. Education is found to be a significantly positive factor (Bashir, Azeem, & Sciences, 2008; Chandio, Jiang, & Trade, 2018; Ugwumba, Omojola, & Science, 2013). Dependency ratio (often found as family size and family income) can also a factor can partially explain the rural credit participation. The

more dependent members, the higher probability of being poor, which can lead to credit constraints (Li, Gan, & Hu, 2011; Okurut, Schoombee, & Van der Berg, 2005). Group membership can help households easily access to credit (T. G. Evans, A. M. Adams, R. Mohammed, & A. H. J. W. d. Norris, 1999; B. Hananu, A. Abdul-Hanan, & H. J. A. J. o. A. R. Zakaria, 2015b). Gender, especially female borrowers have higher probability to access to credit. Experience, area of land in agricultural production, farm size, and collateral can also be viewed as influential factors (Bigsten et al., 2003; Chandio et al., 2018; Zeller, Diagne, & Mataya, 1998).

The same results can also be applied in the case of Vietnam. Some papers also confirmed these above-mentioned factors. Education, farming land ownership is found to be significantly positive while financial and non-financial savings are negative in connection to household borrowing. (Quach, Mullineux, & Murinde, 2005). Households' heads with higher level of education (i.e. people with education at primary and secondary) are dominated in this case while head with university degree and never attended school do not borrow much. Household heads' age has the negative relation to credit participation (Nguyen, 2007). A negative relation is seen in testing such variable as distance to the market center/province, education and total land size (Duy, D'Haese, Lemba, & D'Haese, 2012).

All variables indicated above are observable factors. However, unobservable factors, i.e. social capital/networks have been found out in relationship with farmers' credit accessibility. Social capital is known as the numbers of helpers and contacts with agricultural extension in the last 12 months (Bauer, 2016). It can also be seen as acquaintances in existing credit institutions or reputation and social status (Duong & Izumida, 2002). In informal sector, social network can be seen as the most important factor affecting credit participation as it contains available information and potential resources of borrowers while household characteristics do not have much effect, (Dufhues, Buchenrieder, Quoc, & Munkung, 2011; Yuan & Xu, 2015).

### **3. The organisation of rural credit markets in Vietnam**

The salient characteristics of rural credit markets in Vietnam can be described as lender participation constrained with heavy subsidization and strongly segmented (Linh, Long, Chi, Tam, & Lebailly, 2019). The segmentation of rural credit markets is due to borrowing purpose differences. While formal loans are often used for production, informal credit is seemingly referred to in order to meet diverse demand of rural households (Bao Duong & Izumida, 2002; Barslund & Tarp, 2008). The constraints of rural credit participation, especially formal participation, result from the nature of agricultural production and the imperfection of formal markets. That is the reason why the informal credit sources are likely to be prevalent in rural areas. The agricultural production can be considered to be so risky, attributed to complicated uncertainties of weather or diseases (Thornton, van de Steeg, Notenbaert, & Herrero, 2009). The uncertainties will grow up in developing countries such as Vietnam with the lack of technology, skill and inappropriate agriculture policies (Marsh, MacAulay, & Hung, 2006; Tanaka, Camerer, & Nguyen, 2010).

Then, financial institutions, such as commercial banks in Vietnam, are reluctant to enter the agricultural credit markets in rural zones. They have the rights to choose good low-risk potential customers instead of high-risk ones.

**Table 1. Description of Variables**

<b>Variables</b>	<b>Description</b>
Age	Age of household head (year)
Gender	Gender of household head, man=1, woman=0
Marital status	Marital status of household head, married=1, otherwise =0
Vocational education	Having vocational education=1, otherwise =0
Ethnicity	Kinh=1, otherwise =0
Number of working people	Number of people with income
Dependency ratio	Dependent people/ total people in family
Group membership	Member of a credit group: 1=yes, 0=no
Saving	1=yes, 0=no
Occupation	Head of family is farmer only =1, otherwise=0
Ln_owned_land	Log of value of dwelling land with ownership certificate (m <sup>2</sup> )
Having land ownership certificate	1=yes, 0=no
Ln_farm_land	Log of value of farm land (m <sup>2</sup> )
Ln_agri_income	Log of value of income from agriculture (thousand dong)
Ln_agri_expenditure	Log of value of expenditure from agriculture (thousand dong)

Vietnamese rural credit markets are divided in three categories: formal, informal and semi-formal. Semi-formal sources in Vietnam are excluded in the paper. The three state-owned financial institutions are the three main formal sources in rural Vietnam, i.e., Vietnam Bank for Agriculture and Rural Development (VBARD), Vietnam Bank for Social Policies (VBSP) and the People's Credit Funds (PCFs). The three institutions control around 70% rural credit market share. VBARD is a commercial bank whose targeted customers are larger-scale households, requiring collateral for almost all loans offered. The Vietnam Bank for Social Policies, formerly known as the Vietnam Bank for the Poor, often provides low-interest rate credit to poorer people without collateral. The People's Credit Fund system operates mainly in rural areas. Especially, PCFs often lend the locals in the commune where it is located. Each of the PCFs has specific lending policies, requiring collateral or not.

Concerning the informal credit sector in rural Vietnam, there are many studies that have indicated its importance in financing household production in case of formal credit

shortage (Bao Duong & Izumida, 2002; Barslund & Tarp, 2008; Khoi, Gan, Nartea, & Cohen, 2013). Informal credit sources in rural areas of Vietnam are mainly from relatives, friends, informal revolving credit associations (“ho, hui, phuong”), and local lenders with high interest rates or goods on credit from local sellers. Informal credit includes interest and no-interest loans as well as collateral-required and no-collateral loans. A major informal credit source from moneylenders in Bangladesh is also indicated in the research of Ghosh et al. (Ghosh, Gupta, & Maiti, 2008).

## 4. Materials and Method

### 4.1. Data

The study has used data from VHLSS 2018 with selected 937 rural households of the Red River Delta. Information on socio-economic characteristics, income and production factors are also collected and captured in the table 1 below.

### 4.2. Empirical Models

The probit and normal regression model was applied to identify the determinants of credit access at the household level. Household credit accessibility includes households’ participation in credit markets and the borrowed loan amounts based on previous literature, which are assumed to be influenced by a number of household characteristics as two equations as follows:

$$Y_i^* = \alpha_1 + \beta_1 X_i + u_i \quad (1)$$

$$Y_i = 1 \text{ if } Y_i^* > 0$$

$$Y_i = 0, \text{ otherwise}$$

$$Y_i^{*'} = \alpha_1 + \beta_1 X_i + u_i \quad (1')$$

$$Y_i = 1 \text{ if } Y_i^{*'} > 0$$

$$Y_i = 0, \text{ otherwise}$$

$$B_i^* = \alpha_2 + \beta_2 X_k + e_i \quad (2)$$

$$B_i = B_i^* = \alpha_2 + \beta_2 X_k + e_i, \text{ if } Y_i^* = 1$$

$$B_i = 0, \text{ otherwise}$$

In equation (1)  $Y_i = 1$  if a household has access to credit (including formal and informal sources) and 0 if otherwise,  $X_i$  and  $X_k$  captures all household socio-economic characteristics, income, credit and production factors, as shown in the table 1. In equation (1')  $Y_i' = 1$  if a household has access to formal credit and 0 if a household has access to informal one.

Next, household characteristics are also assumed to have effects on the size of loans the household takes up in equation (2). Under the case  $Y_i = 1$ ,  $B_i$  represents the log of the expected value of the amount received by each household. That means  $B_i$  is observed only when  $Y_i = 1$ , i.e., the household  $i$  has access to credit. The equation (1) and (1') is estimated using the probit model while normal OLS is used for equation (2).

## 5. Results and Discussion

### 5.1. Socio-economic description of the sample

Table 2 describes the sample respondents and sources of credit. Of the 937 respondents, there are 206 borrowers and 731 non-borrowers. Of the 206 borrowers, 124 borrowed from the formal sectors while 82 borrowed from the informal sectors.

**Table 2. Formal and Informal credit market participation**

	Formal	Informal	Total
<b>Borrowers</b>	124	82	<b>206</b>
<b>Non_Borrowers</b>	-	-	<b>731</b>
			<b>937</b>

*Source: Authors' calculation from VHLSS 2018*

**Table 3. Means and Standard Deviations of some indicators**

Variable	Observation	Mean	Std. Dev.	Min	Max
<i>Age</i>	937	52.48	11.27	26.00	88.00
<i>Gender</i>	937	0.84	0.37	0.00	1.00
<i>Ethnicity</i>	937	0.98	0.14	0.00	1.00
<i>Number of working people</i>	937	2.43	0.92	1.00	8.00
<i>Dependency ratio</i>	937	0.12	0.24	0.00	1.00
<i>Group membership</i>	937	0.65	0.48	0.00	1.00
<i>Saving</i>	937	0.13	0.33	0.00	1.00
<i>Occupation</i>	937	0.42	0.49	0.00	1.00
<i>Ln_owned_land</i>	937	85.94	52.38	12	390
<i>Having land ownership certificate</i>	937	0.99	0.11	0.00	1.00
<i>Ln_farm_land</i>	937	3118.1	7,588.96	10	150,900
<i>Ln_agri_income</i>	937	68,968.96	195,030.1	150	3,326,685
<i>Ln_agri_expenditure</i>	937	40,131.29	142,996	10	2,565,994
<i>Marital status</i>	937	0.87	0.33	0.00	1.00
<i>Vocational education</i>	937	0.14	0.35	0.00	1.00
<i>Borrowing amounts</i>	206	134,883.2	230,570	4,000	2,000,000
<i>Formal amounts</i>	124	156,628.8	274,163.6	5,000	2,000,000
<i>Informal amounts</i>	82	102,751.6	138,661.3	4,000	1,000,000
<b>Total</b>					

*Source: Authors' summary from VHLSS 2018*

Table 3 below shows the means and standard deviations of some key indicators of all samples. The average age of farmers is quite high at 52.48. In reality, younger people in rural areas, especially in urbanized communes/districts, have a big chance to work at industrial zones in the urban areas or seek a free job in the city with higher income. The dependency ratio is quite low. The reason is that the average age of farmers is around 52 whose children are often mature. The notable feature of surveyed households is that land area for farming, income as well as expenditure from agriculture activities per household varies dramatically.

On average, the amounts of formal loans are greater than the informal loan. In the rural areas, a formal loan from VBARD and PCFs has usually a short-term loan while the longer-term loan is from VBSP. The term of informal loans is very flexible, depending on the negotiation between lender and borrowers. In addition, the informal interest rate is often excessively higher than the formal one.

### ***5.2. Determinants of households' participation in the credit markets***

Table 4 explains the determinants of households' credit market participation in rural areas of the Red River Delta as shown in function (1). However, households in the research site borrow from both formal and informal sources, so the results will be bias if we pool informal and formal demand. To deal with the issue, table 5 reports the results from estimation of function (1') to indicate the factors affecting households' credit source selection after borrowing decisions, i.e. their decisions to borrow from formal or informal markets. Probit regression is used in function (1) and (1').

When we study credit accessibility as pooled sources, the factors significantly affecting households' participation in credit markets are: gender, saving and farming land. The coefficient of gender variable is significantly negative at 1%. That result suggest that the households whose head are women have greater demand in borrowing money. This is consistent to the studies of Hananu et al. and Akudugu (Akudugu, 2012; B. Hananu, A. Abdul-Hanan, & H. Zakaria, 2015a). The variable of saving also presents a significantly negative influence on credit market accessibility at the 1% level. On the other words, the presence of household savings significantly declined the demand of credit. This is reasonable because saving can be regarded as a substitute source of credit or a self-financing source of family. This result is confirmed by some authors in Vietnam and some other countries (Fenwick & Lyne, 1998; Khoi et al., 2013). As expected, the variable of farming land are positive and highly significant at the level of 10%, indicating that the households with larger farming land are very likely to have grater borrowing demand. The effect of total farming land on credit access is found in a lot of research of some developing countries (Akudugu, 2012; Chandio & Jiang, 2018; Saleem, Jan, Khattak, & Quraishi, 2011; Sharma, Gupta, & Bala, 2007) and of Vietnam (Barslund & Tarp, 2008; Duy et al., 2012). On the other hand, the result indicates the increasing of borrowing demand of households for agricultural production in rural areas.



**Table 4. Determinants of households' participation in the credit markets**

	<b>Coefficient</b>	<b>S.E.</b>	<b>z</b>	<b>P&gt;z</b>
<i>Age</i>	0.0134839	0.0745333	0.18	0.856
<i>Age square</i>	-0.0005188	0.000754	-0.69	0.491
<i>Gender</i>	-1.392346	0.3630335	-3.84	0.00***
<i>Ethnicity</i>	0.617602	0.6369029	0.97	0.332
<i>Number of working people</i>	-0.0044881	0.1086813	-0.04	0.967
<i>Dependency ratio</i>	-0.3282765	0.5876908	-0.56	0.576
<i>Group membership</i>	0.0924088	0.1932221	0.48	0.632
<i>Saving</i>	-2.966443	0.7254518	-4.09	0.00***
<i>Occupation</i>	-0.0382192	0.2080862	-0.18	0.854
<i>Ln_owned_land</i>	0.0452957	0.1685912	0.27	0.788
<i>Having land ownership certificate</i>	0.1380321	0.8585621	0.16	0.872
<i>Ln_farm_land</i>	0.2222883	0.1287086	1.73	0.084*
<i>Ln_agri_income</i>	0.2606002	0.2579375	1.01	0.312
<i>Ln_agri_expenditure</i>	-0.0825686	0.2197329	-0.38	0.707
<i>Marital status</i>	0.405922	0.4117865	0.99	0.324
<i>Vocational education</i>	0.1921917	0.2630492	0.73	0.465
<i>Const</i>	-4.124019	2.183684	-1.89	0.059
<i>Observations</i>	937			
LR chi2(16)	108.57			
Prob > chi2	0.0000			
Pseudo R2	0.11			
Log likelihood	- 439.25163			
Dependent variable	Borrowing=1, non=0			

*Source: Authors' calculation from VHLSS 2018.*

\*: Significant at 10% level.

\*\*: Significant at 5% level.

\*\*\*: Significant at 1% level.

While gender, saving and farming land are demonstrated to have strong impacts on credit accessibility, vocational training is found to have positive relationship with credit source selection in table 5. That means household heads having vocational education (i.e.

graduated from collage, university or vocational school) have greater demand than the others. This result is consistent with the study of Hanunu et al. (Hananu et al., 2015a) and Sebatta et al. (Sebatta, Wamulume, & Mwansakilwa, 2014). Higher levels of education infer better knowledge, farming skills as well as ability to obtain more information on credit markets so more educated farmers often have easier access to credit.

**Table 5. Selection of credit sources**

	<b>Coefficient</b>	<b>Std. Err.</b>	<b>z</b>	<b>P&gt;z</b>
<i>Age</i>	-0.0173695	0.14773	-0.12	0.906
<i>Age square</i>	0.0001417	0.0015039	0.09	0.925
<i>Gender</i>	0.0918301	0.5514311	0.17	0.868
<i>Number of working people</i>	0.0086827	0.2104567	0.04	0.967
<i>Dependency ratio</i>	0.6472104	1.262436	0.51	0.608
<i>Group membership</i>	0.2920156	0.3583468	0.81	0.415
<i>Occupation</i>	-0.3252587	0.3779394	-0.86	0.389
<i>Ln_owned_land</i>	-0.4838973	0.3007692	-1.61	0.108
<i>Having land ownership certificate</i>	1.215413	1.480832	0.82	0.412
<i>Ln_farm_land</i>	0.0112807	0.2399821	0.05	0.963
<i>Ln_agri_income</i>	-0.1925978	0.4656426	-0.41	0.679
<i>Ln_agri_expenditure</i>	0.4115489	0.4002805	1.03	0.304
<i>Marital status</i>	-0.3932767	0.6256727	-0.63	0.53
<i>Vocationla education</i>	0.8942388	0.5083798	1.76	0.079*
<i>Const</i>	-0.1913955	4.31621	-0.04	0.965
<i>Observations</i>	206			
LR chi2(16)	12.47			
Prob > chi2	0.5688			
Pseudo R2	0.045			
Log likelihood	-132.24287			
Dependent variables	Borrowing from formal sources = 1, Borrowing from informal sources = 0			

Source: Authors' calculation from VHLSS 2018.

\*: Significant at 10% level.

\*\*: Significant at 5% level.

\*\*\*: Significant at 1% level.

### ***5.3. Determinants of borrowing amounts of households***

Table 6 presents the determinants of borrowing amounts of rural households in the Red River Delta. As shown in section 5.2, the result is likely to be biased if we pool formal and informal credit. Therefore, determinants of formal and informal amounts are separately investigated in table 6.

The second big column of the table 6 presents the determinants of formal borrowing amounts. Interestingly, ethnicity, dependency ratio and owned land are figured out to have significant impacts on formal credit amounts. As expected, the variables of ethnicity and owned land are positive and significant at the level of 5% and 10%, respectively. The positive coefficient of ethnicity means people of Kinh majority could borrow more money from formal sources than the other minorities. Kinh majority have chance to access more information as well as are more educated than the minorities. Therefore, Kinh are believed to have more ability of debt repayment. This is one of criteria that affect lenders' decision. This result is consistent with many studies in Vietnam (Duy et al., 2012; Khoi et al., 2013).

The coefficient of dependency ratio is significantly negative at 10%. The results suggest that families with less dependent people could obtain larger amounts. Families with higher dependency ratio reflect the lower earning capacities as well as lower repayment ability. The explanatory variable owned land indicating the areas with ownership certificate has positive effect on formal amounts and is significant at the 10% level. On the other words, households with better land ownership status could obtain more formal credit amounts (Chandio & Jiang, 2018; Rahman, Hussain, & Taqi, 2014). In practice, land area with ownership certificate is a substitute of asset possession and collateral security. Almost all financial institutions or commercial banks are only willing to offer amounts on the basis of collateral value.

Concerning the determinants of informal amounts, owned land are also found out to have positive correlation informal amounts. Most informal lenders decide to approve loans based on borrowers' assets. Collateral is believed to reflect household wealth and increase repayment possibility (Hussain & Thapa, 2012; Saqib, Ahmad, & Panezai, 2016; Zeller, 1994). The sign of occupation is negative that means households whose heads are farmers seemingly borrow less money than others from informal sources. This enhances the fact that households are reluctant to borrow informal credit for agriculture production. Agriculture production in developing countries still remains risky due to shortage of technology, dependence on weather and uncertainties of diseases. On the other hand, informal interest rates are quite higher than formal ones, which is the reason why farmers prefers borrowing formal loans rather informal ones.

**Table 6. Determinants of borrowing amounts**

	Formal sources			Informal sources		
	Coff.	S.E.	P>t	Coff.	S.E.	P>t
<i>Age</i>	0.004	0.014	0.769	0.019	0.020	0.322
<i>Gender</i>	0.085	0.394	0.830	0.308	0.411	0.457
<i>Ethnicity</i>	1.301	0.622	0.039**			
<i>Number of working people</i>	-0.077	0.136	0.572	-0.228	0.177	0.203
<i>Dependency ratio</i>	-1.238	0.669	0.067*	-1.470	1.217	0.231
<i>Group membership</i>	-0.092	0.246	0.708	0.090	0.289	0.755
<i>Saving</i>	-0.597	0.806	0.460			
<i>Occupation</i>	0.158	0.252	0.532	-0.649	0.315	0.043**
<i>Ln_owned_land</i>	0.398	0.204	0.053*	0.747	0.244	0.003***
<i>Having land ownership certificate</i>	-0.377	1.144	0.743	0.746	1.087	0.495
<i>Ln_farm_land</i>	0.118	0.164	0.476	-0.006	0.216	0.979
<i>Ln_agri_income</i>	0.241	0.324	0.459	0.164	0.409	0.691
<i>Ln_agri_expenditure</i>	-0.148	0.293	0.615	-0.004	0.306	0.990
<i>Marital status</i>	-0.242	0.421	0.566	-0.779	0.468	0.101
<i>Vocational education</i>	0.347	0.291	0.237	0.324	0.445	0.469
<i>Const</i>	6.519	2.070	0.002	5.354	2.090	0.013
<i>Observation</i>	124			82		
<i>Dependent variable</i>	Log (borrowing amount)					

Source: Authors' calculation from VHLSS 2018 (Coff.: Coefficient)

\*: Significant at 10% level.

\*\*: Significant at 5% level.

\*\*\*: Significant at 1% level.

## 6. Discussion and Conclusion

This research attempts to identify the determinants of farming households' credit accessibility in rural Vietnam with the case of the Red River Delta. Our results confirm the segmentation of rural credit markets in the research site, in which the informal credit markets coexist with the formal ones.

The results of the paper confirm that households' credit market participation is significantly influenced by the following factors: gender, saving and *ln\_farm\_land* while vocational education determines households' credit source selection. From the regression model OLS, it was shown that ethnicity, dependency ratio and *ln\_owned\_land* has

significant impact on the borrowing amounts in only formal markets. Ln\_owned\_land have significantly positive relationship with informal amounts while occupation is proven to have negative impact on informal amounts.

Results of the research pose some policy implications focusing on enhancing household credit accessibility in rural areas. In practice, banks are focusing on high-return customers rather than agriculture-production customers. The salient constraint of taking big-amount loans from commercial banks is collateral. Almost all commercial banks just accept households' dwelling land with ownership certificate instead of farm land while the value of farmers' dwelling land as collateral is much smaller than farming land so large-production households can hardly borrow the amounts as big as they want. Therefore, the government should have policies to fill the gap between borrowers and formal lenders, meeting credit demand to maximize their production.

This study is subject to certain limitations due to VHLSS data restrictions, however, it also provides insights for further research in rural Vietnam. In spite of the limitation, the results of the paper can be applied for the other provinces of the Red River Delta.

## 7. References

1. Akudugu, M. (2012). Estimation of the determinants of credit demand by farmers and supply by rural banks in Ghana's Upper East Region. *Asian Journal of Agriculture and Rural Development*, 2(393-2016-23992), 189-200.
2. Anang, B. T., Sipiläinen, T., Bäckman, S., & Kola, J. (2015). Factors influencing smallholder farmers' access to agricultural microcredit in Northern Ghana. *African Journal of Agricultural Research*, 10(24), 2460-2469.
3. Baiyegunhi, L., Fraser, G., & Darroch, M. (2010). Credit constraints and household welfare in the Eastern Cape Province, South Africa. *African Journal of Agricultural Research*, 5(16), 2243-2252.
4. Bao Duong, P., & Izumida, Y. (2002). Rural Development Finance in Vietnam: A Microeconometric Analysis of Household Surveys. *World Development*, 30(2), 319-335. doi:[https://doi.org/10.1016/S0305-750X\(01\)00112-7](https://doi.org/10.1016/S0305-750X(01)00112-7)
5. Barslund, M., & Tarp, F. (2008). Formal and informal rural credit in four provinces of Vietnam. *The Journal of Development Studies*, 44(4), 485-503.
6. Bashir, M. K., Azeem, M. M. J. P. J. o. L., & Sciences, S. (2008). Agricultural credit in Pakistan: Constraints and options. 6(1), 47-49.
7. Bauer, S. J. J. o. r. s. (2016). Does credit access affect household income homogeneously across different groups of credit recipients? Evidence from rural Vietnam. 47, 186-203.
8. Bigsten, A., Collier, P., Dercon, S., Fafchamps, M., Gauthier, B., Gunning, J. W., . . . Söderbom, M. J. J. o. A. E. (2003). Credit constraints in manufacturing enterprises in Africa. 12(1), 104-125.

9. Chandio, A. A., & Jiang, Y. (2018). Determinants of Credit Constraints: Evidence from Sindh, Pakistan. *Emerging Markets Finance and Trade*, 54(15), 3401-3410.
10. Chandio, A. A., Jiang, Y. J. E. M. F., & Trade. (2018). Determinants of Credit Constraints: Evidence from Sindh, Pakistan. 54(15), 3401-3410.
11. Diagne, A. (1999). *Determinants of household access to and participation in formal and informal credit markets in Malawi*. Retrieved from
12. Diagne, A., & Zeller, M. (2001). *Access to credit and its impact on welfare in Malawi* (Vol. 116): Intl Food Policy Res Inst.
13. Dufhues, T., Buchenrieder, G., Quoc, H. D., & Munkung, N. (2011). Social capital and loan repayment performance in Southeast Asia. *The Journal of Socio-Economics*, 40(5), 679-691.
14. Duong, P. B., & Izumida, Y. J. W. d. (2002). Rural development finance in Vietnam: A microeconomic analysis of household surveys. 30(2), 319-335.
15. Duy, V. Q., D'Haese, M., Lemba, J., & D'Haese, L. (2012). Determinants of household access to formal credit in the rural areas of the Mekong Delta, Vietnam. *African and Asian studies*, 11(3), 261-287.
16. Evans, T. G., Adams, A. M., Mohammed, R., & Norris, A. H. (1999). Demystifying nonparticipation in microcredit: a population-based analysis. *World Development*, 27(2), 419-430.
17. Evans, T. G., Adams, A. M., Mohammed, R., & Norris, A. H. J. W. d. (1999). Demystifying nonparticipation in microcredit: a population-based analysis. 27(2), 419-430.
18. Fenwick, L., & Lyne, M. C. (1998). Factors influencing internal and external credit rationing among small-scale farm households in Kwazulu-Natal. *Agrekon*, 37(4), 495-505.
19. Ghosh, R., Gupta, K. R., & Maiti, P. (2008). *Development Studies* (Vol. 3): Atlantic Publishers & Dist.
20. Godfray, H. C. J., Beddington, J. R., Crute, I. R., Haddad, L., Lawrence, D., Muir, J. F., . . . Toulmin, C. J. s. (2010). Food security: the challenge of feeding 9 billion people. 327(5967), 812-818.
21. GSO. (2017). *Statistic Year Book*.
22. GSO. (2020). *Average population by sex and urban and rural areas*.
23. Hananu, B., Abdul-Hanan, A., & Zakaria, H. (2015a). Factors influencing agricultural credit demand in Northern Ghana. *African Journal of Agricultural Research*, 10(7), 645-652.
24. Hananu, B., Abdul-Hanan, A., & Zakaria, H. J. A. J. o. A. R. (2015b). Factors influencing agricultural credit demand in Northern Ghana. 10(7), 645-652.

25. Hussain, A., & Thapa, G. B. (2012). Smallholders' access to agricultural credit in Pakistan. *Food Security*, 4(1), 73-85.
26. Khoi, P. D., Gan, C., Nartea, G. V., & Cohen, D. A. (2013). Formal and informal rural credit in the Mekong River Delta of Vietnam: Interaction and accessibility. *Journal of Asian Economics*, 26, 1-13.
27. Li, X., Gan, C., & Hu, B. J. J. o. A. E. (2011). Accessibility to microcredit by Chinese rural households. 22(3), 235-246.
28. Lin, L., Wang, W., Gan, C., Cohen, D. A., & Nguyen, Q. T. (2019). Rural credit constraint and informal rural credit accessibility in China. *Sustainability*, 11(7), 1935.
29. Linh, T. N., Long, H. T., Chi, L. V., Tam, L. T., & Lebailly, P. (2019). Access to rural credit markets in developing countries, the case of Vietnam: A literature review. *Sustainability*, 11(5), 1468.
30. Malik, S. J., & Nazli, H. J. T. P. D. R. (1999). Rural poverty and credit use: Evidence from Pakistan. 699-716.
31. Marsh, S. P., MacAulay, T. G., & Hung, P. V. (2006). *Agricultural development and land policy in Vietnam*. Canberra: Australian Centre for International Agricultural Research (ACIAR).
32. Mohamed, K. (2003). *Access to formal and quasi-formal credit by smallholder farmers and artisanal fishermen: A case of Zanzibar*: Mkuki na Nyota Publishers.
33. Nguyen, C. H. (2007). Determinants of credit participation and its impact on household consumption: Evidence from rural Vietnam. In.
34. Okurut, F. N. (2006). Access to credit by the poor in South Africa: Evidence from Household Survey Data 1995 and 2000. *Stellenbosch: University of Stellenbosch*.
35. Okurut, F. N., Schoombee, A., & Van der Berg, S. J. S. A. J. o. E. (2005). Credit Demand and Credit Rationing in the Informal Financial Sector in Uganda 1. 73(3), 482-497.
36. Quach, M., Mullineux, A., & Murinde, V. (2005). Access to credit and household poverty reduction in rural Vietnam: A cross-sectional study. *The Birmingham Business School, The University of Birmingham Edgbaston*, 1-40.
37. Rahman, S., Hussain, A., & Taqi, M. (2014). Impact of agricultural credit on agricultural productivity in Pakistan: An empirical analysis. *International Journal of Advanced Research in Management and Social Sciences*, 3(4), 125-139.
38. Saleem, A., Jan, F. A., Khattak, R. M., & Quraishi, M. I. (2011). Impact of Farm and Farmers Characteristics On Repayment of Agriculture Credit. *Abasyn University Journal of Social Sciences*, 4(1).
39. Saqib, S. E., Ahmad, M. M., & Panezai, S. (2016). Landholding size and farmers' access to credit and its utilisation in Pakistan. *Development in Practice*, 26(8), 1060-1071.

40. Sebatta, C., Wamulume, M., & Mwansakilwa, C. (2014). Determinants of smallholder farmers' access to agricultural finance in Zambia. *Journal of Agricultural Science*, 6(11), 63.
41. Sharma, R., Gupta, S., & Bala, B. (2007). Access to Credit-A Study of Hill Farms in Himachal Pradesh. *JOURNAL OF RURAL DEVELOPMENT-HYDERABAD-*, 26(4), 483.
42. Tanaka, T., Camerer, C. F., & Nguyen, Q. (2010). Risk and time preferences: Linking experimental and household survey data from Vietnam. *American Economic Review*, 100(1), 557-571.
43. Thornton, P. K., van de Steeg, J., Notenbaert, A., & Herrero, M. (2009). The impacts of climate change on livestock and livestock systems in developing countries: A review of what we know and what we need to know. *Agricultural Systems*, 101(3), 113-127. doi:<https://doi.org/10.1016/j.agsy.2009.05.002>
44. Ugwumba, C., Omojola, J. J. J. o. A., & Science, B. (2013). Credit access and productivity growth among subsistence food crop farmers in Ikole Local Government Area of Ekiti State, Nigeria. 8(4), 351-356.
45. Yuan, Y., & Xu, L. (2015). Are poor able to access the informal credit market? Evidence from rural households in China. *China Economic Review*, 33, 232-246. doi:<https://doi.org/10.1016/j.chieco.2015.01.003>
46. Zeller, M. (1994). Determinants of credit rationing: A study of informal lenders and formal credit groups in Madagascar. *World Development*, 22(12), 1895-1907.
47. Zeller, M., Ahmed, A. U., Babu, S. C., Broca, S., Diagne, A., & Sharma, M. P. (1996). Rural Finance Policies for Food Security of the Poor: Methodologies for a Multicountry Research Project.
48. Zeller, M., Diagne, A., & Mataya, C. J. A. E. (1998). Market access by smallholder farmers in Malawi: Implications for technology adoption, agricultural productivity and crop income. 19(1-2), 219-229.



# MANAGEMENT OF COMPULSORY SOCIAL INSURANCE COLLECTION FROM THE NON-STATE-OWNED ENTERPRISES IN BAC GIANG PROVINCE

*Dr. Nguyen Thi Thanh Ha*

*hanguyen@tnut.edu.vn*

*Faculty of Industrial Economics, Thai Nguyen University of Technology,  
Thai Nguyen, Vietnam*

## **Abstract**

*Compulsory social insurance plays an important role to employees in every enterprises as it guarantees fully or partially offset employees income that is reduced or lost due to unpredicted sickness, maternity, labour accident, occupational disease, retirement or death, on the basis of their contributions to the social insurance fund. The expansion of the non-state-owned enterprises with stable and increasing labour force is a favourable condition for the development of compulsory social insurance. However, the collection of compulsory social insurance from non-state-owned enterprises faces a numerous difficulties, particularly NSE in developing area like Bac Giang province. This paper analyses the situation of the management of CSI collection from NSE in the period of 2016-2018 in Bac Giang province to find out the achievements, limitations and suggest possible solutions to overcome the difficulties in the upcoming years.*

**Keywords:** *Compulsory Social Insurance, Management, Non-state-owned Enterprises.*

## **1. Introduction**

In recent years, the non-state-owned enterprises (NSE) in Vietnam has grown very fast giving great potential for labour market and redundant employees from the process of state-owned enterprises (SOE) reform. The proportion of labour of NSE of the total social labour has been increasing, raising the number of employees covered by compulsory social insurance (CSI). CSI guarantees fully or partially offset an employee's income that is reduced or lost due to his/her sickness, maternity, labour accident, occupational disease, retirement or death, on the basis of his/her contributions to the social insurance fund [8,10].

In Vietnam, the percentage of employees covered by CSI is only 32% [13]. This rate is too low compared to many countries in the world (Malaysia 90%, Germany 95%, USA 95%) [9]. Thus, about 68% of the employees have not been covered by CSI, of which, most of them are employees working in the NSE. Meanwhile, according to the forecast of Vietnam insurance agencies, the social insurance spending will be equal to the social insurance collection in the year of 2020 [13]. In the following years, the social insurance spending might exceed the social insurance collection and the social insurance fund of previous years

must to be used. Therefore, an urgent requirement is to adjust the social insurance policy to expand the participants, focusing on NSE sector.

Bac Giang is a northeastern province in the north of Vietnam, bordering Quang Ninh province in the east, Lang Son province in the north, Thai Nguyen province and Hanoi city in the west, Bac Ninh province and Hai Duong province in the south. Bac Giang is 50 km from the center of Hanoi capital, consisting of one city and nine districts with a total natural land area of 3,895.5 km<sup>2</sup>. Bac Giang is the 12<sup>th</sup> most populous province in the country with 1.7 million people, of which 11.5% of the population live in urban area and 88.5% in rural area. Men account for 49.69% and women account for 50.31% of the population. The province gross domestic product reached VND 64,667 billion in 2018, an increase of 15.96% compared to 2017 [6,7]. In terms of economic structure, the agriculture, forestry and fishery accounts for 18.87%; industry and construction 51.41% and service 27.31%. GDP per capita was 52.1 million VND/year, equivalent to USD 2,230.

There were 3,442 NSE in Bac Giang province in 2018 [1]. These enterprises are most concentrated in Bac Giang City and socio-economic development areas such as Viet Yen, Lang Giang and Hiep Hoa districts. The NSE are mostly small and medium-sized enterprises, accounting for 98.8%, focusing on trade and services (1,740 enterprises accounting for 55%;) and industry and construction (1,328 enterprises accounting for 42%;). The NSE development is relatively stable in the main fields of electronics, garment, fertilizer, construction materials, mineral exploitation, processing of agricultural products. The gross output of the NSE was VND 18,990 billion in 2018, an increase of 3.4 times compared to 2010 and 1.85 times compared to 2015. There were 76,906 employees working for the NSE, accounting for 39.5% of the total number of employees in the province. The average income of employees in NSE was VND 6.69 million/ month [5,6,7].

The expansion of the NSE with stable and increasing labour force is a favourable condition for the development of CSI. However, the collection of CSI from NSE faces difficulties. Firstly, the expansion CSI participants for the NSE is limited. Although this is an area with a large number of employees, the rate of employees covered by CSI is not high, incommensurate with the potential of the province. Employers themselves do not have a clear understanding of social insurance. They have not yet considered CSI as the rights and obligations of employers and employees. A number of the NSE dissolved, went bankrupt, and were inability to pay finance debts. This is also a barrier that limits the CSI collection in Bac Giang province recently. Secondly, the propagation and dissemination of policies and law on social insurance for employees has not been focused. Thirdly, the inspection, examination and supervision of state management agencies in charge of social insurance is not timely and strictly. Fourthly, the delaying of the payment of social insurance is more common [2,3,4].

This paper aims to analyse the situation of the management of CSI collection from NSE in the period of 2016-2018 in Bac Giang province to find out the achievements, limitations and suggest possible solutions to overcome the difficulties in the upcoming years.

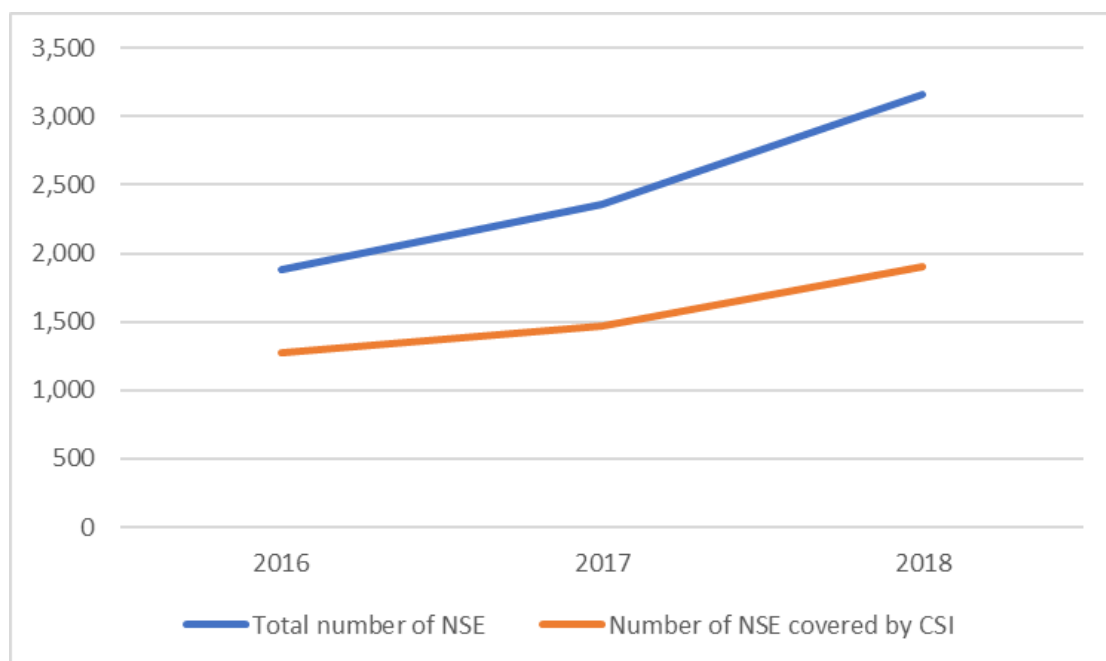
## 2. Method

The study was conducted in Bac Giang province from August to November 2019. Secondary data in the period of 2016 to 2018 was collected from provincial social insurance agency and the department of statistic. Primary data was collected by interviewed about 200 employers and employees in NSE by randomly selecting. Descriptive statistics method was used to analyse and interpret the results of the study using graphs, tables, diagrams.

## 3. Results

### *Management of number of NSE covered by CSI*

In 2016, there were 1,437 enterprises covered by CSI including 1,270 NSE, 141 foreign direct investment (FDI) enterprises and 24 SOE. While 100% SOE and FDI enterprises are covered by CSI, only 67.7% NSE pay CSI for employees.



**Figure 1. Number of NSE covered by CSI in the period 2016-2018**

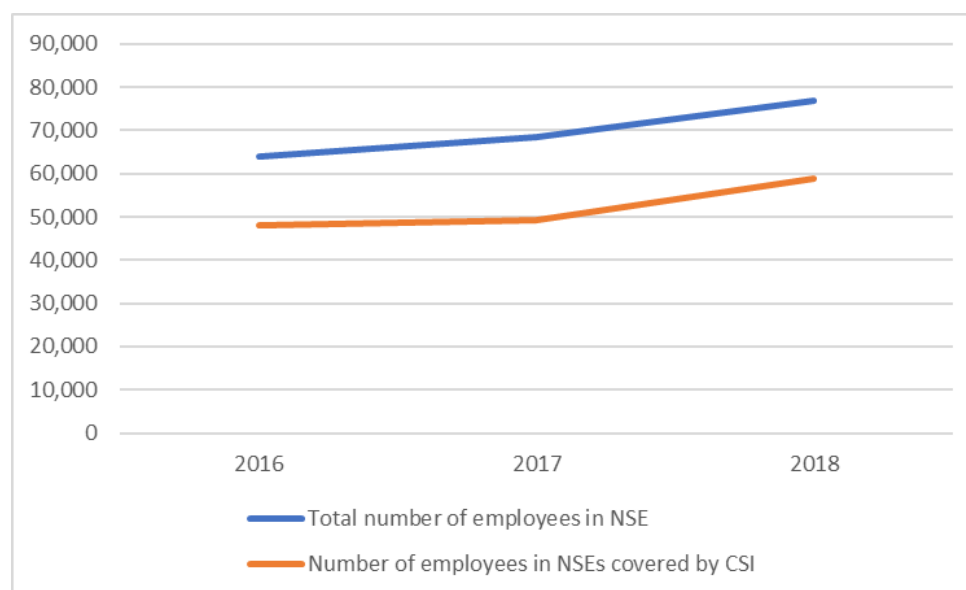
In 2017 and 2018, the number of enterprises covered by CSI increased with the corresponding number of 1,684 enterprises and 2,182 enterprises. SOE and FDI enterprises still maintained the rate of 100% of enterprises covered by CSI, while the percentage NSE covered by CSI were declining. In 2016, this ratio was 67.7%, down to 62.2% in 2017 and 60.16% in 2018. It can be seen that the number of NSE covered by CSI was increasing in number, but the rate of NSE covered by CSI compared to total number of NSE were declining and incommensurate with the potential of developing CSI from NSE in the province.

**Table 1. Number of enterprises covered by CSI in the period 2016-2018**

Enterprise	2016		2017		2018		Average growth rate (%)
	NSE covered by CSI	NSE covered by CSI/Total NSE (%)	NSE covered by CSI	NSE covered by CSI/Total NSE (%)	NSE covered by CSI	NSE covered by CSI/Total NSE (%)	
1. SOE	26	100.00	24	100.00	21	100.00	-10.13
2. NSE Limited liability company	1,270	67.70	1,466	62.20	1,903	60.16	22.41
Joint stock company	842	66.30	1,001	61.19	1,356	59.89	26.90
Private enterprise	236	62.11	299	61.52	351	57.35	21.95
3. FDI enterprise	192	84.96	166	70.64	196	68.29	1.04
<b>Total</b>	<b>1,437</b>	<b>70.34</b>	<b>1,684</b>	<b>65.40</b>	<b>2,182</b>	<b>63.39</b>	<b>23.23</b>

***Management of number of employees of NSE covered by CSI***

By the end of 2018, there were 194,703 employees working in enterprises in the whole province, including 176,506 employees (90.65%) covered by CSI. The number of employees in NSE covered by CSI continuously increased over the years, reaching 47,903 employees in 2016, 49,366 employees in 2017 and 58,709 employees in 2018. On average, in the whole period of 2016-2018, the number of employees in NSE covered by CSI grew at an average rate of 22.41%. However, the rate of employees in NSE covered by CSI compared to total number of employees in NSE was about 70%, much lower than SOE (100%) and FDI enterprises. This ratio slight declined over the years.

**Figure 2. Number employees of NSE covered by CSI in the period 2016-2018**

**Table 2. Number of employees covered by CSI in the period 2016-2018**

	2016		2017		2018		Average growth rate (%)
	Employees cover by CSI	Employees cover by CSI/Total employees (%)	Employees cover by CSI	Employees cover by CSI/Total employees (%)	Employees cover by CSI	Employees cover by CSI/Total employees (%)	
1. SOE	6,072	100.00	5,210	100.00	4,931	100.00	-9.88
2. NSE	47,903	74.83	49,366	72.08	58,709	76.34	22.41
Limited liability company	20,527	79.64	22,347	78.11	28,081	81.98	16.96
Joint stock company	26,464	71.65	26,088	67.62	29,514	71.86	5.61
Private enterprise	913	70.14	932	71.84	1,114	70.36	10.48
3. FDI enterprise	73,041	100.00	100,464	100.00	112,866	100.00	24.31
<b>Total</b>	<b>127,016</b>	<b>88.74</b>	<b>155,040</b>	<b>89.02</b>	<b>176,506</b>	<b>90.65</b>	<b>17.88</b>

***Management of wage fund of NSE covered by CSI***

Table 3 summarises the wage fund and average salary used as a basis for calculating social insurance premiums of enterprises. The wage fund of NSE gradually increased from 2016 to 2018 with the average growth rate of 23,57%. The average salary NSE used to calculate social insurance premiums is lowest compared to SOE and FDI enterprises in the period of 2016-2018. It is obvious that the average salary NSE used to calculate social insurance premiums is far different from the actual salary that employees receive.

**Table 3. Wage fund and average wage covered by CSI in the period 2016-2018**

	Unit	2016	2017	2018	Average growth rate (%)
1. Wage Fund covered by CSI	Billion VND	1,469	1,873	2,243	23.57
2. Average salary covered by CSI					
State-owned enterprise	VND/month	3,606,950	5,127,151	5,464,113	23.08
Non-state-owned enterprise	VND/month	2,682,382	3,350,195	3,356,975	11.87
FDI enterprise	VND/month	2,704,414	3,693,370	4,166,309	24.12

***Management of the amount of CSI collection from NSE***

Along with the increase in the number of NSE and the number of employees of these enterprises covered by CSI, the amount of CSI collection from these enterprises grew quite high over the years. This is illustrated in Table 4. In 2016, amount of CSI collection from NSE was VND 424.09 billion, increased to VND 481.4 billion in 2017 and to VND 572.94 billion in 2018. Compared to the targets set at the beginning of the year, the collection of CSI from NSE were over 100% (110.84% in 2016 and 103.41% in 2017). This rate slightly decreased to 97.42% in 2018. The reason for the decline in CSI collection rate is the higher CSI debts in 2018.

**Table 4. Amount of CSI collection covered by NSE in the period 2016-2018**

	Unit	2016	2017	2018	Average growth rate (%)
Estimated CSI covered by NSE	VND Billion	382.61	465.53	588.08	23.98
CSI covered by NSE	VND Billion	424.09	481.40	572.94	16.23
Collection rate	%	110.84	103.41	97.42	-

***Management of CSI debts of NSE***

It can be said that, CSI debt arrears has happened everywhere, to every type of enterprises and is increasingly popular and complicated recent years. The provincial social insurance agency has implemented many synchronous solutions, but the effectiveness is not high. Especially, the CSI debts of NSE tends to increase.

**Table 5. Amount of CSI debts of NSE in the period 2016-2018**

Enterprise	Unit	2016	2017	2018
SOE	VND Billion	8.65	7.76	7.17
NSE	VND Billion	29.55	30.18	34.14
FDI enterprise	VND Billion	21.97	31.83	25.55
<b>Total</b>		<b>60.16</b>	<b>69.77</b>	<b>66.86</b>

Table 5 shows that CSI debts of NSE increased from VND 29.55 billion in 2016 to VND 30.18 billion in 2017 and VND 34.14 billion in 2018. Compared to the total CSI debts of enterprises in the whole province, the CSI debts of NSE accounted for approximately 50% the period of 2016-2018. The reason was that a number of NSE did not afford to pay and stopped paying CSI due to business losses, dissolution and bankruptcy. Particularly, many of them have collected CSI contributions from employees but spent for other purposes and have not paid to the social insurance agencies.

***Inspection of the collection and payment of NSE for CSI***

In order to detect and promptly handle the violations of CSI collection of NSE, the Inspection department of Bac Giang social insurance agency regularly checks the records sending by NSE to detect suspicious signs of evading CSI obligations. The director of Bac Giang social insurance agency has decided to inspect NSE by accident in order to rectify and handle them promptly. The Bac Giang social insurance agency established and implemented the inspection plan of 427 NSE in the period of 2016-2018. Bac Giang social insurance agency cooperating with the provincial People's Committee, Department of Labors, War Invalids and Social Affairs set up interdisciplinary inspection teams to conduct inspections of labour units in the province about the compliance with the labour law and the social insurance law to ensure the rights of employees. In total, inter-sectoral agencies conducted 100 inspections of NSE. The total amount of CSI premium arrears was VND 16.89 billion.

**Table 6. Inspection of NSE covered by CSI in the period 2016-2018**

	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>Total</b>
Number of NSE inspected in schedule	201	118	108	<b>427</b>
Number of NSE inspected by accident	0	0	62	<b>62</b>
Number of enterprises subject to inter-sector inspection	30	49	21	<b>100</b>
The amount of CSI arrears (VND billion)	0,99	11,7	4,2	<b>16,89</b>

#### **4. Discussion and Conclusion**

The management of CSI collection of NSE achieved numerous of positive results. The number of NSE and employees covered by CSI tends to increase over the years as the result of provincial socio-economic development, high economic growth rate, establishment of new NSE. These new NSE attract a large labour force in the area and initiate effective business, creating stable incomes for employees, giving them the rights and obligation to CSI. The amount of CSI collection from NSE gradually increases and exceeds the social insurance quotas assigned. The collection of CSI is sufficient, timely and well managed ensuring transparency and avoiding misuse and loss of social insurance fund. The management of wage fund for calculating social insurance premiums strictly complies with the State's regulations on salary regime to collect social insurance. The regular inspections and examinations have been carried out and timely detected and dealt with violations of the CSI collection of NSE, so the amount of CSI arrears has gradually decreased over the years. The information and communication on social insurance regimes and policies has been strengthened. The provincial social insurance agency organized 02 conferences on propaganda and policy dialogue on social insurance for nearly 500 NSE located in the province. The provincial Association of Enterprises coordinated with Vietnam Chamber of Commerce and Industry (VCCI) to organize a conference to dialogue, propagate and find solutions to get over difficulties and obstacles in the process of implementing social insurance policies and laws. Information about the NSE activities, policies and laws on social insurance are regularly upgraded and updated on the website of the provincial social insurance agency.

Beside the positive results, the management of CSI collection of NSE has limitations. The development of subjects participating in CSI of the industry is slow compared to the potential of the province and do not reach the CSI quota assigned by Vietnam social insurance agency. The proportion of NSE covered by CSI is still low and tends to decrease. The rate of employees covered by CSI compared to the total number employees of the NSE is much lower than that of SOE and FDI enterprises. Many NSE pay social insurance nonconformity with the existing labour. The wage fund covered by CSI fluctuates erratically and is on a declining trend. The average salary paid for social insurance is far different from the actual salary that employees receive. Unsecured debts on CSI from NSE have been increasingly popular and complicated. The provincial social insurance agency has implemented many synchronous solutions, but the effectiveness is not high. The propaganda

and dissemination of CSI policies are not really effective. The inspection and examination have not been performed well.

The limitations in management of CSI collection from NSE caused by NSE, employees, state management agency and social insurance policy.

Regarding the NSE, the NSE in the province are mainly small-scale enterprises. A number of enterprises suffered losses in business and this situation lasted for many years. Several NSE change mechanism leading to the large amount of CSI debts have not been paid... In addition, many NSE have not paid adequate attention to the implementation of the law on social insurance, resulting in delayed deduction of social insurance of employees. Several NSE are not able to pay or pay the partial amount owed. On the other hand, NSE without the State's participation in production and business activities mostly focus on business and production and are not interested in paying social insurance. The high competition environment is main reason forces them to minimize costs to and increase profits. In order to reduce the SCI premium, they have declared inadequately the number of employees subject to social insurance and registered the salary of social insurance premium lower than the salary actually received by the employee. This leads to the situation that the loss of CSI collection and loss of the purpose of social insurance. The low level of social insurance premium leads to the low level of allowances

The understanding of employees about the right and obligation to pay for CSI is not clear, so that the employees cooperate with employers to violate the Law on social insurance by agreeing on reducing the salary stated in the working contract to reduce social insurance regimes. Moreover, employees know that employers have committed violations, but they do not dare to speak out and claim their rights due to pressure on employment and wages.

The social insurance policy is in the process of completion. The regimes, regulations and laws are often amended, supplemented and promulgated. The state management agencies do not have timely and specific instructions in the implementation. Therefore, it is difficult for employees, employers to understand many policies, which makes the implementation is not in compliance with regulations. The loose regulation makes it easy for businesses to bypass the law. Currently, the maximum fine for enterprises that are late in payment is VND 75 million [11,12]. In fact, many NSE are ready to pay fines of 75 million VND rather than to pay the amount of CSI of VND 10 billion. In addition, the regulation on calculating the late payment interest of social insurance is lower than the interest rate of bank loans, making many businesses accept penalties rather than borrowing from banks to pay social insurance. Compared with paying social insurance, evading paying and paying fines of enterprises is still more beneficial.

In order to strengthen the management of the CSI collection from the NSE in Bac Giang, the number of NSE and employees of NSE covered by SCI should be expanded to increase the amount of CSI collection. CSI debts and CSI evading should be controlled by enhancing administrative management by state authorities. Provincial social insurance agency should improve the administrative procedure, improve the quality of social insurance



and raise the awareness of society about the rights and obligations of citizen to CSI by enhancing effectiveness of propaganda and education on the implementation of the Social Insurance Law and social insurance policies.

## 5. References

1. Bac Giang People Committee (2018), *Report on socio-economics development*.
2. Bac Giang social insurance agency (2016), *Annual Report*.
3. Bac Giang social insurance agency (2017), *Annual Report*.
4. Bac Giang social insurance agency (2018), *Annual Report*.
5. Bac Giang statistics office (2016), *Bac Giang Statistical Yearbook 2016*.
6. Bac Giang statistics office (2017), *Bac Giang Statistical Yearbook 2017*.
7. Bac Giang statistics office (2018), *Bac Giang Statistical Yearbook 2018*.
8. Hoang Manh Cu and Doan Thi Thu Huong (2011), *Social Insurance*, Finance Publisher, Hanoi.
9. Nguyen Thi Hong Nhung (2017), *Law on social insurance - the practice of Song Cong town, Thai Nguyen province*, Master thesis, National Administration Academy.
10. Vietnam Assembly (2014), *Law No. 58/2014/QH13, Law on social insurance*.
11. Vietnam government (2013), *Decree No. 95/2013/ND-CP dated August 22, 2013 on penalties of administrative violations in labor, social insurance and overseas manpower supply by contract*.
12. Vietnam government (2015), *Decree No. 88/2015/ND-CP dated October 07th 2015, amendments Decree No. 95/2013/ND-CP on penalties for administrative violations against regulations on employment, social insurance, and Vietnamese guest workers*.
13. Vietnam social insurance (2019), *Annual Report*.

# ROLE OF OUT-STATE ENTERPRISES IN SOCIO-ECONOMIC DEVELOPMENT IN THAI NGUYEN PROVINCE

*Dr. Pham Thi Ngoc Van*

*phamngocvan.kt@gmail.com*

*MA Nguyen Thi Thu Trang*

*nguyentrang.tueba@gmail.com*

*University of Economics & Business Administration,*

*Thai Nguyen University, Vietnam*

## **Abstract**

*Businesses play a very important role in the economy. Thai Nguyen province has 96.2% of non-state enterprises and more than 95% of them are small and super small scale. However, the development of this economic component is not commensurate with the available potential. By the method of empirical quantitative statistical research (the method of dividing the time series, the method of absolute and relative comparison, ...). and secondary data sources were collected from the Statistical Office and departments of Thai Nguyen province. The paper analyzes the overall role of non-state enterprises in socio-economic development of Thai Nguyen, thereby proposing some solutions to support and encourage investment of this enterprise sector in the coming time.*

**Keywords:** *Enterprises, Non-state enterprises, Economic growth*

## **1. Introduction**

Thai Nguyen is a province in the Northern Midlands and Mountains. The socio-economic situation in 2019 in the province still maintains the growth and development momentum, the economic growth rate (GRDP) in the province is estimated at 9%; Gross provincial product (GRDP) per capita is estimated at VND 83.5 million [1]. As of 2018, Thai Nguyen province has 3448 enterprises, of which 3311 non-state enterprises (SOEs) (accounting for 96.02%), Number of active SOEs is 3165 (accounting for 91.8% of total SOEs), more than 90% of small and medium-sized enterprises are not bold enough to invest in enterprise development [2]. However, the total invested capital of the state-owned enterprise sector only accounts for 32%. Low capital scale will limit technology innovation, take advantage of business opportunities and competitiveness of enterprises in an increasingly fierce competition environment and deeper and wider integration into the world economy.

Investment of businesses contributes to promoting growth, economic restructuring, creating jobs for workers, ... Especially, with the current difficult economic situation, investment of enterprises shows the role as a motivation to promote growth and economic restructuring in a positive way.

This study analyzes the overall role of SOEs for the socio-economic development of Thai Nguyen, thereby proposing a number of solutions to support and encourage investment of the SOE sector increasingly promoting its role in the period.

## **2. Method**

This study analyzes the overall role of SOEs in analyzing the context of impact factors to draw conclusions as a basis for proposing solutions. With this study, the research methods implemented are quantitative statistical empirical research methods (methods of dividing the time series, absolute and relative comparison methods, etc.). The data source is used secondary data collected from Thai Nguyen Statistical Office, Department of Planning and Investment.

## **3. Results**

### ***3.1. Overview of non-state enterprises in Thai Nguyen province***

#### **- Concept**

According to the General Statistics Office, the concept of Non-state-owned enterprises (SOEs) is understood as follows: “Non-state enterprises are enterprises with domestic capital under private ownership of one person or group of people or ownership of houses. water but accounts for 50% or less of charter capital ”. Non-state enterprises include:

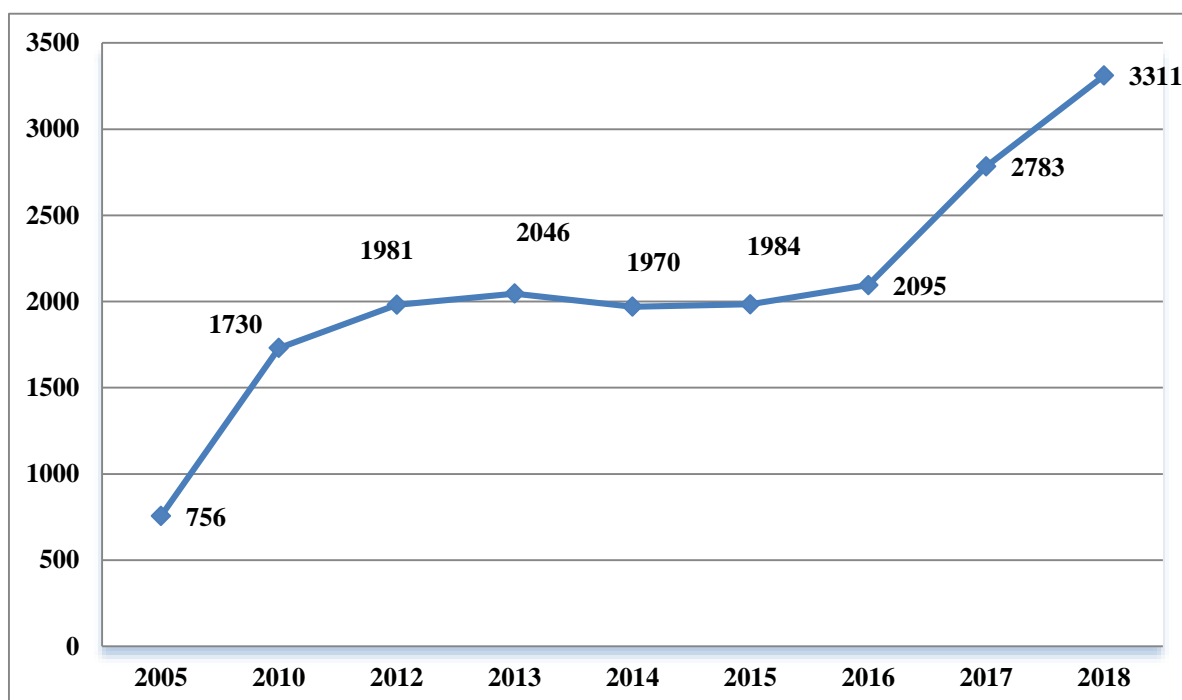
- \* Private enterprise;
- \* Partnership;
- \* Private limited liability company;
- \* Limited liability company with state capital of 50% or less;
- \* Joint stock company without state capital;
- \* Joint stock company with state capital of 50% or less.

In recent years, the non-state economic sector has become a driving force for Vietnam's economic development. Resolution 10 of June 3, 2017 of the 12th Central Committee of the Party Central Committee set out important topics and guidelines in order to pave the way for introducing new and appropriate mechanisms and policies. more and more breakthrough to develop the private economy to become a dynamic, creative economic area with competitiveness and high spillover effects to other economic sectors, thereby affecting the whole economy. International. The non-state economy engages in most of the nation's economic activities, except for a small number of sectors that are exclusively managed by the home.

#### **The process of developing SOEs in Thai Nguyen province**

As of December 31, 2018, the number of SOEs in Thai Nguyen province was 3311, an increase of 18.9% compared to 2017, while the whole country had 591,499 SOEs, an increase of 9.2% compared to 2017. Meanwhile, in 2005 the number of new businesses was

756 enterprises, in 2010 this number increased to 1730 enterprises. So, Thai Nguyen state-owned enterprises developed in line with the general trend of the country.



**Figure 1. The process of developing SOEs of Thai Nguyen province [2]**

- Structure: Limited company accounts for a large proportion of the SOE sector 55.12% (in 2018), 48.4% (in 2017), 45.6% (in 2016), meanwhile, the type of enterprise The collective accounted for the lowest proportion (4.38%, 2018). Private enterprises tended to decrease in the period 2016 - 2018. (Table 1)

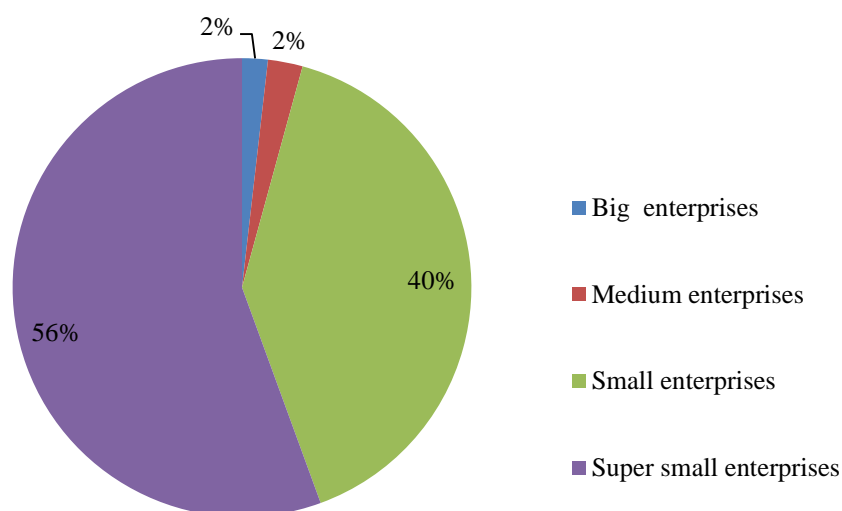
**Table 1. Thai Nguyen's SOE structure by type of enterprise**

Type of business	2016		2017		2018	
	Amount	Proportion (%)	Amount	Proportion (%)	Amount	Proportion (%)
<b>Total</b>	<b>2095</b>	<b>100%</b>	<b>2783</b>	<b>100%</b>	<b>3311</b>	<b>100%</b>
<b>Collective business</b>	78	3,72%	115	4,13%	145	4,38%
<b>Private enterprise</b>	610	29,12%	691	24,83%	616	18,60%
<b>Limited liability company</b>	956	45,63%	1347	48,40%	1825	55,12%
<b>Joint stock company</b>	451	21,53%	630	22,64%	725	21,90%

(Source: Thai Nguyen Statistical Office)

- Regarding the size of SOEs: In 2018, out of 3311 SOEs operating, 95.8% were small and micro enterprises, 2.4% were medium-sized enterprises and only 1.8% were large-scale enterprises. This greatly affected the production and business efficiency and decided to invest in developing production expansion.

**Figure 2. Number of acting enterprises as of 2018 by size of capital**



### ***3.2. The role of SOEs in socio-economic development of Thai Nguyen province***

Firstly, Contribute an important part in attracting idle capital, promoting economic growth of the province

Promoting the development of types of SOEs is considered an effective method of mobilizing capital among the people, since the establishment of small and medium-sized SOEs does not require too much capital, especially for small-scale enterprises. On the other hand, in the process of operating types of SOEs, it is easy to mobilize loans based on many relationships. In addition, SOEs are often dispersed throughout the province, so they are able to use the potentials of raw materials, labor and production experience of traditional local industries.

**Table 2. Investment capital implemented in Thai Nguyen province at current prices**

*Unit: billion*

Type of business	2016		2017		2018	
	Amount	Proportion (%)	Amount	Proportion (%)	Amount	Proportion (%)
<b>TOTAL</b>	<b>53236,05</b>	<b>100,0</b>	<b>58959,92</b>	<b>100,0</b>	<b>55188,35</b>	<b>100,0</b>
Capital of state sector	4196,47	7,9	4391,11	7,4	5977,83	10,8
Non-state sector capital	17588,07	33,0	19455,72	33,0	20291,71	36,8
Regional capital of foreign direct investment	31451,50	59,1	35113,07	59,6	28918,8	52,4

*(Source: Statistical Yearbook 2019)*

According to statistics, in the period of 2016-2018, the investment capital in the province at the current price from 53.2 trillion VND in 2016 increased to 55.18 trillion VND in 2018, of which investment capital in the non-state economic sector increased sharply. If in 2016 the investment capital of this area was VND 17.5 trillion, then by 2018 it would have

increased to VND 20.2 trillion, contributing 36.7% of the investment capital of the whole province. (Table 2)

The growth of the SOE sector in terms of the scale shown in the average annual production - business capital has increased significantly and increasingly plays an important role in the local economic development. In 2016, the whole province had an average production - business capital of enterprises of 275.8 trillion dong, of which enterprises in non-state economic sector was nearly 94.63 trillion dong. By 2018, the above figures were respectively 398.63 trillion VND (up 44.5% compared to 2016) and 110.3 trillion VND (up 17.23% compared to 2016). On the other hand, business capital of SOEs in the province has increased but the proportion of the province's production capital decreased (from 34.3% in 2016 to 27.7% in 2018) while the number of SOEs increase during this period. This shows that the capital growth rate of SOEs is still slow and not commensurate with the increase in the number of SOEs.

**Table 3. Business capital of SOEs by types of enterprises in the period 2015 - 2018**

*Unit: billion*

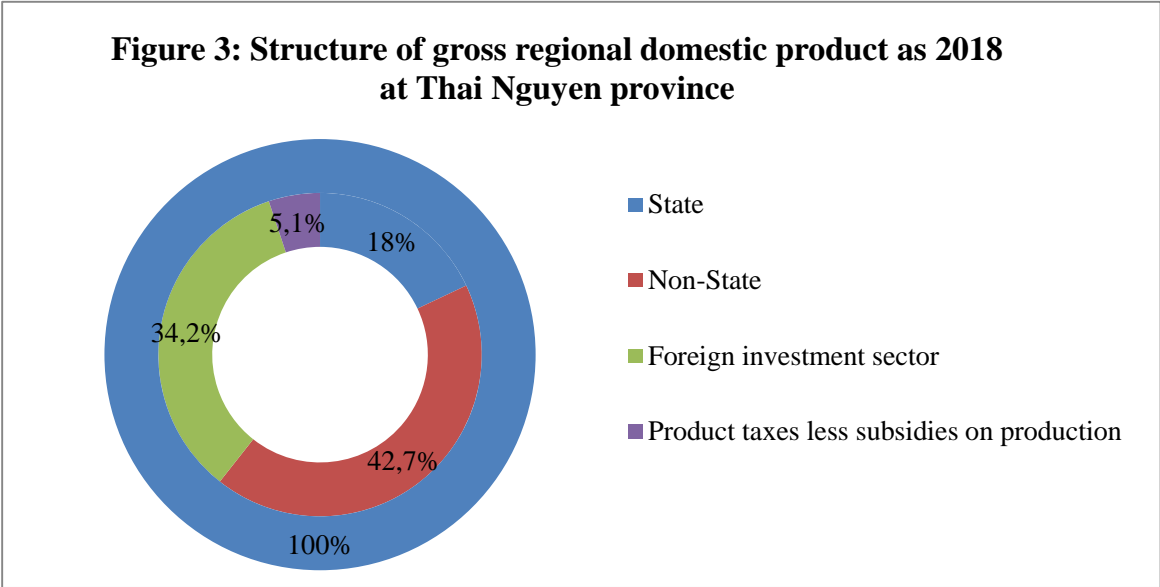
Type of business	Năm 2016		Năm 2017		Năm 2018	
	Capital	Amount	Capital	Amount	Capital	Amount
<b>TOTAL</b>	<b>275864,2</b> <b>(100)</b>	2178	<b>309436,6</b> <b>(100)</b>	2894	<b>398630,5</b> <b>(100)</b>	3448
<b>State enterprises</b>	<b>22743,6</b> <b>(8,2)</b>	30	<b>23667,5</b> <b>7,6)</b>	30	<b>22856,7</b> <b>(5,7)</b>	29
<b>Non-state enterprises</b>	<b>94637,1</b> <b>(34,3)</b>	2095	<b>98695,3</b> <b>(31,9)</b>	2783	<b>110378</b> <b>(27,7)</b>	3311
group	2615,13 (2,8)	78	2344,89 (2,4)	115	1313,26 (1,2)	145
private	12258,8 (13,0)	610	8119,82 (8,2)	691	6005,22 (5,4)	616
limited liability company	43292,9 (45,7)	956	44479,7 (45,1)	1347	51524,7 (46,7)	1825
Joint stock company	36470,2 (38,5)	451	43750,9 (44,3)	630	51534,5 (46,7)	725
Regional capital of foreign direct investment	<b>158483</b> <b>(57,4)</b>	53	<b>187075</b> <b>(60,5)</b>	81	<b>265396</b> <b>(66,6)</b>	108

*Note: Values in parentheses are contribution ratios (in%).*

*(Source: Thai Nguyen Statistical Office)*

The development of the SOE sector has contributed significantly to the GRDP growth of the whole province in the period of 2016 - 2018. The scale of Gross Domestic

Product (GRDP) in 2018 at current prices reached VND 98,518.2 billion; GRDP per capita of Thai Nguyen province in 2018 reached 77.7 million VND / person / year, an increase of over 9.6 million VND / person / year compared to 2017 and exceeded the plan. According to statistics, in the period of 2016 - 2018, the GRDP growth rate of Thai Nguyen province increased gradually over the years and had an average growth rate of 13.18% / year. Specifically, in 2016 GRDP in the province at the current price reached nearly VND 75.5 trillion, of which the non-state sector reached VND 33.96 trillion, by 2018 the province's GDP reached 98.5 trillion. VND, in which the non-state sector reached VND 42.03 trillion, accounting for 42.7% of the total product structure in the area.



- Secondly, Contribute to promoting economic restructuring towards modernization

In line with the general trend of the national economy, Thai Nguyen's economic structure has shifted in a positive direction, reducing the proportion of the agriculture-fishery economic sector, increasing the proportion of the industry-construction sector and commercial - service area. In 2016, the agriculture - fishery sector accounted for 12.2% of the GRDP, the trade and service sector accounted for 29.1%; industry - construction sector accounts for 58.6% and product tax minus product subsidy is 4.3%. By 2018, the proportion of these areas will be 10.9%; 26.6%; 57.2% and 5.1%. The index has grown over years. The economic structure change in the direction of modernization of Thai Nguyen province in recent years has played a great role in the role of the SOE sector.

In terms of economic sectors, there have been positive changes in the direction of promoting more and more effectively the contributions of economic types in all economic sectors. Individual economic types are developing fast. Among the types of SOEs, private enterprises account for the majority, then to limited liability companies and joint stock companies. The restructuring of businesses has created conditions to attract the labor force, develop small and medium-sized production and business organizations ... in accordance with the general development trend of local economy. In addition, the SOE sector has the ability to create integrated resources from different types of economy with all capabilities

of capital, science - technology, production organization... suitable to all conditions, practical circumstances of each type to increase competitiveness, promote growth and economic development.

The most outstanding feature of SOEs in the production and business structure is the high self-regulation, the agility in all situations to adapt to the market economy, with competition and international economic integration. This shows that the SOEs increasingly have the right choice of the right types of businesses in business, in accordance with the potential and advantages to meet the increasing demands of the market.

Thirdly, Creating jobs for workers, making an important contribution to solving unemployment problems in the area.

Creating jobs for workers is one of the State's macroeconomic goals, not only of economic significance but also of profound social significance. The establishment and rapid development of production and business types (from small owners, private enterprises, joint stock companies, limited liability companies)... has attracted a great force. The province has a large labor force, contributing to alleviating labor supply and demand pressure in the province's economy.

**Table 4. Number of employees in SOEs by type of enterprise in the period 2016 - 2018**

*Calculation unit: people*

Type of business	Năm 2016	Năm 2017	Năm 2018	So sánh	
				17/16	18/17
<b>TOTAL</b>	<b>174104</b>	<b>197789</b>	<b>217200</b>	13,6%	9,8%
<b>State enterprises</b>	<b>17513</b>	<b>16477</b>	<b>15188</b>	-5,9%	-7,8%
<b>Non-state enterprises</b>	<b>63962</b>	<b>81974</b>	<b>87443</b>	28,2%	6,7%
group	1559	2105	2072	35,0%	-1,6%
private	7619	8980	5897	17,9%	-34,3%
limited liability company	21294	30234	35319	42,0%	16,8%
Joint stock company	33490	40655	44155	21,4%	8,6%
<b>Regional capital of foreign direct investment</b>	<b>92629</b>	<b>99338</b>	<b>114569</b>	7,2%	15,3%

*(Source: Thai Nguyen Statistical Office)*

The data in Table 4 shows that: In 2016, out of 174,104 employees, the SOE sector attracted 63,962 employees. In 2018, with 217,200 employees, the SOE attracted 87,443 employees. And the two types of limited liability companies and joint-stock companies have attracted 79,474 employees, accounting for over 90% of the number of employees attracted by SOEs in the province, while collective and private enterprises attracted decreasing.



Moreover, the labor force of the private sector is quite diverse, plentiful, at all levels ranging from unskilled workers to highly qualified workers in all classes of people. It can be said that the private economy has an important role in creating jobs and reducing unemployment, especially in rural areas; increase income, improve workers' life, and actively contribute to socio-economic development in the province.

- Fourthly, Contribute to promoting technology transfer, human resource training cooperation and management experience

Currently, the SOE sector in the area is effectively implementing the technology selection, technological innovation to improve labor productivity, product quality, lower production costs in order to improve competitiveness. and expand the market. In fact, the SOE sector has many capabilities and advantages in technology selection and innovation, technology development in the fields of food processing, light industry, including some high-tech industries. such as information technology, biotechnology, software technology ... At the same time, the expansion of policies to attract domestic and foreign investment capital, joint venture, cooperation and technology transfer has facilitated The learning and training of managers and business staff, workers in the state-owned enterprises sector are highly qualified to meet the requirements of rapid economic development. [1]

#### *Limitations and weaknesses*

Although the state-owned enterprises sector is increasingly developing, contributing to the overall development of the province, but also frankly recognizes that this area has not yet fully developed its strengths and is not commensurate with its position, potential and still has its share. Reveal some existence, restriction.

Most of the SOEs are small and micro, lacking capital to operate and expand as well as change production technology while access to credit is limited. . The fact also shows that the technological level is backward, the management ability of business owners is weak, the lack of well-trained and professional technical experts. The instability and limitation of business premises are also causing difficulties for businesses in formulating and implementing development strategies. Some private enterprises still do not fully understand the organizational structure, as well as the functions and responsibilities of the administrative apparatus, policies, policies and support measures of the region. Therefore, the effectiveness of policies and support policies is limited.

In addition, the preferential policies between state-owned enterprises and enterprises in the state-owned enterprises sector are not really equal. Laws and policies related to state-owned enterprises are incomplete so that they can create confidence for entrepreneurs to invest in developing and expanding production and business.

In addition, the connection between the public sector and the SOE has not really been established in a sustainable and coherent manner. Therefore, the difficulties of enterprises in the process of production and business activities are slowly reflected and supported by the public sector.

Solutions to support SOEs in production and business activities and to encourage investment of SOEs

In order to promote the role of an important motive force of SOEs in Thai Nguyen province in the coming time, the following solutions should be well implemented:

*Firstly*, perfect mechanisms and policies and improve the effectiveness and efficiency of state management. First of all, Thai Nguyen province needs to improve mechanisms and policies to encourage strong development of production and business organizations of the SOE sector in line with the level of production forces, encouraging the transformation of SOEs. quickly restructure the economy toward modernization, international integration and enhance the quality of development. Besides, strengthening inventory, control production and product distribution stages; support enterprises, especially small and medium enterprises, to promote the sustainable development of SOEs.

*Second*, enhance the improvement of investment and business environment. In order to improve the investment environment, attention should be paid to a number of contents: improving infrastructure, exploiting and promoting the province's advantages, building a competitive environment among equal enterprises, and enhancing the transparency, increased access to land, and ultimately, local administrative reform. In order to create a good business and investment environment, ensure that economic institutions are properly and fully implemented; ensure openness, publicity, transparency and fair competition; Do not create barriers for businesses. This is a breakthrough solution for the development and promotion of the role of SOEs.

*Thirdly*, strengthen support for SOEs in developing and applying science and technology, developing human resources, building a strong team of entrepreneurs. The province needs to strengthen support for SOEs to modernize technology, innovation, human resource development. Increasing encouragement for many businesses to apply advanced and modern management tools to improve productivity and product quality to improve production processes, eliminate defects and reduce waste to meet demand. of customers, enhance the position and reputation of businesses in the international market.

In order to enhance the ability of SOEs to attract investment, local governments must pay attention to the development of support services on both sides: (i) Public administrative support services and (ii) Business support services joint

*Fourth*, strengthen the leadership of the Party Committees at all levels, the role of the Fatherland Front and socio-political organizations, socio-professional organizations, socio-economic organizations. This is an important solution to demonstrate the high political will to create a change in awareness and action and to encourage, encourage and promote the power of the whole society. Since then, facilitating the exploitation of all resources in society effectively and creating great strength to promote strong development, promoting the important role of SOEs in the area./.

#### **4. Discussion and Conclusion**

As of December 31, 2018, the number of SOEs in Thai Nguyen province was 3311, of which 96.2% were non-state enterprises and over 95% of them were small and micro. State-owned enterprises play a role as a motive for socio-economic development of Thai Nguyen province: (1) Contributing significantly to attracting idle capital, promoting the province's economic growth; Secondly, (2) Contribute to promoting economic restructuring towards modernization; (3) Creating jobs for workers, making an important contribution to solving unemployment problems in the area. (4) Contribute to promoting technology transfer, human resource training cooperation and management experience. Although the SOE sector is increasingly developing and contributing to the overall development of the province, it has not yet fully promoted its strengths and has not been commensurate with its position, potential and also revealed some shortcomings and limitations. . Therefore, the Province needs to implement some solutions to promote the role of SOEs in the coming period.

#### **5. References**

1. People's Committee of Thai Nguyen Province (2019,2018), *Socio-Economic Report 2018,2019*, People's Committee of Thai Nguyen Province.
2. Thai Nguyen Statistical Office (2015, 2018), *Statistical Yearbook of Thái Nguyên Province*.
3. Vu Hung Cuong (2016), *Private economy - A basic driving force for development*, Social Sciences Publishing House.
4. Communist Party of Vietnam (2017), *Document of the Fifth Conference of the Central Executive Committee of the 12th term*, National Political Publishing House

# MODEL OF TRADITIONAL BROCADE WEAVING CONSERVATION ASSOCIATED WITH THE SUSTAINABLE ECONOMIC DEVELOPMENT OF H'MONG ETHNIC MINORITY SUNG PHAI - LAI CHAU

*M.Phil. Nguyen Thi Tham*

*nguyenthm@neu.edu.vn*

*Department of Political Theory, National Economics University, Vietnam*

## **Abstract**

*Lai Chau province pays great attention to conserving traditional craft in general and brocade weaving in particular. Lao Cai, Dien Bien and Ha Giang have succeeded in conserving and developing brocade embroidery. The article introduces some brocade weaving models in the northern mountainous provinces of Vietnam and introduces brocade weaving models in Sung Phai, Lai Chau with achievements and limitations that exist on the basis of It proposed solutions to preserve traditional career development.*

**Keywords:** *Brocade weaving, Sung Phai, Lai Chau.*

## **1. Introduction**

Traditional brocade weaving is a multi-benefit job for ethnic minorities in general and H Mong people in particular. Vietnam is a country rich in cultural traditions, each of which has its own identity. Preserving and developing brocade embroidery not only contributes significantly to the process of economic development, creating jobs, diversifying tourism products ... and most importantly, helping to conserve traditional cultural values.

Conservation and development of traditional brocade embroidery and tourism development is currently a sustainable economic development model for ethnic minorities in Lai Chau province. According to experts, it is an effective form of exporting traditional products on the spot and marketing on product origin records. Especially when the demand for using environmentally friendly products and health protection is increasing, the development of hand-woven products made from natural, environmentally friendly materials is a trend.

The study introduces the traditional craft conservation model of ethnic minorities in some northern provinces, focusing on the current status of conservation model of brocade embroidery in Sung Phai, Lai Chau; propose a number of solutions to promote the effectiveness of this model towards sustainable development in the future.

## **3. Method**

The author uses methods of document analysis, comparative methods, statistics, field surveys.

## 4. Results

### 4.1. Brocade Weaving model of ethnic minorities

*Brocade Weaving Na Sang II - Dien Bien:* In the process of development and integration of the market economy, traditional brocade embroidery in many places is fading. However, people maintains brocade weaving looms with many attractive products in Na Sang 2 village, Lua Ngam commune, Dien Bien Dong district, Dien Bien province. This success has contributed significantly from the artisan Lo Van Vien (42 years old) of Lao ethnicity. Artisan Vien said that brocade weaving of the Lao people is kept from previous generation women and passed on to descendants. To obtain the perfect brocade fabric requires the weaver to go through many stages. All are done very meticulously, handcrafted with rudimentary tools, requiring the perseverance and dexterity of the hands of Lao women. Cotton berries collected from cotton plants grown in the fields are put into a cotton gin, separated from cotton seeds, then put into cotton balls and then soaked in rice water. Until cotton fibers are tough, they are picked out and put into a spinning machine into fibers. Finally, the bundles are passed through the slab to make a white fabric. The color of the fabric is entirely based on the trees in the forest, then the weaving process. In the stage of weaving, at first, we must be proficient in fine weaving, then weave sophisticated patterns. A beginner until basic weaving takes at least 3 months, weaving about 1 year will master the profession. “In this Na Sang 2 village, every woman knows how to weave from a young age. Before marriage, woman must know how to weave and make brocade. Just looking over and hearing the shuttle on the loom can assess whether the daughter-in-law is skillful or not ... ”- Artisan Lo Thi Vien shared. Recognizing Na Sang 2 as a unique traditional trade village, in 2009, the Japan International Cooperation Organization (JICA) in Vietnam researched and developed a project to support the development of brocade weaving in Na Sang 2. JICA also supports cooperatives in production tools which are manual weaving looms and finding orders. Since 2015, the product has been consumed in Hanoi and throughout the northern mountainous provinces, even in Laos. Brocade products of Na Sang 2 brocade weaving cooperatives are mainly skirts, bags, towels, blankets, sheets, pillows, clothes ... The skill level of the cooperative members is increasingly advanced, sample Code is renewed, more diverse. Therefore, the value of products is raised, many places look to Na Sang 2 to order. With the support of departments and agencies in Dien Bien province, Ms. Vien has been active in promoting brocade products via the internet, fairs, exhibitions inside and outside the province ... Up to now, brocade Na Sang II has now become one of the most typical cooperatives in Dien Bien province. “As of 2017, the cooperative has nearly 40 members. Whenever an order is divided equally for everyone, the member's income is quite stable, about 2 - 2.5 million VND / month ”, Mr. Lo Van Thoong, co-chair of the cooperation Brocade weaving commune Na Sang II said. In 2015, the new patterned scarf of Na Sang II Brocade Weaving Cooperative was voted as typical rural industrial product of Dien Bien province. However, according to the head of Lo Van Thoong cooperative, brocade weaving in Na Sang II is currently facing difficulties in production. Brocade weaving takes a lot of time and effort due to hand-weaving with manual looms. The cost will be reduced if there is

an automatic loom. Although the quality of hand-woven products is well appreciated, the price of the product is relatively high and therefore difficult to compete with other similar products available on the market. Due to the high price of litchi imported from Laos recently, the selling price of this product is even higher than before. At the same time, the members lack information about the market, leading to limited ideas to diversify products.

*Traditional brocade embroidery has been honored as an intangible cultural heritage in 2014 of Xa Pho people, Nam Sai commune (Sa Pa district, Lao Cai):* Nam Kéng, Xa Pho village of Nam Pho commune (Nam Sai commune) Sa Pa district, Lao Cai), considered as the "capital" of traditional brocade embroidery, was honored as an intangible cultural heritage in 2014 ... More than 60 gathering houses and Xa Pho people in Nam Keng village unite together to build a cultural life, preserve the identity and traditional profession. The Xa Pho people in Nam Kieng have skillful hands, with hand embroidery and unique patterns that have created a national intangible cultural heritage. This also brought Xa Pho people a new life, because brocade products are not only traditional for making dresses, not only tied in peaceful Nam Kéng, but also following tourists, traveling to Europe. Last year, Xa Pho Brocade Women's Club, Nam Sai commune, hand-embroidered thousands of products with 15 samples exported to European countries, USA, Australia and Japan. With the support of the Craflink Foundation, the Brocade Club has created jobs for nearly 40 local Xa Pho women members. On average, each woman on leisure days has an additional income of about VND 1.5 million / month. What Xa Pho Nam Ke women are always excited about is that most women who join the Brocade Club are trained to improve their embroidery, sewing, brocade pattern design to suit customers, especially creating consumer products, unique souvenirs based on traditional brocade material. Not only that, every year the club also organizes for members to participate in product introduction and promotion fairs in Hanoi, international fairs ... Making their own products by themselves, the women also took the products to bring their national identity to places that many years ago, Xa Pho women never dreamed of coming.

Standing in a house in which the provincial Women's Union cooperates with support organizations to give Xa Pho women a place to sell brocade, we cannot help to be surprised when the delegations here are interested in brocade embroidery. traditional hand. The bracelets stylized by unique brocade pattern, pillowcases, armbands ... all have very own beauty, making the difference of Xa Pho brocade. According to research paper of Phong Di Cultural products (Department of Culture, Sports and Tourism of Lao Cai), the traditional dress of Xa Pho women has many different patterns and is decorated with elaborate decorations. This makes the product here become a cultural heritage, being preserved, preserved and effectively developed by Nam Kieng people. Xa Pho Brocade has about 30 patterns, mainly illustrating the realities of everyday life such as pine trees, water waves, serrated teeth, fillings, or triangular triangles. Pattern of sleeves often has the shape of pheasant eyes, spiders, crabs, ferns, galaxies. According to Ms. Ly Thi Ngay: "The people in Nam Kieng village are recovering the cultivation of beaded trees, planting flax to keep the original traditional brocade pattern. Foreign tourists love Xa Pho brocade products because they are made from natural materials".

*Brocade weaving village Lung Tam - Ha Giang:* Lung Tam brocade weaving village is in Lung Tam commune, Quan Ba district, Ha Giang province. This is a traditional profession with a long history, not only providing income for households in Lung Tam village but also contributing to preserving the traditional cultural values of the Mong people. Hop Tien linen co-operative was born, which was also a development and mark of Lung Tam brocade weaving. At first only about 10 people participated but later with the support of the local village, the village was growing and growing, now there are over 150 people and it is still increasing. Lung Tam brocade weaving village produces with a variety of products such as clothes, bags, wallets, packs, scarves, etc. The highlight of the products is 100% linen material from the locality, people here grow flax. and go through many stages to create unique products. Products made from skillful hands of Lung Tam people all carry traditional cultural features. The pictures and colors on each product bear the hallmark of Ha Giang rocky plateau. Especially, the cultural features of the Mong people are depicted on meaningful embroidery lines. Also because the lines are cleverly expressed, good quality, durable, but the products here are always expensive. Especially, the products of Lung Tam weaving village have traveled all over the country and 20 European customers, favored by customers. Cooperative products are self-woven linen, bags, costumes, cushions, pillows, etc. which are connected with businesses by the commune and district. As a result, brocade linen products of linen weaving cooperatives in Quan Ba have been present in many provinces and cities in the country and markets in the US, Japan, Switzerland, Canada, France... 29 people in the cooperative now have had jobs and stable income. Having households with income of over 40 million dong / year. Many households escaped from poverty when participating in weaving cooperatives. In recent years, the model of cooperative weaving flax in Quan Ba has operated quite effectively, contributing to changing the lives of many women. Therefore, Ha Giang province is expanding to Dong Van and other districts, considering it a poverty reduction model for local women. Understanding the needs of tourists, especially foreign visitors, is very like products dyed with natural leaves, they focus on making products such as bags, phone bags, iPads, bedding, wall paintings, which are mainly wall paintings with unique features of Dong Van are Lung Cu and the Vuong flagpole. In particular, the cooperative has a catalog, if tourists like a small product, can order, after 30 minutes will be taken immediately. As for the big, sophisticated products, the cooperative will record the hotel address of the guest, then take it to the place. Not only directly produce products in front of guests, the members of the cooperative also presented to them to understand the meaning of needle threading, snail images and patterns, etc. The product just promotes the unique culture of the Mong people.

*Brocade weaving of H'Mong people in Mu Cang Chai - Yen Bai:* is an extremely difficult upland district of Yen Bai province with many ethnic minorities, of which Mong people account for 91%. The H'M people in Mu Cang Chai have many unique customs and practices, in which brocade weaving is one of the attractive cultural features. In 2019, the People's Committee of Yen Bai Province granted a certificate to recognize Brocade Weaving Village in De Thang village, Che Cu Nha commune, Mu Cang Chai district. The trade village currently has 35 women members participating. Ms. Ly Thi Ninh is the team leader with the

job of taking orders, then dividing the materials for the members to take home for herself. They take advantage of anytime and anywhere when they are free to work. Ms. Ninh shared that brocade weaving has long been associated with the daily life of the Mong people here and is passed on from generation to generation, bringing a unique culture of H women ' Buttocks. To create unique brocade products or costumes, it takes many stages, requiring the meticulous and skillful hands of Mong women such as planting flax, spinning, waxing, indigo dyeing and embroider. The motifs on the background of the Mong costume are mainly geometric patterns such as blocks of squares, rectangles, rhombus ... are handmade and take a lot of time. Brocade products when completed are uniquely decorated with different patterns and motifs, along with the main colors such as white, red, yellow, green, purple ... creating a unique and unique feature. the costumes of Mong people. To complete a complete outfit, if hard work takes about 5 months, not nearly a year. Nowadays, brocade weaving not only contributes to preserving and preserving traditional culture but also creating jobs and raising incomes for ethnic minority women. On average, each set of clothes sells for between VND 7-8 million and a crisp outfit costs around VND 10 million. Subtracting expenses each month, women have an additional income of 5-6 million for regular workers, those who take advantage of free time earn 2-3 million VND. Previously, the brocade products of the Mong people in Mu Cang Chai only served for themselves and their family, and made dowry for their daughters when they got married. Today, brocade products such as skirts, shirts, scarves, phone bags have become popular goods for domestic and foreign tourists. In order to save the textile industry for future generations, Ms. Ninh came up with the idea to combine with schools for students to practice embroidery. In 2019, nearly 50 students participated in the embroidery. Ms. Ninh hopes that in the coming time, the local authorities will coordinate with schools to open weaving and embroidery classes for students right in the trade village, she will teach the students directly. In recent years, the brocade weaving village has received a lot of support such as: World Bank's capital supported to buy 22 sewing machines; The State supported to build a factory, worth 1 billion; Craft Link Research, Linking and Handicraft Development Center in Hanoi has opened a training course to train team members on embroidery techniques to create products for sale. Thereby, creating conditions to improve productivity as well as increase designs of quality brocade products of Mong Mu Cang Chai people. Currently, many Chinese products are sold in the district with rich designs and cheap prices, which threaten to ruin a traditional brocade weaving job. In the coming time, the district continues to implement the scheme of supporting modern machines to improve the skills of the people; establishing more cooperatives and business households for this job. The district expanded the area of planting flax alternately planting maize at the home, investing in more types of handmade looms of the people to attract visitors, diversified product designs to expand the market. In addition, the district continues to direct the Department of Education and Training to organize extracurricular activities with the theme of preserving the cultural values of the nation such as performing national costumes, musical instruments, and dancing ... is strengthening trade promotion in the form of advertising, product introduction on the district's information page, on social networks to develop traditional jobs.



#### ***4.2 Current situation of the traditional brocade embroidery pattern in Sung Phai - Lai Chau.***

Lai Chau is a province with an important geographical area, a northwestern roost of the country, and has a strategic position in politics, defense and national security. As one of the localities with a large number of Mong people, accounting for 22.16% of the provincial population. In the process of existence and development, the Mong people together with other ethnic groups have made important contributions in the history of construction and development of Lai Chau province (1).

Sung Phai commune is located in the west of Lai Châu city, with a total natural land area of 4,966 ha, with 973 households with 4,272 people, including 7 ethnic groups living together. In recent years, the attention of all levels, sectors and political systems of the commune continues to be strengthened, improving the quality of activities and life of the People of all ethnic groups in the commune with many changes. , the rate of poor households decreases, now the whole commune has 124 households, accounting for 12.74%. Per capita income reached 25.5 million / person / year. Sung Phai is an agricultural commune with good conditions of land and natural conditions for development of agricultural production, forestry, animal husbandry, community tourism and a commune within the national target program on new rural construction (2).

Therefore, economic development, stabilizing the lives of people in Sung Phai are focused. In particular, there is a model of Brocade Weaving Weaving Group of Sung Phai Commune, which is developing very strongly. The group has always received the attention, support, and facilitation of the Standing Committee of the Commune Party Committee, Lai Chau Women's Union as well as the support of the Commune Women's Union, which actively organized the implementation of the regulations. as well as the group activities set out, team members unanimously unified the group's activities to create beautiful and quality products. The members of the team 100% basically know how to embroider, cut, sew costumes to serve themselves and their families, especially the traditional products of the H'Mong people. The most outstanding expression is the technique of creating patterns on fabric; outfits, jewelry and color schemes (3):

*Beeswax technique:* Nowadays, H'Mong people still retain beeswax printing and drawing techniques. Beeswax printing uses molds with carved decorative motifs before dipping into the heated beeswax and be pressed onto a white cloth. beeswax artists use a special pen to draw with the beeswax bowl, draw whatever they like. H'Mong people have their own set of 8 pens with different sizes and shapes to create unique patterns. beeswax thickens like candle wax after being dried... Do not expose them to the sun too much in order not to be dissolved. Finally, people boil that cloth with boiling water, the beeswax with high temperature will be melt and then reveal the white lines of fabrics, finish making a product with a white pattern on a blue indigo background.

*Traditional costumes:* Previously, H'Mong people used to weave with dried linen to make their own clothes, they decorate the patterns on the costumes by embroidery by hand

or draw with beeswax (with red buttocks). Mong people mainly wear costumes made of self-woven fabric, imbued with ethnic characteristics in shaping and decorating with multi techniques format. Only with 4 main colors blue, red, white and yellow of silk can create a lot of colors, creating a warm feeling. Textures are concentrated on the collar, brace, belts, portraits ahead. Women's traditional attire consists of a truncated cone skirt, pleated, tight buttocks, wide skirt body. The shirt has a neck flipped over the back of the neck, tied let go of two long bands behind The skirt has a front fabric, square fabric covers at the side buttocks. The outfit also features a bandana, leggings and a no-arm- jacket, with neck turning back on neck. Men's clothing includes a headscarf, a top, and a shirt trousers. Previously the white shirt was indigo with four breasted pockets, and a button was attached to the splint Chest, neck stand with borders around with the colored thread. Men's pants made in lame and have crotch-style pants the pants are short and thin when wearing the waistband, the two sides lead inwards and then use a rope or the belt is tied tightly outside. The belt is a white cloth with embroidery on both ends. Mong's costumes in holidays, New Year, wedding ceremony are new beautiful clothes with embroidery patterns. Costumes of the Mong people today still reserve a lot of Ancient patterns of both motifs as well as the color are mainly decorated on the hands,tops, waistbands, collars, skirts, baby carriers and head scarfs.

*In terms of forming technique:* the people make the most of different techniques, including: embroidery colored thread , grafted fabric color and beeswax prints, decorative pattern Mong has a unique style , not to be confused with other ethnic decorations. About the decorative motifs on clothing, in addition to the textures formed by a straight line, Mong people be proficient in the layout of projects with circular, curved, or spiral patterns its variants are two spiral vortices arranged symmetrically through the forming mirror hook or symmetrical spindle shape into an S-shape.only appear in clothes of the Mong people. These patterns represent the change of sun, weather, space and time, in the ancient universe of many residents. It is the common cultural sources of many ethnic groups, but it is shown deeply in Mong's decoration. The decoration on the Mong costume includes some of the following popular combinations: The nest matching motifs patterned alternating pattern with parallel lines motifs; Floral motifs combination S-shaped text interspersed between serrated motifs; Pattern combination of coins alternating between long dotted lines;

*In terms of embroidery technique:* on the collar and sleeves, the decorative patterns with twisted embroidery technique will always be dotted with the contour of colored fabric around each small patterned array, surrounded by large patterned array, corrugated colorful patterns textures of embroidery threads make the whole pattern stand out on a dark indigo background, not just beautiful in sewing techniques but also easy to impress through decorative motifs. Mong womendo not need patterns to embroider . Thread for embroidery often is a large silk yarn, durable. In particular, the shiny color of silk will increasing the beauty of the pattern, making the pattern more smoothly. Embroidery techniques used for the headscarf is more complicated because people embroider the left side of the fabric but the pictures of the product's model resurfaces on the right side, requiring a woman to be very persistent and careful because if only a small mistake, a needle mistake, wrong calculation of a thread lead to fail

*Regarding color matching technique of Mong people:* fabric is very thick, many layers overlap, creating into colored cross borders around shapes, lines, demonstrating a technique proficient, there is a separate tradition different from the brothers. Favorite colors are used in embroidery and patchwork are bright red, crimson, brown, yellow, white, green, blue. Right on the map projects of indigo-dyed beeswax pattern also prefer red fabric -white, far away. That is also the difference in costumes among Mong branches. The technique of grafting fabric to create pattern was also used by the Mong women used to create bands, different color cloth compartments on the collar, sleeveless, chest brace and the long skirt, the skirt cover. The fabric grafting technique not only creates color spaces, but also creates patterns. On the rectangle in the collar of the Mong people appeared many types of geometric patterns by fabric grafting technique. The small, complicated pattern lines on the bibs, sleeves are also grafted fabric. The fabric is quite meticulous, usually in hot colors or white fabric as a small border to cover the motifs or create a separate motif.

Sung Phai brocade embroidery group has been preserving traditional embroidery with the quintessence of the nation. From the fact that the households only make products to serve the needs of the family, in 2019 the group met to consolidate the group and discuss to find out the key products such as embroidery of machines, by hand, sewing of men and women costumes, children's apparel, import fabrics, hemming to market and the team actively introduces costumes, fabrics, hemming, and product sales via face channel

The members' facebook and zalo are mainly introduced through the face book "Dinh Dinh" and the facebook "Tho Cam NL" and a stall at San Thang Lai Chau night market. The team is consolidated with 14 members, including 7 members with high efficiency. The products created by the people are near and far from the beginning of the year, now the group has embroidered 70 traditional dresses with total sales of 84 million dong, sold over 100 ethnic dresses with an average price of 700,000 VND / set, a total of 70 million dong. In addition, the group also imported accessories such as: sewing edges, fabrics for processing for sale, with additional costs for members. The total revenue of the team in 2019 is 310 million VND after deducting the interest expense of over 100 million VND

Besides the achieved results, at present, the technique of creating patterns on fabric; and sewing H'Mong traditional costumes are at the verge of lost unless they researched, preserved and promoted its value in life Community life by some restrictions such as:

*Firstly*, the traditional handicraft products of the people need a lot of materials, labor (can take a new year to complete a traditional dress) so that its price is high, difficult to sell and cannot compete with existing products with cheap price.

*Secondly*, At present, international customers are very fond of products made from raw materials. However, raw materials for weaving traditional fabrics are scarce, because people do not pay attention to plant flax because it does not guarantee to raise family's economy. Production team must import fabric from others. Because raw linen is expensive with other provinces, the product is difficult to compete in the market.

*Thirdly*, the issue of marketing and advertising of traditional products has not been focused,

The product is not really attractive, unique, duplicate and less focused on the brand, Households mainly focus on creating products, paying little attention to market access issues..Still heavy ideology that they have something to sell, did not meet the tastes of customers.

*Fourth*, Lack of linkage between people and businesses. To be able to preserve, need of the support of businesses, travel and tourism businesses ensure output and benefit sharing for mutual development.

*Fifthly*, the involvement of State management agencies at central and local. The authorities and specialized agencies still confused with this traditional craft conservation model, there is no close direction, no synchronized policy mechanisms.

### **4.3. Discussion and Conclusion**

Model of preserving and developing traditional brocade embroidery in Sung Phai have been formed recently, there are still many difficulties and challenges. To develop craftsmanship

Traditional in general, brocade embroidery in particular should have some of the following solutions:

*Firstly*, implementing projects supporting machines, training, learning, and visiting tissue. improve skills for households. With the support of modern machinery ,the product takes less time, helps to reduce product costs, increases competitiveness on market.

*Second*, expand the area for planting flax and bead trees to be proactive in sourcing raw materials, creating organic products, environmentally friendly to serve tourists domestically and internationally. At the same time helps to protect the environment, against climate change and condensation.Especially to stabilize the life for the people.

*Thirdly*, Focusing on training, fostering more skills of marketing, introducing products products, sales for people. Diversify products, improve product design response meet consumer tastes and trends of the times. Pay attention to build the spear for products, there should be a project to assist people in registering collective marks for embroidery in particular and Lai Chau in general.

*Fourthly*, promote cooperation among people and businesses, proactively diversify products, attract investors. Can add handmade looms to attract travelers, guests to experience the stages of creating traditional embroidery products, promoting distribution developing both traditional handicrafts and cultural tourism, creating more incomes for people.

*Fifth*, the Government, ministries, central agencies and localities need to be concerned and actively implement this area through mechanisms,specific, highly feasible policies, especially preferential policies on land,tax, capital ... to encourage investment; Develop a product development program traditional products associated with tourism development, new rural construction.

## 5. Reference

1. Sung Phai Commune Party Committee (2020), *Political report of XIX communal Party Executive Committee, presentation to the 20th Sung Phai Commune Party Congress, term 2020 - 2025*.
2. Brocade weaving group in Nam Loong commune (2020), *Performance of brocade weaving group in Nam Loong commune in 2019*.
3. Tran Duc Vuong (chair), *Report on provincial scientific research project in 2014, code 01.12-DTLC-KX, "Solutions to preserve and promote the Mong ethnic traditional culture, contributing to stabilize the material and spiritual life of the people in Lai Chau province "*.

# ORGANIC FOODS BUYING INTENTION'S BARRIERS OF YOUNG URBAN VIETNAMESE

***Le Pham Khanh Hoa***

*hoalpk@neu.edu.vn*

*Faculty of Marketing, National Economics University, Hanoi, Vietnam*

***Nguyen Thi Phuong Anh***

*phuonganhsoo.neu@gmail.com*

***Tran Ngoc Anh***

*ng.anh01112000@gmail.com*

***Vu Diem Hang***

*vudiemhang@gmail.com*

***Pham Hoai Phuong***

*phamphuong761@gmail.com*

***Chu Thi Hong Quyen***

*totamaro2804@gmail.com*

*School of Advanced Education Program,*

*National Economics University, Hanoi, Vietnam*

## **Abstract**

*Organic foods have some advantages in the media messages and expertise's suggestions. Consumers still hesitate to buy them because of some constraints. In the context of Vietnam, we found 9 barriers of organic food buying intention of 313 young urban high qualified consumers. The results significantly showed that unsatisfaction ( $\beta = -0.463$ ,  $p < 0.000$ ) and price ( $\beta = -0.319$ ,  $p < 0.000$ ) of organic foods are the two most high-ranking main reasons prevents young consumers from buying organic foods. Utilitarian elements tended to be higher impact than rational elements in purchasing organic foods. With the limitations of low established measures, we hope future researches develop more measures for the area of organic foods and focus more on exploring barriers of intention to buy.*

**Keywords:** *Buying intention, organic foods, young consumers, Vietnam.*

## **1. Introduction**

The world is facing with challenges from climate change and environmental issues. People tend to use more eco-friendly products. Although they are better for health, they have some constraints. Vietnamese consumers have similar insights with other developing countries. They perceived organic foods with some components such as environment, health and safety, nutrition, inaccessibility, lack of interest (Truong and Yap, 2010). We raise a question relating to barriers of young urban Vietnamese consumers towards organic foods to explore more insights on this problem.

*Intention to buy/willingness to buy* reflect predicted consumer behaviours in purchase decision in the short future. Intention to buy is future prediction of consumer behaviour which make a significant contribution in constructing consumers' attitudes (Fandos & Flavian, 2006). Ajzen (1991) suggested that intention is an indicator, to some extent, consumers are ready to behave and how much efforts they make to a specific behaviour. According to Theory of Planned Behaviour, buying intention is affected by three components attitude, subjective norm and perceived behaviour control (Ajzen, 2012). Wang, et al. (2019) figure that healthiness perception and ethical self-identity are main antecedents of organic food intention to buy in developing countries. They are also important indicators to predict organic consumers' organic food intention to buy (Michaelidou & Hassan, 2008). Basing on the classical model of stimulus-organism-response, Lee & Yun (2015) illustrated that the main antecedent of buying intention is utilitarian attitude shaped by positive perception on nutrition ingredients and environmental protection. Green purchase intention is the probability and willingness of a person to consider eco-friendly products more than other traditional products (Rashid, 2009).

#### ***Factors which influence organic food products buying intention***

**Knowledge** is measured in terms of subjective and objective. Objective knowledge reflects subjective assessment (Cordell, 1997). Buck (1985) showed that, knowledge was built on individual memory or knowledge on other customers. Gil & Soler (2006) explored that, organic food information acquisition had no significant impact on consumers knowledge, the best way to deliver organic food information was friends or families. If consumers are more aware of organic foods, they will be more involved and buy under reasoned cognitive process (Aertesens, et al., 2009). ***H1: Lack of knowledge have a negative relationship with organic food buying intention.***

**Health consciousness** is defined by the level of interest integrated with daily activities to maintain a good health (Jayanti & Burns, 1998). Customers will consider health issues when they choose food products (Wandel & Bugge, 1997) and express their interests in food and health problems (Rozin, et al., 1999). ***H2a: Lack of health consciousness has a negative relationship with organic food buying intention.*** **Environmental concern** reflects the tendency and level of interest of a person towards environmental issues and efforts to solve these problems (Dunlap & Jones, 2002). This factor has direct relationship with perceived environmental behaviour (Hines, et al., 1987). ***H2b: Lack of environmental concern has a negative relationship with organic food buying intention.***

**Negative attitude** is defined as consumers' negative feelings, lack of information on organic foods, they do not believe that the organic food could overcome traditional farming foods. Roddy, et all, (1996) showed the evidence of negative attitude towards organic food in Ireland. ***H3: Negative attitude towards organic food has negative relationship with organic food buying intention.***

**Product involvement** related to the general definition of involvement which refers to consumers' overall subjective feeling of personal relevance. Involvement is a motivational

state, which affects the extent and focus of consumers' attention and comprehension processes (Celsi & Olson, 1988). Some involvement measures treat the product category as a target, others deal with the purchasing decision, which refer to importance of making the right choice within the category (Tarkiainen & Sundqvist, 2009). Food shopping is often assumed to be a low-involvement activity, it is possible that even those who experience organically produced food as involving do not spend time searching for organic alternatives when doing their shopping (Tarkiainen & Sundqvist, 2009). Bell & Marshall (2003) showed that people who were high involved with organic foods more interested in food in the purchasing process including buying, preparation and cooking. ***H4: Product involvement has a negative relationship with organic food buying intention.***

**Price** of organic foods tend to be higher than traditional farming foods and are more price elasticity. Price is consumer cost to have a product which have an impact on willing to buy depending on their own perception about price and affordability. Consumers were not willing to pay more for organic food such as meat (O'Donovan & MacCarthy, 2002) or bread (Kihlberg and Risvik, 2007). ***H5 Higher price of organic food has a negative relationship with organic food buying intention.***

**Trust** is a state when a person feels suffering or a risk of suffering which caused by the uncertainty. Trust relates to motivation, intention and potential behaviour of others who they are belong to (Kramer, 1999). Trust is considered as a mechanism which help reduce transaction risks by increase expectation of positive outcomes and certainty of potential behaviours of trusted people (Teng & Wang, 2015). Consumers trust and prefer eco-label products which they know that organic standards are controlled. In these cases, buying behaviours depend on trust towards sellers. ***H6: Lack of trust has a negative relationship with organic food buying intention.***

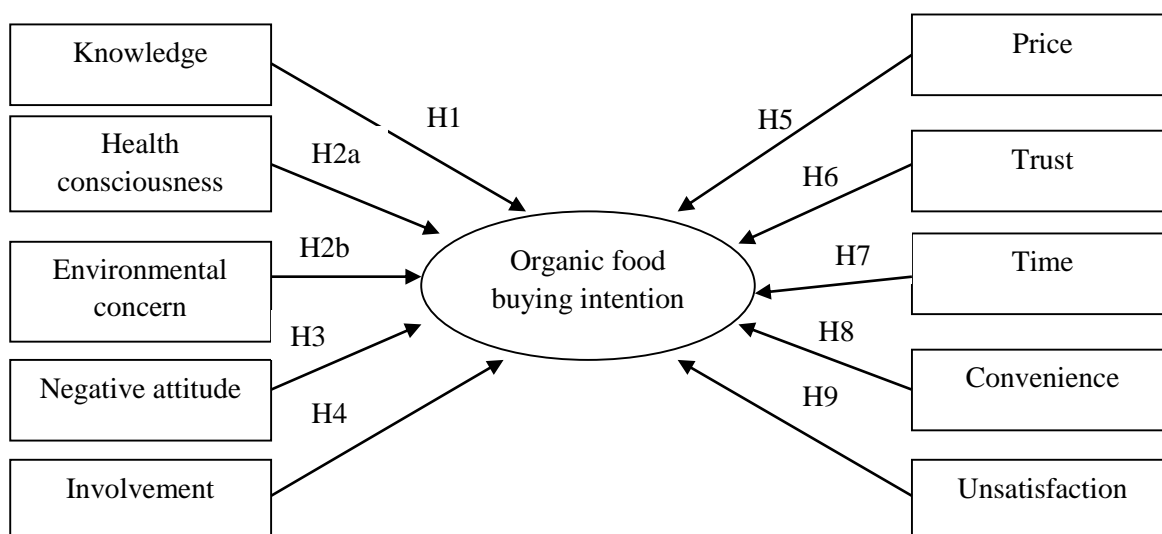
**Time** relates to lack of leisure time which is caused by time for working. Lack of time is a popular reason for lacking healthful activities in the youth of developing countries. ***H7: Lack of time has a negative relationship with organic food buying intention.***

**Convenience** is an assessment of customers in accordance with their perception on management, usage and transferring their time and effort to reach a purpose of using a product or service. Convenience depends on availability, distribution channel of organic food (Chen, 2007). Convenience helps consumers reduce time and effort when making a purchase. ***H8: Lack of convenience has a negative relationship with organic food buying intention.***

**Satisfaction** is individual subjective assessments relating to using products. Satisfaction is a comparison of expectations between before and after using a product. Maxham (2001) showed that satisfaction was built with customers' experience on nutrition, tastes and senses toward organic foods. ***H9: Unsatisfaction with organic food has a negative relationship with organic food buying intention.***



**Figure 1: Proposed research model**



**2. Method**

Data has been collected from March to April 2020 by online survey with the target is students and staffs in Hanoi. Participants were recruited conveniently. 400 questionnaires were delivered, and 313 responses were collected.

**3. Results**

**Table 1: Sample description**

	<b>Criteria</b>	<b>Number</b>	<b>Proportion per sample</b>
<b>Age</b>	18 to 22	210	67.1%
	22 to 27	19	6.1%
	28 to 30	6	1.9%
	Above 30	78	24.9
<b>Gender</b>	Male	64	20.4%
	Female	243	77.6%
	Other	6	1.9%
<b>Education</b>	High school	29	9.3%
	Undergraduate student	193	61.7%
	Bachelor	63	20.1%
	Higher education	28	8.9%
<b>Income</b>	Less than 3 mil VND	173	55.3%
	3-7 mil VND	50	16%
	7-15 mil VND	46	14.7%
	More than 15 mil VND	44	14.1%
<b>Family</b>	Single, live alone	57	18.2%
	Single, live with family	176	56.2%
	Married with no children	1	0.3%
	Married with children	79	25.2%

Respondents are mainly from urban area and age from 18 to 22 who are studying in colleges or university in Hanoi.

**Table 2: Dependent/Independent variable credibility**

Factor/Variables	No. of items	Sources	Cronbach's Alpha
Knowledge	4 (KT1, KT2, KT3, KT4)	(Teng & Lu, 2016)	0.781
Health consciousness	6 (SK1, SK2, SK3, SK4, SK5, SK6)	(Teng & Lu, 2016)	0.768
Environmental concern	4 (MT1, MT2, MT3, MT4)	(Chen, 2009)	0.713
Negative attitude	4 (NT1, NT2, NT3, NT4)	(Roddy, Cowan & Hutchinson, 1996)	0.751
Product involvement	3 (TGIA, TGIA1, TGIA2)	(Ghosh, Barai, Datta, 2018))	0.121
Price	4 (G1, G2, G3, G6)	(Yi, 2009; Lee & Yun, 2015)	0.722
Trust	4 (NTIN1, NTIN2, NTIN3, NTIN4)	(Yi, 2009)	0.824
Time	3 (TG1, TG2, TG3)	(Escotto & Laska, 2012)	0.816
Convenience	4 (TT1, TT2, TT3, TT4)	(Asamoah, 2012)	0.724
Satisfaction	3 (HL2, HL3, HL4)	(Lee & Yun, 2015)	0.818
Organic food buying intention	9 (YD1, YD2, YD3, YD4, YD5, YD6, YD7, YD8, YD9)	(Rashid, 2009; Teng & Lu, 2016; Lee & Yun, 2015)	0.878

All variables in the study are test the credibility by Cronbach's Alpha, the Product Involvement is rejected due to the low Cronbach's Alpha (0.121).

**Table 3: Factor loadings of independent variables**

Item	Factor	Component (in rotated matrix)										
		1	2	3	4	5	6	7	8	9	10	
SK2	Health consciousness	.738	I care about cholesterol and fat									
SK1		.648	I am very self-conscious about my health									
SK4		.645	I am concerned about food processing									
SK6		.640	I am very concerned about the number of artificial additives									
SK3		.628	I keep a strict diet									
NT3	Negative attitude	.723	Organic foods are not better than traditional farming ones									
NT1		.678	Organic foods are free from chemical or pesticide residue									
NT2		.673	Organic foods are usually healthier to eat than foods normally available									
SK5		.524	I think organic foods do not help avoid cancers and other diseases									

Item	Factor	Component (in rotated matrix)										
		1	2	3	4	5	6	7	8	9	10	
NTIN3	Trust			.821	I do not believe in the origin of organic foods							
NTIN2				.766	I do not believe in the quality of organic foods							
NTIN4				.753	I do not believe in what manufacturers say about organic foods							
NT4				.505	Organic foods' quality is not guaranteed							
KT3	Knowledge				.813	There is too much organic product information for me to make the right choice						
KT2					.756	I have no confidence in evaluating between organic foods and conventional foods						
KT1					.737	I do not know much about the ingredients and origin of organic foods						
KT4					.617	There is not much information about the safety and quality of organic foods						
HL4	Unsatisfaction					.809	Organic foods have a pleasant texture					
HL3						.793	Organic foods do not taste as good as conventional foods					
HL2						.711	Organic foods do not contain more nutrition than conventional foods					
TG1	Time						.829	I do not self cook due to lack of time				
TG2							.808	I do not have time for buying foods				
TG3							.779	I often eat out				
TT3	Convenience							.826	I do not buy foods in shelves which is difficult to find			
TT4								.763	I do not buy foods in shops which is not located near my path to work			
TT2								.761	I do not buy foods in shops which need queuing and waiting too long for payment			
TT1								.472	I often buy fast food			
G2	Price								.777	I can not afford to buy organic foods		
G1									.765	I do not buy organic foods because of their higher price		
G3									.590	I think that organic foods' price is much higher compared with its quality		
G6									.471	I am not ready to pay more for organic foods		
MT3	Environmental concern									.619	Organic farming damage the environment	
MT4										.612	I think that organic foods consumption does not improve biological diversification	
MT1			.457								.589	I think environmental protection is meaningless
MT2											.516	I prefer consuming recycled products
NTIN4											.727	I am afraid of fake "organic-label" of nonorganic foods
G4											.714	I am ready to buy more if organic foods' price is lower

Exploratory factor analysis tested by KMO (0.821) and Barlett's test of sphericity (sig. = 0.000) shows that all items in proposed independent variables are loaded in suitable component with the rotation sums of squared loadings for 10 components is 64.642%. Independent variables are applied ordinal linear regression for multivariate (in SPSS) and show the findings:

$$\begin{aligned} \text{Organic foods buying intention} = & -0.185 \times \text{Health consciousness} - 0.263 \times \text{Negative attitude} \\ & - 0.280 \times \text{Trust} - 0.087 \times \text{Knowledge} - 0.463 \times \text{Unsatisfaction} \\ & - 0.244 \times \text{Time} - 0.105 \times \text{Convenience} - 0.319 \times \text{Price} \\ & - 0.097 \times \text{Environmental concern} \end{aligned}$$

With the coefficient results:

**Table 4: Coefficient of linear regression model**

Model	Standardized Coefficients	t	Sig.	Hypotheses	Collinearity Statistics	
	Beta				Tolerance	VIF
1 (Constant)		.000	1.000			
<b>Health consciousness</b>	-.185	-4.977	.000	H2a supported	1.000	1.000
<b>Negative attitude</b>	-.263	-7.076	.000	H3 supported	1.000	1.000
<b>Trust</b>	-.280	-7.549	.000	H6 supported	1.000	1.000
<b>Knowledge</b>	-.087	-2.354	.019	H1 supported	1.000	1.000
<b>Unsatisfaction</b>	-.463	-12.465	.000	H9 supported	1.000	1.000
<b>Time</b>	-.244	-6.564	.000	H7 supported	1.000	1.000
<b>Convenience</b>	-.105	-2.820	.005	H8 supported	1.000	1.000
<b>Price</b>	-.319	-8.584	.000	H5 supported	1.000	1.000
<b>Environmental concern</b>	-.097	-2.609	.010	H2b supported	1.000	1.000
<del>REGR factor score 10</del>	<del>-.003</del>	<del>-.073</del>	<del>.942</del>	<del>NA</del>	<del>1.000</del>	<del>1.000</del>

And the model test results:

**Table 5: Linear regression model test**

Model	R	Std. Error of the Estimate	Change Statistics				Durbin-Watson	
			R Square Change	F Change	df1	df2		Sig. F Change
1	.764	.65542847	.584	42.428	10	302	.000	1.884

With the new model and the new factors by rotated matrix factor, we consider the proposed hypotheses:

- H1, H2a, H2b, H3, H5, H6, H7, H8, H9 are supported by the significance of all  $\beta$  ( $p < 0.05$ ) in the linear regression model.
- H4 is rejected

#### 4. Discussion and Conclusion

With the main question of this study, we figure out nine barriers of urban Vietnamese youngsters to buy organic foods. In which, Unsatisfaction and Price have more weight. Vietnamese youngster dissatisfaction caused by the packaging, nutrition, tastes and freshness compared with conventional foods that pose a problem of promotions or marketing communications of organic foods. Price is another constraint due to the organic farming is much costly than ordinary farming.

Health consciousness, Environmental concern and Knowledge appear to have less expected impact although respondents are higher qualified.

Negative attitude and Trust with medium affect to organic foods buying intention suggest the potential impact of mass advertising and promotions toward Vietnamese young consumers.

The study has some limitations in choosing and processing measures for dependent and independent variables. In the research process we try to reduce bias and measuring problems by interviewing potential target participants. After interviewing we added some more items on measures with the hope of embracing more new insights. The validity and credibility of the research could be illustrated by statistical tests in the research stages we conducted.

Future researches should focus more on exploring the mechanism of mass advertising, marketing communications or promotions toward organic foods buying intention. Although the comparison between hedonic and utilitarian elements has been conducted by many authors in the world but this is one of the new fields for Vietnam market which help explore more insight for communicating organic foods' benefits.

#### 5. References

1. Ghosh, S., Barai, P., & Datta, B. (2018). Identify Customer Involvement During Organic Food Purchase Through FCB Grid. *Journal of International Food & Agribusiness Marketing*.
2. Yiridoe, E., Bonti-Ankomah, S., & Martin, R. (2005). Comparison of consumer perceptions and preference toward organic versus conventionally produced foods: A review and update of the literature. *Renewable Agriculture and Food Systems*, 193-205.
3. Chen, M.-F. (2009). Attitude toward organic foods among Taiwanese as related to health consciousness, environmental attitudes, and the mediating effects of a healthy lifestyle. *British Food Journal*, 165-178.
4. Environmental concern: conceptual and measurement issues. (2002). In R. Dunlap, & W. Michelson, *Handbook of Environmental Sociology* (pp. 482-524).
5. Gil, J., & Solfer. (2006). Knowledge and willingness to pay for organic food in Spain: Evidence from experimental auctions. *Food Economics*, 109-124.

6. Lee, H.-J., & Yun, Z.-S. (2015). Consumers' perceptions of organic food attributes and cognitive and affective attitudes as determinants of their purchase intentions toward organic food. *Food quality and preference*, 259-267.
7. Organic food consumption in Taiwan: Motives, involvement, and purchase intention under the moderating role of uncertainty. (2016). *Appetite*, 95-105.
8. Rashid, N. N. (2009). Awareness of Eco-label in Malaysia's Green Marketing Initiative. *International Journal of Business Management*, 132-141.
9. Roddy, G., Cowan, C., & Hutchinson, G. (1996). Consumer Attitudes and Behaviour to Organic Foods in Ireland. *Journal of International Consumer Marketing*, 41.
10. Tarkiainen, A., & Sundqvist, S. (2009). Product Involvement in Organic Food Consumption: Does Ideology Meet Practice? *Psychology & Marketing*, 844-863.
11. Truong, T., & Yap, M. (2012). Potential Vietnamese consumers' perceptions of organic foods . *British Food Journal* , 529-543.
12. Yi, L. K. (2009). *Consumer behaviour towards organic food consumption in Hong Kong: an empirical study*.

# URBAN DEVELOPMENT AND ECONOMIC NETWORK IN MYITKYNA, KACHIN STATE, MYANMAR

*Prof.Dr. Seng Aung*

*sengaung@gmail.com*

*Geography Department, University of Myitkyina, Myanmar*

## **Abstract**

*Myitkyina is the capital of Kachin State and situated on the western bank of the Ayeyarwaddy River covered a wide flat topography and elevation is (475) feet above sea level. Myitkyina is made up of urban infrastructure development such as housing development, road upgrading, boom economic functions, fertile agricultural areas and it is pull factors of urban expansion and increase population. A series of socio-economic activities depend upon natural environment and a set of proposals for Myitkyina depend mainly upon natural environment. The study needs is to address the critical field of each sector including jade mining, gold extraction, fishing, plantation and agriculture encroachment. There are different sectors of economic activities and trade network is in all directions especially with China. Each sector is related to socio-economic development and environment. Banking is better than before and both private and government sectors are improving in Myitkyina. So this research would be discussed on urban development and economic activities toward sustainable development.*

**Key words:** *infrastructure development, housing development, urban expansion, socio-economic activities.*

## **1. Introduction**

The prime objective of this study is to give an overview of the specific studied as economic strategies and tasks for the future concerning strategies for sustainable development. According to researcher looked around Myitkyina down town area, the buildings (residents and business) are changing. The old buildings constructed wear replaced by new buildings and high-rise buildings are constructing since 2000s periods. The cultural significance of downtown area and socioeconomic activities are changing which are observed by process oriented approach.

According to interviewed shop owners in market, which are selling products of preserved foods, clothing, electronic materials, books, plastic utensils, decoration materials and flowers, situations are changed. The study is to maintain the cultural heritage and various aspects of changing processes in Myitkyina. According to interviewed with shopkeepers material mostly are come from China and some are from Mandalay, Yangon and the whole area of Myanmar due to infrastructure is improved, socioeconomic network is wider, more than 100 varieties of preserved foods can be trading, and spices are mostly from China. Others are from Yangon, Mandalay Divisions, Shan State, and rural areas. This commodities

flow is closely related to transportation improvement. Trade network and social space are also wider than before. The plan of Administrative Committee contributes the infrastructures development.

## **2. Method**

Primary data is mainly used by means of interview with the people and field observation and secondary data (climatic data) is collected from Meteorology Department. Literature review is also carried out all time. The questionnaires concerning commodity flow, infrastructures, trade and social network between shopkeepers and customers were carried out. The statistical data is used to calculate a climate variation in quantitatively.

**Source of data:** Rainfall and temperature data was obtained from Meteorology Department, Myitkyina and base map was derived from Land Record Department. Literature data such as journal articles related to sustainable development, housing development, infrastructure and economic activities and trade network were used and which were obtained from Culture Department, Myitkyina and libraries. The documentary photographs were collected in field works and necessary information concerning objectives was collected from good experience persons. The collect data and information are classified, and combined into a frame work which reflects the research problem. Descriptive method was utilized to analyze and data collected in different ways.

### **Aim and Objectives**

The aim of the paper is of sustainable development of urban environmental functions with appropriate socio-economic activities in Myitkyina. This paper is focused on how planning could plays an important roles in achieving sustainable infrastructures and housing development and economic network in Myitkyina. The paper also recommends a framework of sustainable housing development in planning perspectives which focus on a better housing and infrastructure for sustainable urban housing development that locally adaptable, economically viable and environmentally stability for urban population in Myitkyina and with the following objectives:

#### **Objectives**

- to study urban infrastructure development in Myitkyina
- to discus relation between urban development and environmental sustainability
- to evaluate comprehensive way of urban -rural development and economic activities in Myitkyina

## **3. Results**

The urban development process is a complex process, which involves many players. A sustainable living environment could only be achieved if economic development and environmental issues and problems are given equal emphasis in urban housing and infrastructure development. Basic human needs must be fulfilled, with living standards



improved and ecological systems sustained effectively. Therefore, this research paper will be useful as a sustainable housing and infrastructure development strategy, a greater integration of land use planning, social, economic and environmental considerations in future.

This paper can explore urban development, infrastructure development and economic activities of Myitkyina and interesting description on environmental conservation and economic development.

### ***3.1. Brief Background history and Urban Development of Myitkyina City***

According to Seng Aung (2014), Myitkyina was cleared the forest in 1884 and made plots in 1885 then founded as district office location city in November. In 1901, Deputy Commissioners, Civil Department, Civil Administration with full staff were located. Population was 3618 people in that time. Before British colony Nam Hkam Shan village was situated in now Shatapru village and Sana village governed by Sana Du Wa who was head of village, was located along Ayeyawady guest house. Current Wunthu monastery area was existed as port village for boats come from along Bhamaw. These entire three villages were governed by Sana Du Wa and it was called as Sana Kawng, Sana Kung Myo as Shan language. Thayakone as Bhamar language. Pronunciation of races is very different from each other. In these environment Ahkye family practiced Le/ wet rice cultivation and Kachin people from upper part of mountainous area arrived to the rice field of Ahkye family to buy rice due to they had not enough food then they called as Ahkye's le or Ahkyena.

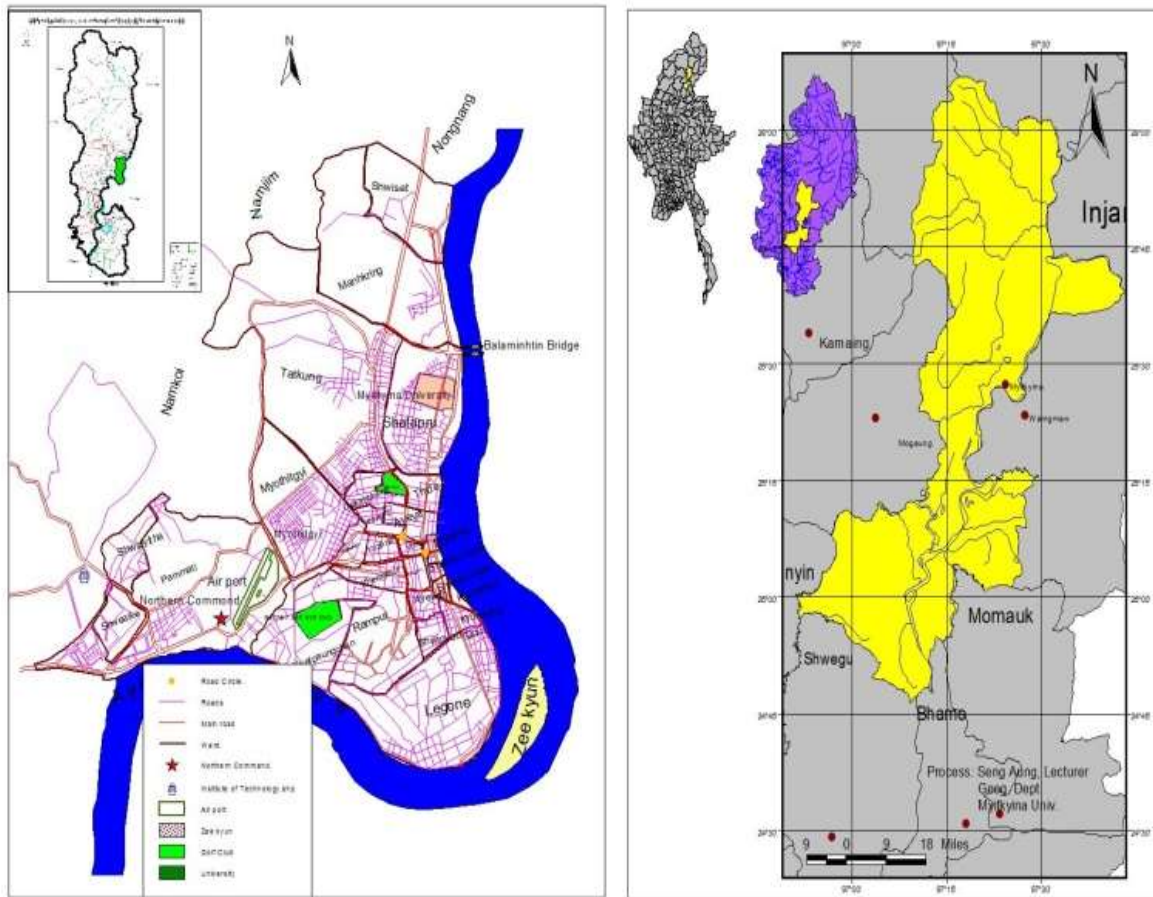
After English arrived in Myitkyina they studied Gazetteer and they found "The Myitkyina means by the great river, that is Irrawaddy" in the Gazetteer and they also called as Myitkyina. In 1948 January (10), at Shatapru Manau Park, celebrate victory of memorial Manau Festival as first Kachin State Day was held and acknowledge Myitkyina as the Capital of Kachin State.

### ***3.2. Geographic features***

**Location and size:** Myitkyina is located in the north latitudes between 25° 20' 30" and 25° 28' 30"N and east longitudes between 97° 28' 30" and 97° 25' 28" E. East-west direction of the area is narrow with 8.85kilometers(5.5 miles) and the north-south is rather long with 14.1 kilometers (9.2 miles) an irregular rectangle shape the north by Palana and Naungnan village tracts, the east, south, and south-east by the Ayeyarwady River, the west by Namjimn, Namkwe and Maw-Phaung village tracts.

Myitkyina lies on the western bank of the Ayeyarwady River, flat land topography predominates in nearly all area from (475) feet above sea level on the east to (482) feet above sea level on the north. Elevation gradually lowers towards the south and east Ayeyarwady River flow the eastern and southern part of Myitkyina. Injangkha Chaung takes its source from the Tatkone Ward, in the northern part of Myitkyina. It flows from west to east passing through the Tatkone Ward and Sitapu Ward and the Ayeyarwady River.

**Boundary Tornship:** N'Jang Yang, Waimaw, and Ayayawady on the east, Moemauk, Bhamaw, Shwegu on the south, Moenyin, Moegaung, Tanai (Hukawng Valley), and Kamaing on the west and Sumprabum on the north.



**Figure 1: Location of Myitkyina, Kachin State, Myanmar**

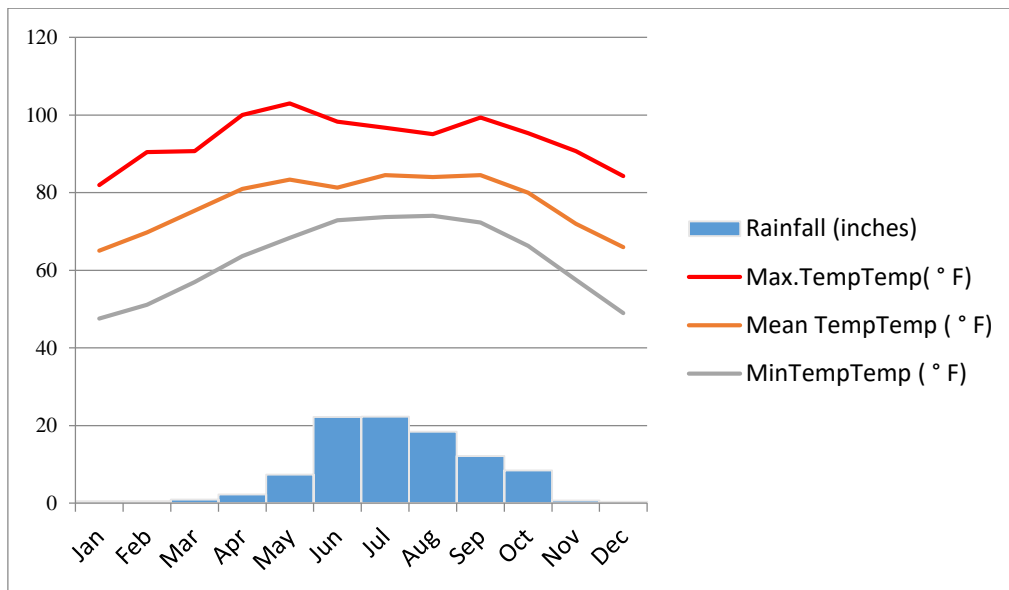
**Climate:**

Myitkyina Township experience subtropical- temperate climate and maximum temperature is 40.4 C and minimum temperature is 8.8 C. Yearly rainfall is shown by the following table.

**Table 1: Yearly rainfall and temperature in Myitkyina**

Temp (° F)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max.Temp	82	90.5	90.7	100	103	98.3	96.7	95.1	99.4	95.3	90.7	84.3
Mean Temp	65.1	69.8	75.4	81	83.4	81.3	84.5	84	84.5	80	72	66
MinTemp	47.6	51.1	57	63.7	68.4	72.9	73.7	74.1	72.3	66.3	57.6	49
Rainfall (average inches)	0.55	0.56	0.97	2.3	7.35	22.2	22.3	18.4	12.2	8.43	0.71	0.34

*Source: Meteorology Department, Myitkyin, Kachin State.*



**Figure 2: Climate of Myitkyina (1913-2019)**

### ***3.3. Infrastructure improvement***

According to Joshi Geeta S, 2010, infrastructures include all-weather roads; availability of electricity at a stable voltage and frequency; water supply, railways with low turnaround time to reduce costs of imports and exports; airports to handle growing air traffic; air services to connect all parts of the country; and telecommunications and broadband connectivity to provide the benefits of the internet to people all over the country. To achieve inclusive growth, infrastructure development is important for long-term planning based on economically viable that is commercial-based practices.

Road transportation is now upgraded in Myitkyina especially in down town area and road which approach to Myitkyina University and Ledo Road. The road passes through Bala Min Htin Bridge across the Ayeyarwady River and from Wai Maw to China border area through Mandalay, major point of economic development, is improved and the people easily approach to supermarket areas and commodities flow is directly from or to border trade area all weather and larger business centers of Shwile, Lashow, and Mandalay and so on. Transportation and communication within Myitkyina and to Hpakant Jade mine area, Hukawng Valley gold mine areas, and to upper portion areas of Ayeyawaddy River is improve and contributing economic development. The government upgraded many of the foot path and hard surface road to tar roads. Traffic light is effectively upgraded in urban centre to drive systematically, save driving concerning road transportation problems. The tall urban shade trees along roadsides were cut down to extend and upgrading road in Myitkyina.

Better access to neighborhoods of Pota-Oo; Hukawng/ Tanai; Hpakant; to Moe Gaung; Moe Nyin, IndawGyi/ Nawnglut; Wai Maw; China border area, and to Mandalay leads to faster commodities flow. High way cars to Mandalay-Yangon are running well now. Taxi, containers, light trucks and personal cars are more and more in Myitkyina.

Variety of goods are carried (by cars, containers, light trucks, motor cycles) on business network link to the markets in jade mining and gold extracting areas. It is easily

approach to head water area of Mali Hka River for different purposes (by boats with heavy load, tools and materials for gold extraction).

Road network connecting Mandalay, China border areas, and within Kachin State is upgraded, then stretches of national highways. Deficiencies in existing state highways and major district roads result from inadequate lane width in relation to traffic demand; weak pavement and bridges; and major district roads through towns and villages; poor safety features and road geometrics and inadequate formation width in hilly and mountainous regions; missing links and bridges are upgraded and replacement with roads over or under bridges.

Road development is covering the local highways to rural road connectivity through the road connectivity to all villages in hilly regions. An expanded highway development is currently under connecting state capitals and unique landscape like Karing Naw, Myitsone, IndawGyi Nawnglut, Hukawng Valley and PotaOo.

**Electricity:** After gaining peace (1990s), BuGa Co.,Ltd. established hydro-power electricity for all functions in Myintkyina. Activities alternatively changed by electricity and computer-based business (mechanism, workshops, cooking procedures, electronic motorbike, hospital and health care centre, schools, and banking) system in economic fields. There are increasing mobile telephone line and internet communication. A solar plate power system is also taking place gradually.

After BuGa Co.,Ltd., expands hydro-power electricity is important for economic development and for living quality of local people. Electronic related activities especially for youth are alternatively changed working facilities in Myitkyina. And mechanism, cooking procedures and vehicles like motorbike are changed by electronic system in business and household families. Development of electricity is closely related to communication such as online connection for universities that can support knowledge exchange on internet and people use quick access to health care. Students can learn abroad interested subjects on internet and can contact with global online system for our knowledge improvement and other social functions. Electricity is major source of socioeconomic functions in all rural- urban areas.

**Water supply:** Municipal water supply is only down town area and individual wells and tube well are used in Myitkyina.

**Housing:** Housing is highly improved than before (year 2000). Some houses are rent for their earning and people hire for company office, NGO office, and tuition class and so on. Houses at the front line of the road are use for coffee shops, tea shops, computer-based shop, digital colour photo print shops, and etc.

Urbanization in achieving the goal of sustainable development through housing and infrastructure in Myitkyina could promote a social equity among local people, generate economic growth and also promote environmental friendly management and its planning, construction and design. According to Hamizah Yakob and etal (2013), as planning is the most fundamental stage in housing development, its mechanism such as development plan system and planning control system are essential inputs in monitoring the successful

implementation of sustainable urban housing strategy. It is the time for all stakeholders in the development process mainly local planning authorities and housing developers, to develop and implement action plans for future sustainable housing development through government urban planning control.

Kachin National Manau Park was upgraded to new culture buildings and traditional restaurant. Some buildings are being constructed as apartment style along the road to Bala Min Htin Bridge. Online communication stations are extending in all township areas.

Within Myitkyina city, communications and infrastructure improvement is apparent in to providing jobs for young people after improve infrastructure (housing, sewage systems, electricity, etc.). At the same time the risks would be large and are the urban poverty reflects high living costs and limited access to stable and salary employment. Many people are clustered around the poverty line mostly are IDPs. Employment opportunities are sparse and social safety nets are weak. The inability to absorb shocks, often health or environment-related, several socioeconomic factors contribute to the growth of problems.

People often migrate from rural remote areas because agricultural facing climate change problems and some are moved to urban area for education and health. The insufficient supply of housing and high living costs more generally in new allocation place for new comers. They face difficulties such as inaccessibility to schools, markets, hospital or clinics when they needs.

Solving the urban housing problem needs not only cheap housing, but also providing housing in locations which provide value to residents. People and jobs or working places need to be closed to each other. Allocating land needs to established systematic land market, but lacks.

### ***3.4. Economic activities in Myitkyina***

Hotels, Motel, Inn, Guest House, construction (high-rise buildings), banks (better financial flow), media, copier, print and press, electronic, sport, health, education, restaurants, varieties of store, Jewelries shops, pawn shops, beauty parlours, cosmetic, electronics and computer sale and service, medal, construction materials sell, plastic materials shops, furniture shops and aluminum recycling can be seen. Some people are brokers (land, house, car, etc.). Lottery shops, stationery shops, toy shop, watch shop, shoe shop, glass, coffee shops and noodle shop can be seen everywhere in Myitkyina. New shops such as motor cycle sell rooms, housing materials, readymade foods, clothing, industrial materials more and more. New market building in Ayemya Thayar ward, new highways gate were established in Dukahtawng Sanpya ward in Myitkyina.

**Activities in gold extracting areas:** Passenger transport, boat carry, motorcycle carry to gold mining areas is carried out. Marketing in varieties of foods and drinks, clothing, tools, oil/petrol, electronic, and guest house, massage, betel shop are more. Some people are retailers and some are vendors etc. Some people are working as coolie in adjacent plantation area of developers. Local native people living in the villages along the road to Myitsone are working in gold mines. Tang Pre native people mostly (after moved to Aung Minthar during Myitsone project) are working in gold mines and some are odd job workers, and some are gold panning along the river side, some practice taungya. Some people are working at

restaurants and soft drinks shops and grilled fish in Myitsone. Insufficient employment opportunities may lead to crime and informal economy due to migrating people from Lower Myanmar more and more in Myitkyina cities and mining areas.

Seasonal citrus fruits from Pota-O can be carried by cars to consumers in other townships in Kachin State. Goods, mainly carry to Hpakant are rice, variety of foods and oil/petrol; goods carry to Hukawng/ Tanai are rice, variety of foods, oil, materials use for gold extraction, clothing, materials use for housing/ construction, plastic material, and furniture. Goods carry from Hukawng are some timber, wood fuel, charcoal, forest products, dry fish, oranges, other citrus fruits, seasonal vegetables and goods carried from Wai Maw Township are oranges, seasonal crops, walnut, rice, and etc. Goods from China through border are motorcycles, plastic materials, readymade foods, clothing, oil and etc. Rice carries from Moe Nyin, Moe Gaung and oil, cooking oil, readymade products and industrial products are carried from Mandalay and Yangon. Gold extracting materials, oil, clothing, motor cycles, apples, garlic, solar plate, electronic materials, medicine, readymade foods, toys, paper, spices, cosmetic, plastic materials, umbrellas, shoes, boxes, some fruits come also from China and Lower Myanmar.

**Hotel:** Pantsun Hotel, Sumpra Hotel, Palm Spring, Madira, Myitsone Hotel, Glory, Cheing Chang, New light and other hotels with good view and very pleasant building. Motels, Inns, guesthouses are found in every quarter. These are fair accommodation (with natural environment such as fresh air cause mental and physical freshness and can also see traditional serve and culture unique activity).

**Bank:** There is the government and private sectors of banking (Yoma, KBZ, etc) are set in Myitkyina.

**Restaurant:** There are many restaurants with mountain fresh foods, traditional foods, cultural foods and other foods. Restaurants are observed along the Ayeyawaddy River bank and any is found at the roadside in down town area. Chinese restaurants, Bhamar restaurants, Indian foods and other can be observed in Myitkyina.

**Hostels:** Hostels can be found around the university environment to approach easily to the university. Private schools and tuition homes can be seen in quarters.

**Game shop:** There are many computer game shops, massage bar, karaoke bar can be observed. Tea, coffee and cool shops can be found in every area along roadsides. People mostly sitting there are men who are discussed concerning their business.

**Hospital:** The government and private hospitals and traditional medical wards can be seen and there are many clinics are found that the people easily to approach when necessary.

**Company:** Companies, and NGOs and other private sectors can be studied in Myitkyina.

**Industrial zone: small scale** car workshops and motor cycle repairing workshops, drinking water industries are widely observed in Myitkyina.

**Cottage industries:** blacksmith, goldsmith, silversmith, bicycles and trishaw repair shops, dressing table, bakery, and preserve foods, mushroom culture can be studied.

**Weaving and tradition:** There are textile cottage industries can be studied and weaving was an art practiced and it is referred to as specially the women's work. Kachin

culture cottage industry has been growing gradually as higher quality, new designs, new patterns but original design of hand weave lungi/garment is the best one as traditional wear and culture fabric of Kachin tribes. Traditional weaving is essential household art for women that mothers handed down to generations. Age old women are skill handicraft weavers and they like very much original quality in design. Natural forest resources have been used to make weaving materials such as cotton loom, reeling machine, fibre, resin, bee wax, dye, etc. There are traditional costumes handicrafts or traditional textile woven fabrics are practiced can be observed. Elderly women are good instructors for costumes handicrafts and they keep original cultural designs.

**Government sectors:** Myitkyina University, University of Technology, Computer College, Nursing schools, schools, Administrative offices, Forest Department, Telegraph and post, Communication, Polis station, Construction, Municipal Markets, Immigration Office, Agriculture, Land Record, Housing and City Development, Transport, Education, and Hospital and Health centre are found. Women Affair Association, Association of look after of mother and child are found.

**Cultural sector:** The cultural building of Kachin (Kachin National Manau Park), museum, and were upgraded to culture buildings and used as literature, art and musical offices. This Park is culture heritage of Kachin ethnic people and potential socio-cultural network and potential socioeconomic development. People celebrate Manau festivals on diverse occasions. Manau festival is hold yearly on 5th to 10th of January (on Kachin State Day) and the people living in the Kachin State and other countries are come to take part in. International participants are invite and people in Manau festival are enjoying to study freely in Kachin culture. Cultural buildings are decorated with unique pillars of traditional patterns or designs with original culture of Kachin ethnic/tribes and they celebrate Manau Dance like patterns on Manau Poles. Manau poles are decorated by cultural meaningful symbols, means of Manau Dance is interpretation of unity and people all are following peacefully as two rows with one leader in each row. Origin of culture is shows richness of natural resources (richness of biodiversity) that indicates on Manau Poles and celebrate like patterns.

**Hostels:** Hostels and private schools are found around the university, in all wards, especially in Myothit ward.

**Company:** Some company limited can be seen in Myitkyina and mostly are related to jade mine. All these are engage to economic functions to generate financial flow of local people in Kachin State and in Myanmar.

**Agriculture:** rice fields, animals breeding, traditional bee keeping and etc. are practiced and rice and grapefruit, star apple, dinya, and aquilaria are grown in wards. Animal rearing, especially goat, chicken, pig, and traditional bee keeping or apiculture are practiced and all these are gained income generation and backbone of economic development and environmental sustainability. Rice is major food of people and mainly practice small scale wet rice/Le cultivation for home consumption in some wards of Myitkyina.

Agricultural encroachment such as commercial scale banana plantation, seasonal crops cultivation, watermelon and oil seed or seed crops are widely practiced in adjacent

township, Wai Maw area. Some people rent their land to companies (Chinese) for these commercial scale plantations. Companies used varieties of chemical in their plantation for high production ideas for border trading with China.

**Homestead:** Fruit trees, shade trees, aquilaria nursery are found in every home garden in Shatapru ward, Kachinsu ward, Kyunpintha ward, and every ward in Myitkyina. Flowers, medicinal plants, seasonal vegetables, traditional spices etc. are grown for household consumption and income generation. Fruit trees such as lichee, rambutan, dog fruit, pine apple, banana, peach and lemon etc are grown in quarter. These are establish mostly by elderly women is used to. Every household family grows citrus which give shade and moisture in their environment. Varieties of seasonal citrus in the homesteads are providing the whole year round fruits marking in Myitkyina and also distribute to China markets and lower Myanmar. Seasonal fruits and vegetables play major rule for getting household consumption and income generation.

Medicinal plants/ herbs are grown in home garden to collect easily in use. More than ten of varieties of medicinal plants can be seen.

**Varieties of preserve foods** in local market (spices and food crops) are black-cumin, bay-leaf, cinnamon/ Indian cassis, clove, dill, nutmeg, liquorice, barbatum/ wild ginger, India saffron, coriander seed, pepper, cardamom, ginger powder, soap nut, soap acacia leaves, yam tuber, tea leave, mustard seeds, butter, onion, garlic, potato, chili, mustard seeds, opium seeds, coriander seed, etc turmeric powder, sesamun, chili, coems, potato, oil seed, yam, corn, varieties of cereal and seasonal crops are important kitchen materials. Spices and bean, palm oil, jiggery, brown slab-sugar, coriander seed, vinegar spices, mustard seeds, butter, onion, ginger, and wheat powder are included in Myitkyina markets.

Types of preserved foods can be trade by large scale traders from rural areas and from Centre Myanmar which distribute again to small sellers by wholesale system. They have two classes of quality, which are pure class and impure quality, price are different. Spices are distributed to Yangon and all of delta regions. Spice trade become well than before because consumers are increased. It pointed out increase population pressure in Myitkyina and also in the Kachin State.

The next types of goods are milk, and milk products including butter and condensed milk. These local products and also come from Mandalay Division by train or by car. Mostly are from local home industry and some of goods come from Singapore, Thailand, Malaysia, and Holland through companies and cash down system and credit system. Many types of brands can be obtained in Myitkyina.

### ***3.5. Economic and Social network***

Myitkyina, the capital city of the Kachin State is the economic centre in the state. It is the northern end of wail way and highway road transportation. Goods from the Myanmar and from China are entered into Myitkyina and distributing to 18 townships including rural villages and mining areas. After 2000 better trade in all kinds of goods because transportation



is improved which causes better commodity flow. Quality and amount of local goods are better than before because improve every sector. Improve technologies and agricultural facilities and better management on soil, water, pest control and high yielding variety. The farmers used fertilizer, pesticide, and replace high yielding variety gives two results (disadvantage and advantages). Its consequences are resulted on socio economic differences between poor and rich people, environmental degradation, negative effect and positive effects parallel.

Some perishable goods like fresh cakes are distributing quickly and restaurants and teashops can be extended in urban-rural areas and people can approach to market areas easily keep social linked with old customers and colleagues. The religion activities such as Christmas, festival in April, the full moon day of Wasu, (in June), Thedinkyut (in October), and people celebrate donation to Buddha (God). They donate rice, candles, cosmetics, and varieties of foods, fruits and money etc and celebrating together. In these religion ceremonies the women and men participate at Church and in pagoda and discuss about their business and social activities. In April, Myanmar New Year water fest able is very popular. People from the whole country are participating for many purposes especially for extend market networks.

The plans are to expand home industry and business to national level, international level scale of economic network. The shop owners satisfy on wider socioeconomic network because better economic functions and good access conditions for their customers. They consider how to improve the quality and the technique for long fresh preserve foods and getting wider space for their marketing. Companies have their jade market society's networks especially with Chinese. Jade emporium is always in Myanmar and informal sector is source of social network development.

**Environmental benefit:** Natural ecosystem status still remains with scenic beauty of landscape .because preservation and establish home gardens by indigenous people, long-term plantation are more and more in marginal areas of the town. Public space and fairground amusements and green lawns were established in Myitkyina. These establishments provide fresh air, shade and moisture, and maintain green fresh environment to create pull factor of socioeconomic opportunities and sound environment. So culturally and traditionally, socioeconomically, environmentally practice around the spaces. Home gardens are also gained with environmental sustainability in urban area. It is suitable for protection of local climate variation and agricultural opportunity and maintains urban micro climate condition in Myitkyina.

#### **4. Discussion and Conclusion**

**Major problem:** Unsustainable gold mining in upstream areas of Ayeyawady River resulting mass erosion, sedimentation and deposition along river bank channel in Myitkyina urban area because Myitkyina is situated on the bank of Ayeyawady River. Need to build systematic concrete along the Ayeyawady River Bank within Myitkyina to cover flood hazard due to seasonal flood is facing every year. Need to construct the drainage channels to prevent urban flood and well flow runoff water in rainy season due to heavy monsoon rain cause flood problems (health, transport etc.) in residential areas in every year.

Major urban shade tree along roadsides were cut down by urban planning of expand roads cause negative impact on urban environment because no relationship between urban

planning and environmentalists. Shade tall trees can absorb carbon dioxide produce by motor vehicles or urban heat and create green, clean environment within urban area but now lack of any plant along roadsides in Myitkyina.

Agricultural encroachment in adjacent township, Waimaw area need to be considered as priority factor toward sustainable agricultural management system due to over utilization of chemicals in banana plantation, cultivation of seasonal crops, fruits etc. for urban markets especially for China markets would be faced major health problems, environmental problems and land ownership and land used problems. Clear the jungle and utilization of chemical is major drivers of ground water and fresh water pollution in upstream, biodiversity lost, and consequences will come soon. According to unsustainable fishing, mountain fresh fish varieties becoming lost and dead because company workers used chemical for agricultural related activities such fishing in streams and clear natural forest for commercial plantation is causing biodiversity lost and climate change problems.

The commodities flow is closely related to infrastructure improvement after 990s and trade network and social space are also wider than before. Housing is highly improved and new buildings are increased after 2000 and roads are improved significantly due to urban planning after 2015. But urban shade tree along roadsides were destroy that environmentally unsound. Balanced housing for all level income groups for quality-of-life-oriented urbanization for local population, balance ecological, economical and social, culture, infrastructure improvements are important in Myitkyina area.

Needs to be considered for urban-rural network system to balanced local and regional to link international education, trade, financial flows and investment, border trade and exchange centre.

There are the needs of upgrading multi-functional development to achieve balanced sustainable urban growth and rural - urban development in Kachin State.

Respected urban heritage sites as historical, cultural, handicraft, natural heritage sites are potential for local and national socioeconomic opportunities. The needs deeply data collection on social cohesion in education, private sectors, community level, culture, ethnic clans, traditional activity, sense and historical places, local identity, oral history of elderly in different ethnic/religious and authentic interview documents of the village'/town's (Myitkyina') past and present background of Myitkyina.

According to Kraas Frauke, 2014, research needs for local fresh foods and beverages to gain innovation, invention and branding to be done as holistic approaches and from spatial to people-oriented approaches to identification of key fields and identification of key processes and understanding of multiple systems in urban development and economic network in human-nature systems. Conservation and maintaining practice of biodiversity, social disparities, natural and social cohesion, establishment of complex, interdisciplinary research, strengthening of identity of place, responsibility, people-oriented measures, information, participation are important.

Learning from events, situations, combination of different kinds of knowledge and data, quantitative/qualitative, encourage scenario-building discussions, multi-stakeholder

concepts of development strategy, developing capacities for knowledge generation and assessment, public and private engagement process need to be carried out.

Need to be done Empirical field survey on population, migration and households' number grazing, agricultural, forest, urban land use, rural land use, water bodies, industry, commercial, sports facilities and how urban development planning such as infrastructure and housing.

Ecological vulnerability and natural disasters (rodents, flood, etc) and historic events, research network, exchange program and workshops to gain single and comparative studies to upgrade teaching, learning and research for teachers and students in universities are needed.

Needs to be done quantitative survey and investigation, qualitative social research and analysis for the scale of quarter, village, village tract level, intensive interviews with experts, analysis for rural-urban network, narrowing rural-urban gaps, technique of urban agriculture and investments, migration from remote areas/ IDP camps and how much immigrant people from other areas.

According to Global Platform for Sustainable Cities (2013); sustainable development is quite difficult to be implemented and the level of understanding on the concept of housing construction field for achieving sustainable housing development. The development plan as preparation of the planning authority is the most fundamental strategies for each sectors including housing, commercial, industry as well as guidelines regarding requirement of open space and provision of community facilities, utilities and infrastructure is important. Strategies of environmental assessment, social impact assessment, environmental impact assessment, and sustainability assessment are on sustainable development as a whole, there is limited studies has been discussed on achieving sustainable in housing development through planning mechanisms development plan system and planning control system.

According to Ponrahono et al, 2011, the functions of the development plans as the backbone of development is very significant as all policies and proposals contains in that development plan spell up future housing development in certain timescales (Ponrahono et al, 2011). Thus, focus need to develop a framework on how town planning/ urban planning could plays an important role in achieving sustainable housing and infrastructure development play in socioeconomic network.

Development of the various transport modes needs an integrated manner that will lead to the realization of an efficient, sustainable, safe, and regionally balanced transportation system that are adequate to support its progressive future development because increasing urban population in Myitkyina.

Railway is often referred to as the lifeline of the local economy because of its predominance in transportation of bulk freight and is it an important part of Kachin State transport as it has much higher fuel efficiency than trucks and cars.

Effort for freight movement and increase the economic potential of remote areas, which will benefit from the reduced cost of transport is important. To generate sufficient requirements through PPP projects investment from the private sector need to be promoted. Private sector participation in container movement will also be needed to be applied.

Road upgrading within Myitkyina and backbone areas in the state and good road network is critical for rapid growth. It provides connectivity to remote areas; provides accessibility to markets, schools, and hospitals; and gain good transportation services in the regions to trade and investment. Roads also play an important role in transport development, establishing links with other part of the country and Myitkyina has one of the largest road networks centre in the kachin State.

Private sector participation should be promoted in the states to ensure safety and flow of traffic, including strengthening the institutional mechanism by setting up the national road safety and traffic management board and encouraging appropriate design of roads with interchanges; segregation of slow-moving traffic; and adequate provision of underpasses, overpasses (China and India), and service lanes for accelerated growth in the local and national economy and trade as the bulk of the country's export-import trade will takes place through the border roads.

Air transport is the preferred mode of transport, especially for long-distance travel, business travel, and perishable commodities, mainly on account of the speed of travel and savings of time. Air services have high price but are becoming growth of the airlines and related economy and development facilities.

Telecommunications sector has also created a digital divide between urban and rural areas in terms of telephone and internet connections with an emphasis on broadening access. Expanding rural telecommunication is also important for education, health care and information exchange. Broadband connectivity plays an important role not only as a medium but also as bringing knowledge and data through networking. To improve the local people knowledge and to create a international ambience for education, science, technology, and governance, toward creating a dynamically configurable network and universities collaborative research and development locally, nationally and internationally access to the knowledge network is important gradually.

Advances technology could create a highly manufacturing management to rapid urbanization and how cities can become drivers of economic growth need to be focused due to people living in rural areas are engaging in subsistence agriculture. Myitkyina is great economic potential because people becoming cluster and their activities. Firms and workers could more easily be found each other. The concentration of people allows blossom interactions frequently and effectively. The result needs higher productivity and a higher quality of rural life rapidly. Upgrading of transport and an appropriate investment, employment, finance, land use system, and service provision are functional key for balance between residential, commercial, economic network and trading structures for rural mountainous areas in Kachin State. Greater communication and concentrations of people create more frequent economic and social interactions to provide a higher quality of life.

The situation today in Myitkyina is individual motorcycles using is increasing. Mass transit system, large-scale apartment housing projects will solve future urban housing problems, with multiple transport modes simultaneously.

## Conclusion

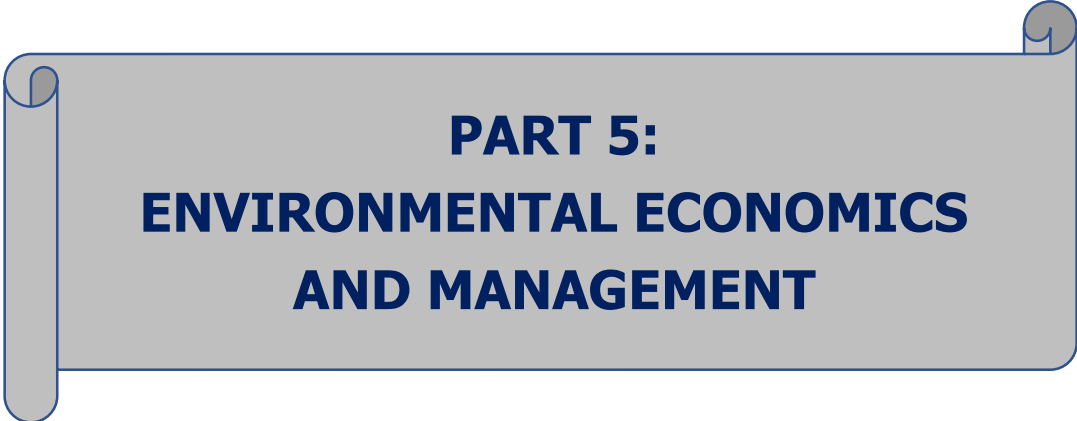
Urban development and socioeconomic network is depends mainly upon infrastructure in Myitkyina. According to observation on transformation process, development of economic activities is closely related to road transportation. There are many differences between mountain rural remote areas and urban area depends on accessibility. Agricultural production is mainly depending on transportation due to perishable products needs to engage with consumer directly.

A progressive of housing, economic activities and infrastructure improvement can change the quality of life. According to observation, construction of the new high-rise buildings is increasing and hotels, banks, and other facilities are becoming improved. There are increasing food shops, tea shops, restaurants, stores, retail shops, computer-based and copier shops and so on in Myitkyina. The commodities flow is closely related to transportation improvement and economic network and social space are also wider than before. The study of public and private sectors participation on sustainable development including the infrastructure (road, housing, water and electricity supply) development is important in Myitkyina. Improve infrastructures cause the easily economic activities that better accessibility, the flow of commodity and quick economic functions.

Myitkyina is composed of government and private sector activities, all these are important rules. Economically improving, culturally preserving, environmentally fair situation because establish agro-forestry environment are major role in Myitkyina. Economic activities are closely related to jade mine, gold mine, amber mine need to be applied sustainable extraction methods. The government urban planning need to fit sustainable urban development goal.

## 5. Reference

1. Seng Aung (2014), Urban Environmental Issues: Urban growth and natural ecosystem in Hukawng Valley, Kachin State, Northern part of Myanmar.
2. <https://crawford.anu.edu.au/rmap/devnet/devnet/db-45.pdf>
3. <http://documents.worldbank.org/curated/en/339851517836894370/pdf/123149-Urban-Sustainability-Framework.pdf>
4. <https://www.theigc.org/wp-content/uploads/2017/01/IGC-Urban-Myanmar.pdf>
5. [https://www.researchgate.net/publication/263506747\\_Sustainable\\_Urban\\_Housing\\_Development\\_through\\_Planning\\_Mechanism\\_Issues\\_and\\_Challenges](https://www.researchgate.net/publication/263506747_Sustainable_Urban_Housing_Development_through_Planning_Mechanism_Issues_and_Challenges):
6. Hamizah Yakob and etal. 2013, *Sustainable Urban Housing Development through Planning Mechanism: Issues and Challenges*.
7. [https://www.researchgate.net/publication/314276772\\_Urban\\_Water\\_Systems](https://www.researchgate.net/publication/314276772_Urban_Water_Systems): Urban Water Systems.
8. George Tsakiri , 2014; Rational design of urban water supply and distribution systems.
9. Joshi Geeta S, 2010; Infrastructure Development Strategies for Inclusive Growth: India's Eleventh Plan.



**PART 5:  
ENVIRONMENTAL ECONOMICS  
AND MANAGEMENT**



# THE IMPACT OF GLOBALIZATION ON ENVIRONMENTAL SECURITY IN VIETNAM TODAY

*Assoc. Prof. Mrs. Le Thi Thanh Ha*

*havientriet@gmail.com*

*Institute of Philosophy, Ho Chi Minh National Academy of Politics, Hanoi.*

## **Abstract**

*In recent years, environmental security issues have emerged as an urgent phenomenon of social life. In Vietnam, environmental quality is changing in a way that is detrimental to human life. Without maintaining environmental security, there is not any existence and development of human as well as human society. One of the causes of environmental insecurity is the negative impact of globalization. Therefore, the article points out the negative effects of globalization affecting environmental security, based on which some solutions are proposed to maintain environmental security in Vietnam in the context of globalization the current.*

**Key words:** *Globalization, Environmental security, Vietnam*

## **1. Introduction**

Up to now, there are many conceptions about globalization. In our opinion, globalization is the result of the development of productive forces, the increase of relationships, links, interdependencies and mutual agreements between all countries in the international community. Therefore, globalization is a constantly moving and changing trend, in which actors participating in this trend both cooperate with each other more closely and compete more and more fiercely. Most Vietnamese scientists also agreed that globalization is affecting all areas of social life today, such as economics, politics, culture, education and especially is the habitat. People everywhere can clearly feel its effects in both positive and negative directions. How positive and negative the level is depends on each specific field, conditions, specific historical context of each country in the international community.

Vietnam is a developing country, participating in the process of globalization that has contributed to promoting and developing economic sectors as well as social sectors through the process of market expansion, trade and reduction. tax pressures; Increasing production factors such as capital (both fixed capital and human capital) and science and technology are encouraged through the liberalization of capital circulation, technology transfer, and development of comprehensive communication systems. effective demand, lowering costs of international transactions and production costs. In the process of participating in globalization, Vietnam will improve, improve the quality of infrastructure, environmental quality, improve the wages of workers, improve the law, fight against corruption and change. Economic structure towards more appropriate and effective.



## 2. Method

The paper uses methods of information collection, document research, analysis and synthesis of theory, summarizing practical experience to evaluate, generalize and make its own comments.

## 3. Results

### 3.1. *Impact of globalization on environmental security*

The process of globalization is also affecting many development areas of Vietnam, including economics, politics, culture, education and especially in the field of environmental security. The manifestations of the negative impacts from globalization on Vietnam's environmental security are as follows:

*Firstly*, globalization promoting economic development at all costs is leading to devastating resources and loss of environmental security. Policies such as developing a market economy together with globalization allowing expansion of business with foreign countries, promoting industrialization and modernization have created favorable conditions for people to exploit and use of natural resources. It was globalization that strongly stimulated benefits, especially the economic benefits of each economic entity. Once the benefits are combined with modern technical means (inherited from globalization) such as machinery, information technology, biotechnology ... and with a management mechanism and system The law is not very strict like Vietnam, so people can find ways to make the most of natural resources to satisfy their trivial interests and interests, but forget the duty of protecting the security. environmental security. It can be said that globalization is creating favorable conditions for economic development and with the goal of economic profit, above all, it is attacking not only the relationship between people and people, but also very intense, very comprehensive into the relationship between man and nature. By all means, by all means, people are striving to exploit natural resources causing environmental insecurity.

For every nation, whether agricultural or industrial, forest is still one of the most valuable and important resources, but at the same time, it is also a natural object that is being attacked most seriously by people. For example, in Vietnam, in recent years deforestation to exploit resources, develop hydroelectricity, destroy mangroves for shrimp farming, cut forests for industrial crops: rubber, coffee ... Out quite popular all over the country. Currently the forest cover is only less than 40%. The area of primary forest is only about 10%.

To meet globalization demand, the livestock and processing of products, fisheries, livestock and poultry increase in Vietnam. But also due to the development of livestock in the absence of the original plan, many livestock enterprises, abattoirs, food processing enterprises are still mixed in residential areas, livestock production is small and fragmented. , scattered distribution while agricultural production has low profits, precarious prices, less stable markets ... so the investment in environmental treatment in livestock production is very low, leading to environmental problems. Pollution caused by livestock is still taking place in many places across the country.

Globalization has boosted the export demand for aquatic products, whereby the aquaculture industry has grown significantly over the past 30 years. Vietnam not only breeds in rivers, lakes, lagoons, lagoons ... but also goes to the sea. But due to spontaneous husbandry, no pollution treatment system, the water resources in these places are seriously polluted, affecting water security. In many localities, people often arbitrarily destroy mangroves or convert rice-growing areas to aquaculture, leading to the destruction of wetland ecosystems due to biodiversity loss, which affects the environmental security.

The impact of globalization promotes the application of new scientific and technological advances to agricultural production. However, due to the low level of production force of Vietnam, there are many harmful effects arising from the use of chemical fertilizers, plant protection chemicals ... improperly or too abusively. causing environmental pollution, affecting human health and life.

Expanding globalization is a condition for traditional craft villages to gradually grow and expand. The development did not come with waste treatment measures, thus making the environment of handicraft villages seriously polluted. Currently, there are 1,450 trade villages nationwide, distributed in 56 provinces and cities. The majority of craft villages are polluted by production wastes, dust, toxic gases, scum and sewage. Because the level of technology and equipment is mostly outdated, patchwork, lack of synchronization, limited infrastructure. It is a fact now that the number of cancer villages being detected is increasing, causing insecurity among the people and causing environmental insecurity.

*Second*, globalization speeds up the process of "ecological invasion" that threatens environmental security. Vietnam is a developing country, decades behind developed countries, in the context of current globalization, taking advantage of loopholes, shortcomings, inadequacies in the legal system and weakness in business management. In addition to social economic management, many Vietnamese government officials have helped crimes of all kinds, and "eco-invaders", such as the import of industrial scrap and imports of foreign organisms. hybridizing, importing agricultural products with toxic chemicals, ... turning Vietnam into an industrial and agricultural landfill.

According to calculations by the Ministry of Industry and Trade, currently 70% of imports of machinery and equipment from countries with intermediate technology. The import of this old generation machinery and equipment is increasing the phenomenon of emissions and waste. Especially in recent years, a worrying situation is an increase in the import of scrap and used goods into our country such as scrap steel, scrap paper, plastic packaging, used electronics and computers. old.

In addition, globalization also contributes to accelerating the process of disturbance of many ecosystems, due to the invasion of strange and genetically modified organisms that are taking place quite commonly in Vietnam, affecting health and safety. national environmental security. For example, in 2000, beaver mice were imported to cultivate in Vietnam. This is again the species on the list of the 100 most dangerous invasive organisms in the world. Beaver mice carry pathogens such as tuberculosis, myeloma, tuberculosis, etc.

which cause disease in humans and domestic animals, adversely affecting other animals. Although when detecting harm to the ecological environment, beaver mice have been destroyed but still and affect the ecosystem of our country today. Besides, there are red lobsters, earth cockroaches, red-eared turtles, yellow snails, black velvet weasels, etc. that are alien creatures that can cause serious consequences on the list of prohibited imports and are not produced or traded. This is a business venture in Vietnam but it still exists and causes bad impacts on the environment.

Behind the introduction of outdated technology and the introduction of genetically modified toxic organisms into Vietnam in recent years, globalization has also shown the plot of ecological warfare and threats to environmental security in Vietnam. Poor countries like Vietnam are very vulnerable to this trap. The fact that people who rely on forests and rely on ecological resources now have to go to other countries to make a living, which is understood as environmental insecurity. Because, environmental degradation leads to environmental refugees. Resource-based communities, when they lose ecological services, no longer make a living, become environmental refugees in other urban areas or go abroad to earn a livelihood. In many provinces near the border, when people can not rely on ecological resources, they will find ways to work in other countries to become environmental evils. The issue of transboundary air pollution, although it has not been clear yet, has shown some signs of influence.

*Third*, globalization speeds up the spread of diseases globally affecting the security of the living environment of the people.

Globalization makes the travel process easier, faster, more convenient and this is also a condition for the disease to spread quickly, seriously threatening the security of the people's living environment. The trade and mobility of the population makes the epidemic also tend to be globalized. The ongoing Covid - 19 pandemic around the globe is a good example of this. The epidemic is not limited to China but has spread globally with unprecedentedly fast spreads in history. There are hundreds of thousands of people infected with thousands of deaths. In Viet Nam, the Covid-19 epidemic affects firstly on aviation, tourism, and services, followed by trade and investment, especially threatening the living environment of the people.

Globalization has helped to improve the lives of the people, boosting the demand for travel, tourism and transportation of goods, many people with motorized vehicles traveling, the number of traffic accidents also increased. up. In addition, due to the increasing demand for tourism leading to the spread of diseases, dangerous epidemics such as HIV / AIDS, severe acute respiratory syndrome SARS, Ebola, influenza, etc. most of the negative impact of global liberalization on tourism, travel and immigration on the health and security of human habitats. For example, the SARS epidemic broke out in Hong Kong in 2003, within a few weeks, SARS infected many others in 37 countries around the world and almost became a pandemic. There are 8422 cases and 916 deaths worldwide<sup>1</sup> (10.9% of deaths). In

---

<sup>1</sup> Ministry of Health (2017), Guidelines for surveillance of severe acute respiratory infections (SARI), Decision 1271 / QD-BYT-2017

Vietnam, the SARS epidemic has infected 44 Vietnamese nurses and doctors of the French Hospital, 6 people (at home and abroad) have died. Vietnamese French Hospital must be disinfected, closed for nearly half a year.

Globalization makes it easier for frozen and processed products to enter Vietnam. These foods have the risk of containing toxic chemicals, infections, heavy metals, pesticides or antibiotics ..., even being counterfeited, not meeting the requirements of food safety. to people's health. Authorities in China and other countries have detected a series of toxic food cases: methonyl (pesticide) in 18 teas; formaldehyde to keep vegetables fresh; sodium nitrate, urea and growth hormone in cowpea, bean sprouts; toxic chemicals and additives to make fake duck blood; high lead content in Spirulina, dried fruits and olives; animal fats and kitchen waste used to recycle cooking oil; industrial gelatin for processing fake pig ears; especially using fetal, newborn babies and placental bodies to produce "medicine" for weight loss, beauty and functional foods. These foods contribute to the risk of cancer, increase the rate of obesity, cause stroke, blood fat, cardiovascular ...

In general, the above negative impacts from globalization are contributing to the unsecured environment, threatening the environment of people on this planet in general and Vietnam in particular.

### *3.2. Solutions to maintain environmental security in Vietnam in the current globalization process*

In Vietnam, ensuring environmental security is considered as one of the regular and long-term tasks of both the political system and the whole society. At the 11th Congress, our Party affirmed: "Protecting the environment is the responsibility of the entire political system, the whole society and all citizens"<sup>2</sup>. Besides, the concept of environmental security was included in the Law on Environmental Protection 2014. The issue of environmental protection, response to climate change is also an important content of the CPV General Assembly Document. National Party, XII, emphasized: "Prevent and gradually overcome the degradation of the natural environment caused by humans, especially by economic development projects. Restrict and proceed to basically overcome the situation of destruction, depletion of resources and environmental pollution of production establishments, industrial parks and urban areas. Perfecting the legal system, issuing sanctions strong enough to protect the environment, preventing and handling according to law in order to end the situation of environmental pollution, increase the prevention and control of pollution sources. environmental pollution"<sup>3</sup>. At the same time: "ready to respond to traditional, non-traditional security threats"<sup>4</sup>. This shows that, in recent years, the issue of environmental security has been concerned and institutionalized by the Party and State of Vietnam in the guidelines, guidelines and legal policies.

---

<sup>2</sup> CPV: Document of 11th National Party Congress, National Publishing House Publishing House - ST, Hanoi 2011, pp.42.

<sup>3</sup> CPV: Document of the 12th National Party Congress, National Program Publishing House - Hanoi, 2016, pp.31 - 32..

<sup>4</sup> CPV: Document of the 12th National Party Congress, National Program Publishing House - Hanoi, 2016, pp.33 - 34.

However, Vietnam's environment is still heavily polluted, threatening national security. The documents of the XI Congress affirmed: "Factors threatening non-traditional security and high-tech crimes continue to increase. Global issues such as financial security, energy security, food security, climate change, natural disasters, epidemics, etc. will continue to be complicated"<sup>5</sup>. Besides, "Tensions, religious, ethnic, separatist conflicts, local wars, political riots, interference, subversion and terrorism will still be fierce; factors of non-traditional security threats, high-tech crimes in the fields of finance - monetary, electronics - telecommunications, biology, environment ... continue to increase"<sup>6</sup>. Therefore, in order to maintain environmental security in the current globalization conditions, Vietnam needs to fulfill the following tasks:

Firstly, strengthening international relations in protecting national environmental security. Because in the process of globalization, the related national environment is greatly influenced by the regional and global environment, so Vietnam's environmental protection career is always associated with the environmental security of Vietnam. countries in the region and around the world. The promotion of international cooperation on environmental security helps to overcome difficulties and limits beyond a nation's solvency. First of all, expand international cooperation on the environment in the spirit of respect and strict implementation of international conventions that our country has signed and acceded to. At the same time, to absorb and spread experiences and ways in protecting environmental security. Take advantage of the financial and technical support from international organizations for environmental protection, especially to take full advantage of projects from GEP (Global Environment Fund), to implement the effective environmental protection goals, in line with regional and global environmental security goals. In particular, attention should be paid to coordinating relationships with countries on issues such as biodiversity, protection of ecosystems, control of dangerous goods and strengthening cooperation between nations. to participate in global prevention and control, to share epidemic experiences in other countries. At the same time, promoting investment in scientific research in order to make effective disease vaccines.

Vietnam needs to take the initiative and take specific measures to cooperate in water resources in the Red River basin with China and to cooperate in exploiting the Mekong river with Thailand, Laos and Cambodia, in order to formulate agreements, Regulation on management, sharing and protection of water resources for international rivers, transnational water sources, maintaining water environment security.

*Secondly*, promoting information, communication and education to raise awareness of the society, first of all the party organizations, state agencies, enterprises, socio-political organizations and staff. ministries and party members on environmental security and responsibility to ensure environmental security; making the task of protecting environmental

---

<sup>5</sup> CPV: Document of the 11th National Party Congress, National Publishing House Publishing House - ST, Hanoi 2011, P.28.

<sup>6</sup> CPV: Document of the 11th National Party Congress, National Publishing House Publishing House - ST, Hanoi 2011, P.182 -183

security become a sense and self-discipline of each member in society, becoming a cultural lifestyle of each person; making environmental security truly an important component of national security. At the same time, thoroughly grasping the perspective of investing in sustainable development, not trading environment for economic development, not attracting investment at all costs; In the economic development plans, plans and projects, there must be environmental protection measures and plans. Quickly integrate environment security with social and economic development policies.

*Thirdly*, continue to study, gradually improve the legal system of environmental protection and environmental security; strengthen the capacity of the environment protection agency, and establish a national environmental security agency. Regarding legislative work, in addition to continuing researching, supplementing and amending laws on environmental protection, it is necessary to study and formulate and promulgate laws on environmental security. At the same time, overcoming inadequacies in the state management of environmental security protection, especially in the application of tools and measures to prevent and control environmental pollution from environmental assessment strategies, environmental impact assessment, inspection, validation of works, environmental protection measures, inspection, observation, monitoring of waste sources ... ensure that these tools and measures promote badges. force, effective in practice to strictly control the sources of waste discharged into the environment. Besides, considering and strengthening the organizational structure, strengthening the capacity of the state management agency in charge of the environment from the central to local levels to meet the requirements, increasingly large and complex tasks and outbreaks. incidents causing environmental pollution.

*Fourthly*, it is necessary to build the capacity for monitoring and warning of climate and natural disasters through expanding, developing and modernizing the system of hydro-meteorological observation and forecast in the direction of combining observation and forecasting. hydrometeorology with climate monitoring and warning; strengthen the development of information and data systems on climate and climate change for policy making and implementation of climate change response activities; continue updating and completing the climate change scenario announced before the socio-economic development plan formulation period to integrate and adjust the plan in time.

In addition, continuing research to change the structure of plants and animals, farming methods suitable to the ecological characteristics of regions and localities in order to actively adapt to climate change; changing livelihoods, jobs, ensuring social security for people, strengthening the risk insurance system in agriculture and fisheries, especially vulnerable areas due to climate change.

*Fifthly*, strengthening the fight against crime and violations of the law on environmental protection, especially the prevention and combat of movement of transnational environmental pollution; prevent deforestation, hunting and destroying animals and aquatic resources; combating smuggling and illegally importing industrial wastes, agricultural products, food with toxic preservatives and acts of intentionally discharging exhaust gas and hazardous waste into the environment.

#### 4. Discussion and Conclusion

Globalization is the process of strongly increasing relationships of influence, mutual impact, interdependence of all regions, nations and peoples of the world. One of the areas where globalization has a strong impact today is the environment. Globalization contributes to maintaining environmental security, while globalization is also affecting environmental security. The most obvious manifestation is that: globalization promoting economic development at all costs is leading to consequences of devastating resources and loss of environmental security; globalization speeding up the process of "ecological invasion" threatening environment security; globalization speeds up the spread of diseases globally affecting the security of the living environment of the people. In order to limit the negative impacts of globalization on environmental security, it is necessary to synchronously implement many solutions such as strengthening international relations in protecting national environmental security, promoting information and communication. information and education to raise public awareness about the impact of globalization on environmental security; continue to study, gradually improve the legal system on environmental protection and environmental security, improve the capacity of monitoring and warning of climate and natural disasters; strengthening the fight against crime and violations of the law on environmental protection, especially prevention and combat of transnational environmental pollution movement

#### 5. References

1. Nguyen Duc Binh, Le Huu Nghia, Tran Xuan Sam (Co-Editor) (2001): *Globalization - Methodology and research approach*, Publishing House. National Politics, Hanoi.
2. Ministry of Natural Resources and Environment (2018), *National Environmental Status Report 2018*.
3. Ministry of Health (2017), *Guidelines for surveillance of severe acute respiratory infections (SARI)*, Decision 1271 / QD-BYT-2017.
4. Nguyen The Chinh, Phan Thi Kim Oanh (2016): *Water security in the process of regional integration and Vietnam's policy choices*, Proceedings of the International Workshop on Non-traditional security in progress Regional integration: EU-ASEAN experience and policy implications for Vietnam.
5. Pham Thanh Dung (2015): *Non-traditional security and solutions for Vietnam in the context of international integration*. Synthesis report on research on an independent state project.
6. VCP (2011), *Document of the 11th National Party Congress*, National Publishing House Publishing House - ST, Hanoi.
7. VCP (2016), *Document of the 12th National Party Congress*, National Publishing House Publishing House - ST, Hanoi.
8. Pham Van Duc (2006), *Globalization and its impact on Vietnam today*, Journal of Philosophy, No. 3.
9. Le Thi Thanh Ha (2018), *Current environmental security issues in Vietnam*, Journal of Political Theory, No. 7, p.36.

10. Tran Thi Thuy Ha (2017), *Security of the environment in Vietnam today*, Vietnam Journal of Social Science, No. 6.
11. Pham Ngoc Lang (2016), *Environmental catastrophe - A hot non-traditional security front*, Communist Review, No. 3.
12. The National Assembly of the Socialist Republic of Vietnam (2014), *Law on Environmental Protection*.
13. Ta Ngoc Tan, Pham Thanh Dung, Doan Minh Huan (co-editor) (2015), *Non-traditional security - theoretical and practical issues*, Political publishing publishing house, Hanoi.
14. Ta Dinh Thi, Phan Thi Kim Oanh, Ta Van Trung (2017), *Ensuring environmental security in Vietnam: Urgent issues that need to be addressed*, Climate Change Magazine, No. 2.



# IMPACT OF THE FOURTH INDUSTRIAL REVOLUTION ON THE ENVIRONMENT

*Dr. Le Thi Hanh*

*hanhtaichinh78@gmail.com*

*University of Finance - Business Administration*

## **Abstract**

*Human health blends with the environment. From local communities to global communities, the environment provides natural resources that promote the development of industries and the economy and affects diverse public issues such as health and coping and recovery of natural disasters, energy and food security. As the planet becomes increasingly stressed, action on environmental issues - such as climate change, biodiversity and public health - constitutes some of the most pressing and significant challenges. Innovations of the Fourth Industrial Revolution have great potential to improve global environmental management and governance and provide the system change needed to create clean, resource-safe economies. and comprehensive.*

**Keywords:** *Fourth Industrial Revolution, Environment*

## **1. Introduction**

The Fourth Industrial Revolution is a clever combination of two fundamental elements, science and technology, to create a world of intelligent connected things. A key feature of this Revolution is the use of technology to gradually replace the presence of people in all activities. The Fourth Industrial Revolution with high-generation, high-speed technology, Internet of Things, 3D printing, 5G networks and other 4IR innovations has the potential to significantly reduce carbon emissions and resource use. in industrial and agricultural production cycles - from production, transportation, packaging, reuse. At the same time, by using 4IR technologies, it is the only way to provide what is needed for sustainable growth to each country and every person on the planet fairly. Moreover, it is possible to help mankind shorten the time in the catastrophic climate change race around the world. However, the Fourth Industrial Revolution also opens up opportunities for individuals, organizations and people. Which country can take advantage, develop the right focus, the focus will rise, otherwise it will fall behind.

## **2. Method**

The paper uses methods of information collection, researching materials at home and abroad, analyzing and synthesizing theory, applying practical experience to assess, generalize and make its own comments.

### 3. Results

#### 3.1. *Impact of the Fourth Industrial Revolution on the environment*

For the field of natural resources and environment, the Fourth Industrial Revolution has a positive impact in the short term and extremely positive in the medium and long term thanks to the application of energy-saving technologies and materials. friendly to the environment and fast-growing environmental monitoring technologies powered by the Internet of Things, helping to collect and process information 24/7 in real time as well as give alerts early on natural disasters. The Fourth Industrial Revolution is implemented to improve the environment in various ways. Among the technologies described as belonging to the Fourth Industrial Revolution are artificial intelligence, robots, the Internet of Things, autonomous facilities, 3-D printing, nanotechnology, biotechnology, and faculties. study materials, store energy and quantum computing. However, natural resources are finite, how to handle them sustainably. The Fourth Industrial Revolution can be implemented in different consumption and manufacturing sectors to improve resource efficiency, reduce pollution and the overall environment of economic activities.

##### 3.1.1. *Positive impact of the Fourth Industrial Revolution on the environment*

*Firstly*, use 4IR against climate change

In the fight against man-made climate change, 4IRs can make a significant difference - and it may not come soon. According to a recent report by the International Council on Climate Change (IPCC) and the US government, it is clear that climate change and related environmental challenges are happening faster than expected, with serious consequences for humanity, the natural habitat and the global economy.

What makes the challenge even more difficult is that the world's population (and thus the demand for energy and natural resources) is poised to expand significantly in the rest of this century, reaching 9.8 billion. by 2050 and 11.2 billion by 2100<sup>131</sup>. And with that growth happening in areas where climate change is likely to have the most severe impacts - including sub-Saharan Africa, the Middle East and South Asia. If we want to ensure a more sustainable and equitable future, we must take serious and coordinated action. The exciting technologies of 4IR may not be considered as a single solution to this big and complex problem.

In fact, the Fourth Industrial Revolution has a strong impact on many fields, with the emergence of artificial intelligence robots that have brought many applications in society. Thanks to AI technology (artificial intelligence), the more intelligent robots work, are capable of memorizing and learning immeasurably, while that ability in older people gets weaker. The advantage of working 24/24 hours, without paying salaries, paying taxes, insurance ... of robots is also threatening the correlation in whether employers are real people or robots. Thanks to 3D printing technology, we have made great strides in many fields:

---

<sup>1</sup> John McKenna (2017), **New collar: where to find the next-generation manufacturing workforce?**  
[spectra.mhi.com/Workforce/Industrial](https://spectra.mhi.com/Workforce/Industrial)

architecture, construction, fashion, fine arts, medicine, aesthetics, education and manufacturing industries. Unlike the previous Industrial Revolutions, the Fourth Industrial Revolution has set a goal from the outset of not abusing resources and carbon emissions, and against wasting materials and emissions. In this way, it will be sustainable and long-term development, not having consequences like the previous revolutions leaving humanity to suffer the consequences today.

*Second, it is possible to limit air pollution and reduce carbon for the economy*

The first industrial revolution began in the 18th century and most people know it is the era that accelerated the development of steam engines and contributed to more urbanization. A number of other industrial revolutions followed, and one common theme among them was that each period had tremendous technological advances. We are now in the fourth industrial revolution (4IR). 4IR technologies can address the environmental challenges associated with air pollution and global warming. These include: Better air quality monitoring, using affordable low-power wide area networks (LPWAN) to monitor air quality; More personal advice on air pollution; Use technologies to remove pollution and carbon from the air. Emerging technologies include robotic plants, parasitic drones, air-cleaning buses and air separation plants; Clean traffic through a change in electric & autonomous vehicles, car sharing, smart public transport and dynamic road pricing; Use big data and blockchain-based solutions to encourage consumers and businesses to make environmentally friendly decisions. This can allow customers in stores to see carbon emissions when making purchases at the point of sale; Decarbon industry through a fleet of green commercial vehicles, cloud-based computing, virtual reality & augmentation and 3D printing.

*Third, production advances can help protect the environment*

Some factories have room to improve in relation to the waste they produce and the carbon footprint they produce. However, technologies are making it easy for company leaders to make positive changes. For example, internet-connected sensors can track usage for water and electricity, giving companies the basic readings they need to troubleshoot planetary problems and support.

In addition, because connected devices often give companies a competitive advantage over devices without them, many vendors support their production managers to retrofit old machines to make them work. Works with Internet of Things (IoT) or install new equipment. Most of the time, new or improved machines are better for the environment than outdated or older options.

Moreover, there has been an increase in more sustainable production methods. One is lean manufacturing, focusing on reducing waste. In this case, waste does not just mean overproduction, but anything that doesn't add value to the consumer. Lean manufacturing also has other positive aspects, such as cutting product distances or travel staff.

*Fourth, IoT technology is beneficial for environmental monitoring*

Another useful thing about 4IR and the environment is that researchers have many opportunities to use IoT sensors to collect environmental data and send it to a central

interface. After that, scientists don't have to go to every location to get information. It is transmitted wirelessly and usually stored in the cloud.

Then we can better understand the planet, from soil quality to air pollution. Members of the research team can also connect their information sources with big data analytics software that allows them to track trends or even compare differences between multiple locations.

One of the main advancements of big data platforms is that they can process vast amounts of information much faster than humans. Therefore, environmental theorists can spend less time digging through data and spending a greater part of their working day taking action based on what information is provided to them. Networked sensors and drones can monitor their surroundings and the environment and detect illegal resource exploitation. Artificial intelligence (AI), like the intelligence developed by Google's DeepMind, has been used to reduce energy usage. A blockchain-like mechanism can be deployed to track resources, as in food industries. Unmanned aircraft can be deployed to monitor wildlife movements and protect wildlife from poachers; Unmanned drones with sensors can also monitor crop health for farmers and help them use fertilizer and water more accurately.

#### *Fifth, recycling, leading to a circulating economy*

At the processing stage, AI and robots can be combined to create more efficient recycling processes. AI-powered robotic waste sorting systems, developed by Sadako Technologies and ZenRobotics, help reduce the operating costs of material recovery facilities, speed up processes and improve the quality of output. Their effectiveness is supported by advances in machine learning in image recognition, precise plastic classification by type. In addition, life sciences can be developed to create enzymes that can break down plastics.

Recycling will be an important part of the movement towards a recirculating economy, where waste (such as plastic) from one production and consumption cycle can be used for subsequent cycles, reducing the environmental footprint in general. The viability, as with Apple's iPhone disassembly robot, Daisy, splits iPhone into different components to recover and reuse resources for other Apple products and AHLMA, a garment company in Brazil focuses on the use of recycled fabrics in garment production.

#### *3.1.2. Limitations of the Fourth Industrial Revolution to the environment*

##### *Firstly, improper handling of equipment is harmful to the environment*

Although the Fourth Industrial Revolution brings many benefits, it also has certain limitations, people have to cooperate and put people first, even though new technology is the first. and most importantly created by humans and for humans. That's important, but it's important to consider and think about how many of those devices could hurt the planet if people didn't throw them away correctly. Incorrect handling of equipment causes electronic waste. A report from the United Nations warns that electronic waste threatens human health and the environment. It also expects global electronic waste to reach 52.2 tons by 2021<sup>2</sup>.

---

<sup>2</sup> Industry 4.0 and environmental sustainability - Ambienta SGR [www.ambientasgr.com](http://www.ambientasgr.com) › uploads › 2019/06 ›

Fortunately, many electronic retailers have drop points handling electronics. It is important to constantly promote to consumers about the need to dispose of electronics responsibly. The easiest thing for most people to do is to remove their electronic devices in the same way as they would for regular household waste. However, doing so could allow chemicals to soak into groundwater and dirt.

*Secondly, 5G networks could hurt the planet*

The rollout of 5G networks has captured the headlines. Although it will not reach major availability until 2020 or later, many telecom providers have been conducting trials. Thanks to the promise of extremely fast speeds and almost no latency, people are very worried about the opportunities that progress will bring. Indeed, 5G will facilitate the positive aspects of the 4IR environment mentioned above. However, people are concerned about 5G for many reasons. Some of them are worried about the radio waves it needs, especially when studies link radio exposure to things like leaf necrosis in young trees, along with birds that leave the nest. of them. It is still too early to say whether 5G will negatively impact the planet or how long it will take before it is noticeable. Because individuals are aware of possible problems, scientists, legislators and others in competent positions should carefully monitor for signs of damage and have Prompt intervention if necessary.

Summary: It is not possible to assess all impacts - whether positive or negative - the fourth possible industrial revolution on the environment. As this time in history continues, it could have adverse results for the planet. However, by contrast, much of this technological advance provides the tools needed to provide real, lasting benefits to the Earth.

#### **4. Discussion and Conclusion**

To ensure that the benefits of the Industrial Revolution 4.0 are realized in practice, we make some recommendations to policy makers:

First, ensuring equity is a key component of environmental tax design. A new road pricing system should include free road use subsidies each year, to help reduce the tax burden on lower-income households.

Second, ask large companies to collect and provide information about the environmental impact of their operations. Based on the mandatory carbon report, this information will include impacts on air quality, use of plastics and primary materials. This data should be public.

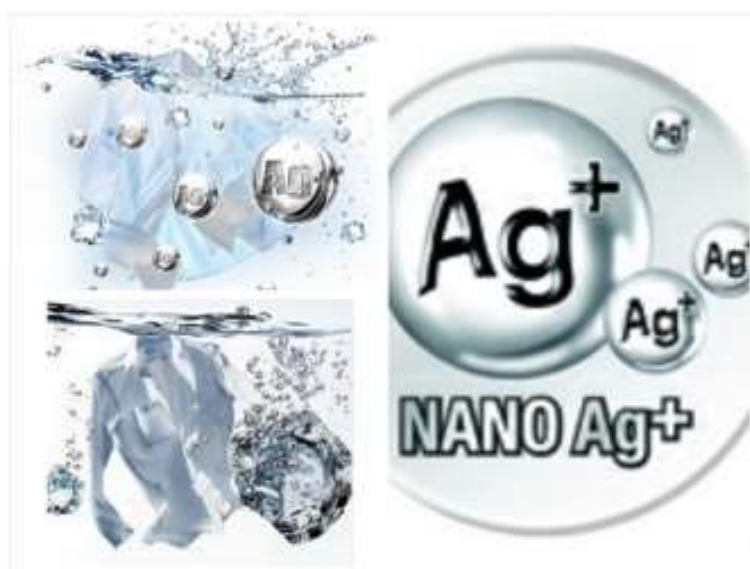
Third, the national government is committed to installing air pollution monitors in every region, as required in The Times Clean Air campaign for all campaigns. At the same time, ensure that air pollution data collected from these screens is open source and accessible via the Application Programming Interface (API), to assist in developing applications that provide Personal tips on air pollution.

Fourthly, developing low-emission technologies, environmentally friendly products and new sources of raw materials to replace exhausting resources.

It can be said that human advances with the creation of eco-friendly, easily biodegradable products, new sources of raw materials and the application of science and technology create high-efficient production technologies, Low emissions have contributed positively to the development of green economy, this is an inevitable trend of environmental protection in the era of the 4.0 revolution.

Specifically, the use of biodegradable nylon bags, manufactured from mechanical components that help protect the environment, solve the problem of nylon bag waste and the consequences caused by nylon waste around the world. in the past. Or the development of products made from nanoscale materials and devices. The use of nanotechnology serves as a lever to minimize environmental pollution, conserve resources, and essentially build a "clean" economy.

For example, James Hutchison, a chemist at the University of Oregon, uses DNA molecules in a novel process that shows nanoscale models on silicon chips and other surfaces. Experimental methods have saved materials, used less water and solvents than traditional printing techniques - or lithography often used in high-tech electronics.



*Nanotechnology is used in industrial electricity and wastewater treatment*

In a green economy, technological innovation towards environmentally friendly, low emission is an indispensable requirement. The research on manufacturing technology innovation has been really concerned and developed by businesses, and it has brought about extremely positive effects, not only increasing capacity, reducing production costs but also contributing to efficiency. results in environmental protection such as Silver Nano technology that Samsung is applying to its electronic and refrigeration products such as: air conditioners, refrigerators, washing machines, etc .; low-emission technology that meets Euro standards of automobile brands; Technology of producing water-based wood-based paint Polyurethane Dispersion (PUD) environmentally friendly or closed blast furnace technology from iron ore to finished steel (also known as steel production from upstream) instead of technology Electric arc furnace - continuous casting causes a lot of impact on the environment.

Fifth, develop a planning strategy to ensure the goal of reducing car ownership, and increasing walking, bicycle and public transportation rates. Large cities and towns should go by bus or by bicycle.

Summarize, we are in the era of the fourth industrial revolution, an era of development based on endless capacity - that is human creativity. And it is time for us to change to keep pace with the times. And in environmental protection, not only is the exploitation and use of resources, but also the application of high technology to protect the environment, creating new sources of energy and raw materials to replace course is exhausting to meet the long-term development in the future

## 5. References

1. Chung Thi Van Anh (2017), *Industrial Revolution 4.0 with higher education in general and Ba Ria - Vung Tau University in particular*, Ba Ria - Vung Tau University.
2. Vu Dinh Anh (2018), *"Finance and industrial revolution 4.0"*, *Proceedings of the Conference on Capacity Building of the Financial Sector in Access to Industry 4.0*, Phu Tho (March 2018).
3. Nguyen Cuc (2017), *Impact of the 4.0 industrial revolution on higher education institutions in Vietnam and policy implications for Vietnam*, Regional Political Academy I, Hanoi.
4. Nguyen Hoang Ha and Tran Hong Quang (2016), *"Forecasting the impact of the fourth industrial revolution and forecasting some of its impacts on the Vietnamese economy"*, *Journal of Economics and Forecasting*, October 2016 issue, Hanoi.
5. Nguyen Hoang Ha (2017), *"Fourth Industrial Revolution: Challenges and Opportunities for Development"*, *Proceedings of the International Workshop "National Reform for Development"*, Hanoi (March 24). / 2017).
6. Nguyen Chi Truong (2018), *Industrial Revolution 4.0: Opportunities, challenges and two-speed solutions for vocational education*, *General Department of Vocational Education*, Ministry of Labor, War Invalids and Social Affairs, Hanoi.
7. Phan Van Truong, *French Government Advisor on international trade*, *"How does the education sector" lead "the 4.0 revolution?"*, Baoquocte.vn, April 14, 2017.
8. John McKenna (2017), *New collar: where to find the next-generation manufacturing workforce?* [spectra.mhi.com/Workforce/Industrial](http://spectra.mhi.com/Workforce/Industrial)
9. Fourth Industrial Revolution for the Earth | World Economic, truy cập từ <[www.weforum.org/projects/fourth-industrial-revolu...](http://www.weforum.org/projects/fourth-industrial-revolu...)>
10. Industry 4.0 and environmental sustainability - Ambienta SGR [www.ambientasgr.com/uploads/2019/06](http://www.ambientasgr.com/uploads/2019/06) >
11. Process Planning in Industry 4.0 Environment - ScienceDirect [www.sciencedirect.com/science/article/pii](http://www.sciencedirect.com/science/article/pii)

# THEORETICAL AND PRACTICAL ISSUES IN LAND ACCUMULATION AND CONCENTRATION IN VIETNAM

**MA. Hoang Ngoc Huong**

*hoangngocmen2015@gmail.com*

*National Defense Academy, Hanoi, Vietnam*

## **Abstract**

*Vietnam's agricultural production is facing great opportunities in the context of global integration but also challenges. Land, basic and essential production materials and agricultural production are facing the biggest obstacles for the development of modern and sustainable agriculture. Studies have shown that the dispersion, fragmentation, and smallness of plots and separation parcels of land make it difficult to apply science, technology, and mechanization to modern and commodity-oriented agriculture production. Hence, land accumulation and concentration have been recognized as an important path to serve such production. This paper aims at analyzing the situation of land accumulation and concentration in Vietnam in the current circumstance both in theoretical and practical aspects. Since land accumulation and concentration create favorable conditions for mechanization for the moving of the agricultural sector towards a commodity production model, it faces multiple challenges in practices under a variety of forms of accumulation and concentration. Besides providing a more clearance explanation of related concepts to land accumulation and concentration theoretically, the paper explores the practices of land accumulation and concentration at different speeds in typical localities. Solutions and recommendations are developed to contribute to the renovation of land policies and laws in the period of comprehensively promoting the renovation process*

**Keywords:** *Farmer household, land accumulation, land concentration, land policy.*

## **1. Introduction**

Over the past few decades, Vietnam's farmers have successfully fed the nation, helped expand trade and have provided a reliable supply of labor and raw materials to industry. The entire agriculture sector has had a key role to play in poverty reduction and social stability. But demographic, economic, climatic and other changes are now altering the playing field for the sector, which must adjust to face emerging challenges and opportunities. As highlighted in the government's 2014 Agricultural

Restructuring Plan, there is a need to modify the sector's strategic orientation, strengthen key institutions, and adjust the roles and support instruments used by government (Vietnam Development Report, WB, 2016). In addition to enormous progress Vietnam's agricultural sector has made over the past quarter century in contribution to the poverty reduction, national food security, and social stability, the country has also achieved explosive growth in agricultural exports and now ranks among the top five global exporters in products.



However, smallholder productivity and intensification through the 1990s have shown disadvantages in competitiveness in the context of globalization. Despite great changes and achievements, Vietnamese's agriculture is still an outdated sector with many limitations: backward production methods and organizations; small-scale household production; lack of mechanization and high technology application that makes labor productivity low, hindering competitiveness and the strengthening of of agro-food value chain.

Effective competitiveness will depend upon the ability of farmers and firms to deliver (food and other) products with reliability, and with assurances relating to quality, safety, and sustainability. It is the solid demand of a sustainable development for agricultural sector. Moving toward a modern and large-scale commodity agricultural production is essential for Vietnam's agriculture sector in the context of globalization and integration. Modern agriculture requires the application of science and technology, mechanization to enable agriculture production in boosting yield and ensuring other quality of agriculture products. Land, basic and essential production materials for agricultural production are facing the biggest obstacles for the development of a modern and sustainable agriculture. This is due to the dispersion and fragmentation of parcels of land. Vietnam is one of the countries with the lowest land per capita in the world. The area of agricultural land per capita in Vietnam is 0.25 ha, while that in the world and in the region are 0.52 ha and 0.36 ha, respectively. Vietnam's agriculture is mainly developed based on over 11 million individual farmer households with over 76 million plots small and scattered plots. After every twenty years fragmentation has doubled (Kim, 2012). Fragmentation also leads to wasted land being used as a boundary, accounting for 4% of the cultivated area. This is a great challenge for the process of developing large-scale, high-tech, high-value-added production areas. Resolution 26 of the Party Central Committee at the 7th session of the X session on agriculture, rural areas and farmers emphasized the importance of increasing

agricultural productivity as one of the requirements. With increasing population pressure and a scarcity of land, promoting agricultural productivity is considered an effective way to ensure Vietnam's long-term food production. One of the obstacles to improve productivity is land fragmentation and small-scale agricultural production (Kim, 2012).

According to the 2008 household living standard survey, the average agricultural land area of the household is 0.65 ha divided by 3.8 plots. Meanwhile, the average annual cropland area is only 0.37 ha per household in rural areas. Recognizing the negative impacts of land fragmentation, the Government has advocated encouraging farmers and local authorities to convert their land from small plots into large plots, creating favorable conditions for farming operative. Decree 64/CP of September 27, 1993 set out a policy of land consolidation and exchange. The Standing Committee of the National Assembly issued Resolution No. 1162 in 2007 stipulating the limit of households and individuals to transfer agricultural land use rights for agricultural use. Which stipulates that, for annual land, it shall not exceed 6 hectares for provinces in the Southeast and Mekong River Delta, not exceeding 4 hectares for the remaining provinces and cities; for perennial cropland, it shall not exceed 20 hectares for delta areas and 50 hectares for mountainous areas (Nguyen, 2017).

Land accumulation and concentration are considered one of the breakthrough solutions to help develop a modernized, large-scale, high-tech commodity-producing agriculture with security employment and farmers' income, maintaining political and social stability in rural areas, speeding up the process of agricultural industrialization and modernization in Vietnam in the coming time. Land consolidation, in various forms, will be critical for upgrading production systems and product quality, reducing transaction costs within value chains, and enabling households to gain and maintain a middle living standard based at least partly on agriculture. Land consolidation will also enable further mechanization, a process which will become increasingly important as labor costs rise.

## **2. Method**

The preparation of this report did not involve new primary research. Rather, it represents a synthesis of pertinent recent analyses, some further use of Vietnamese and comparative international statistics, and the harvesting of pertinent international experiences from many sources, such as websites, books, journals, previous studies by a number of universities, research institutes and researchers in the country and internationally, including: Ministry of Agriculture and Rural Development, Ministry of Natural Resources and Environment, General Statistics Office, Division of Land Management, University of Hue, Vietnam National University of Agriculture, and so on.

## **3. Results**

### ***3.1. Land accumulation and land concentration***

#### **Land accumulation**

Land accumulation is an increase in the land size of production units (farmer households, farms, agriculture enterprises, etc.) over time due to reclamation, inheritance, purchase, lease, and transfer to proceed agricultural production.

Accumulation is the process of capital accumulation with land being the main production means to expand production and hence take economic advantage by scale. Land accumulation activities are implemented in the land market. In order to have enough land to meet the demand in production and business, investors purchase ownership and lease the land use right (LUR) under the principle of “purchase and sell agreement” or sub-lease and return land rent for land leaser. Despite the fact of having different approaches and perspectives related to land accumulation, they all pertain some common implications as follows: 1) Land accumulation increases the farm size of a landowner; 2) Land accumulation overcomes the land fragmentation when increasing the arable land of the household; 3) Land accumulation activities are closely linked with land market including the LUR transfer market and the land lease market; 4) Land accumulation and concentration are all aimed at reducing fragmentation but land accumulation is directly linked to the stratification of land areas and living standards in rural areas.

Land accumulation is considered as a type of capital accumulation in the form of artifacts in agriculture. However, land accumulation in agriculture is typically different from

capital accumulation in industry. Because land is characterized by a major, irreplaceable and limited means of production, and agricultural production is dependent on ecological and natural factors, weather and climate, economic advantages by scale of agricultural production is somewhat limited while accumulating capital in the industry is almost unlimited, forming large-scale capital enterprises, hence, taking advantage of economies of scale. It is, therefore, necessary to calculate the appropriate scale of land accumulation to bring the highest economic efficiency. In fact, high-tech agricultural models do not require large farmland sizes. What need to be concerned is that land accumulation may cause LUR loss in a part of farmers, meaning that they are facing a very high risk of impoverishment.

The form of land accumulation is related to models that help increase the land area of households or of economic organizations that receive transfer of agricultural land use rights from individuals, economic organizations or related to capital contribution models by land use rights, which transfer LUR between farmers and enterprises.

#### Land concentration

Land concentration is defined as "gathering" several existing land plots into adjacent large-scale land plots, holdings, fields and parcels for agricultural production, industries and service, by way of leasing or production associating, business, capital contributing of land use rights in enterprises. In other words, land concentration is an adjustment and rearrangement of plots, which are often applied to form larger and more rational parcels. Land concentration in addition to facilitating changes in agricultural production practices may also aim at improving rural infrastructure and policies implementation to ensure environmental and agricultural sustainability.

In brief, following notice can be taken from abovemention: 1) Land concentration is the expansion of the land acreage due to gathering of multiple parcels of land without changing the ownership; 2) Land concentration needs credit support; 3) Land concentration is not simply the reallocation of plots to eliminate the effects of fragmentation but also attach to broader economic and social reforms.

### **3.2. Discussion**

The form of land concentration involves models that help increase the land area or create homogeneous cultivation processes without changing agricultural land use rights of individuals or economic organizations. Thus, land accumulation and concentration are different from the way of proceeding, property rights (hereinafter referred to as LUR) and some social impacts such as ways of maintaining income and employment of farmers after the process of land accumulation and concentration. Economically, the ultimate goal is hence to create a large area of land so that technology and machinery can be applied in agricultural production to achieve greater efficiency.

#### The inevitability of land accumulation and concentration

There are two perspectives in related to land accumulation and concentration in Vietnam at present: 1) Those who are capable of expanding agricultural production or

interested in investing in agriculture are urging the government to create conditions for promoting land accumulation and consolidation process. The opponents, on the contrary, are concerned of the farmers' livelihood impact of the process. Contribution by experts in this matter is however toward the positive side and indicate that this is an inevitable process for the following reasons: 1) After more than 30 years of renovation, Vietnam's economic structure has strongly shifted out of the state of an agricultural economy. The share of agriculture in GDP decreased from 38% (in 1986) to 16.32% (in 2016). During that period, the proportion of labor in agriculture also decreased from 72.9% to 41.9% of the total social labor. Even in rural areas, the main source of household income from agricultural production accounted for only 49% in 2016. Due to the small scale of agricultural production, the contribution of agriculture to the total income of the household is declining, leading to the significant decline of the land role as the most important means of production. To develop a large-scale and high-tech production agriculture, it is necessary to proceed land accumulation and concentration at an appropriate scale. Land fragment is still an existing issue with more than 10 million farmers owing about 70 million fields. Therefore, agricultural production is characterized by small-scale household production with limited connection in recent years, leading consequences such as: difficulties in mechanization and modernization in land preparation, care, harvest and processing; limiting access to capital, application of science and technology, management, application of advanced technology processes, quality management, food hygiene and safety. Under the natural impact and attraction of industrialization and modernization the economy and urbanization, farmers 'abandonment' has taken place since 2005 and become more popular in many provinces, especially in the Red River Delta and North Central provinces. This is an inevitable objective phenomenon, reflecting the positive trend of the process of reducing labor from agriculture and rural areas, creating favorable conditions for land accumulation and concentration land in order to develop commodity agriculture. In addition, land accumulation is considered as a premise for household economic development in the transition process from small, self-sufficient production to large-scale commodity production. This process is market-driven, through civil transactions (transfer of LUR, inheritance, donation, and LUR). A part of farmers' households those who has experience in production, efficient use of land, has income and capital for receiving LURs, expands land use scale (accumulating land); However, most of the farm households who lack capital to carry out land consolidation a, they have to choose other forms (through leasing or contributing capital with land use rights) once they wish to use land effectively.

Land concentration, on the other hand, is always considered as a fundamental tool or a starting point for rural development. The initial concept of rural development was almost identical to agricultural development due to the leading role of rural agriculture in the early development period. Large-scale and concentrated commodity production requires scientific and technological investment (seedlings; fertilizers; plant protection, veterinary medicine; cultivation and husbandry techniques; machinery and equipment processing; preserving agricultural products and consuming goods). Individual household production does not meet

this requirement, leading to the obvious need to cooperate in production and business under appropriate forms, such as production and business cooperation (from the production stage to product consumption); contributing capital to agricultural enterprises etc.. Currently, the concept of rural development has been broader, including raising environmental awareness and a range of non-agricultural applications. Land concentration will shift from a focus on agricultural restructuring to more efficient use of rural space through planning of infrastructure, residential clusters and agricultural production to balance benefits of agriculture, nature conservation, biodiversity, improve the quality of farmers' life and the appearance of rural areas.

Moreover, the potential benefits of land consolidation include the following:

Enhanced opportunities for mechanisation and concomitant increases in land productivity; Improved labour productivity arising from effective work organisation and supervision; Enhanced transport efficiency to and from residential places; Better utilisation of farm equipment and other fixed assets; Reduction in average costs of farm inputs and enhanced profitability of farm enterprises; and increased opportunities for public and private investments in agriculture-related infrastructure. Making farming more efficient, and hence more economically viable, can also create incentives to attract young people into farming and agribusiness. Furthermore, land consolidation a worthwhile complementary investment that can improve the efficiency of rural land use and help address the challenges of sustainable rural development (Ho and McPherson, 2010). Land consolidation also helps encourage farmers to undertake necessary sustainable land management practices.

In brief, land accumulation and concentration must gradually take place on a number of farmer households at greater extent to generate the highest profit from the land and make the most agricultural commodities. Many farmers will have to prepare for a new livelihood and no longer be farmers. This process is difficult and complicated for a country like Vietnam where the majority of the population still lives on agriculture and requires arable land for their livelihoods. It is however the law of objective mobilization of society and unavoidable.

### *3.2.1. Current situation of the process of land accumulation and concentration*

As regard of land concentration, in the past farm households owned 5 to 7 pieces of farming land in some places and even 10 to 12 pieces in some others which made it difficult in production in some aspects. Having support and assistance from local authorities and cooperatives, farm households have voluntarily exchanged land plots with each other (payment is made for plots differences in terms of location or fertility) to reduce the number of plots and increase the area of households' plots. The number of plots each household owns now is around 2 to 3.

Land concentration takes place on the periods of 2008-2010 and 2012-2014 and mainly for rice land in the Red River Delta, North Central and South-Central Coasts of Vietnam. Studies show that the average number of plots by agricultural household decreased from 4.72 plots in 2004 to 2.38 in 2014 which seems to reach the threshold (Nguyen, 2007).

## Land contribution to agricultural cooperatives

In many localities, households voluntarily create the association and form

agricultural cooperatives. While joining cooperatives, the households still maintain their ownership of LUR on their land. The cooperative provides services to households in soil preparation, irrigation, transplanting, pesticide spraying and harvesting. It also provides households with seedlings, fertilizers, and plant protection products at good quality and low price. However, the number of cooperatives having association with enterprises to invest in production, processing and consumption of agricultural products is limited. By the end of 2015, the whole country had 10,902 agricultural cooperatives, mainly in the Red River Delta (33.5%), the North Central Coast (19.7%), and the Northeast (16.9%), Mekong River Delta (11.2%) respectively (Vu, 2008). Although this form is being supported by many guidelines, policies and recent promulgation of the Cooperative Law in 2012, the development of cooperatives is limited, especially in governance capacity and access to credit.

Households who buy and transfer LUR of other households to expand production and become large-scale farm households

This form takes place in several southern provinces, especially in the Mekong Delta. The acquisition of land use rights helps the households feel secure to put in long-term investment. The model, however, faces several obstacles. First of all, the number of households interested in selling LUR is limited (especially in the Northern provinces); They sell their land only when the situation requires it, owing to the concerns of unstable jobs for their livelihoods when they leave the land, etc.. Land is traditionally considered an asset household wish to leave inheritance to their descendants. In many cases, the purchase of LUR is only confirmed by handwritten paper without solid legal basis. Another obstacle is that some households who have land area exceeding the limit of receiving land use right transfer will have to rely on others to name part of their land.

The form of leasing land for production expanding is becoming increasingly popular

This approach also helps increase the scale and bring the land to the hands of the most efficient users, and thereby help increase productivity, quality and efficiency of agricultural production. Farmers who lease their fields still retain their land use rights while avoiding land fallow and waste of social resources. In addition, the cost of renting agricultural land is much lower compared to cost of purchasing agricultural land. This model brings about both economic and social efficiency and high applicability and popularizability replication because of the relatively complete legal framework for this activity. However, in 2014 the percentage of households leasing agricultural land was very low, at only 10.5% and the percentage of leased agricultural land was below 5%; even the leased land is mostly limited to families and relatives. The greatest constraints is that tenants have to negotiate with multiple farm households to have a large enough scale farm due to the relatively fragmented typical holdings and often face the risk of contract breaking when the lessor reclaims the land. On the part of land lessors, opportunities for off-farm employment are still limited leading to to limitation of rental supplies. On the demand of the land lease contract, because

farmers' capital resource is limited, the cost of large-scale land lease is still relatively high while there is no mechanism for them to mortgage the leased land, create sources. capital for production and business.

#### Enterprises associate with households in production

In recent years, this form has rather developed. Households still cultivate on their land under the technical guidance by the enterprises; The enterprises invest in supplying seeds, fertilizers, pesticides and buying back products produced by households. Farming households follow advanced technical processes, hence, have higher productivity and have little concern about consuming products. However, this model also encounters obstacles, that is, the land of households participating in the association with enterprises is interspersed with the land of non-associated households, affecting the construction of transport and irrigation systems for improving fields as well as conditions to maintain product quality; In addition, some households sell their products when the price is higher than the initial agreement with the enterprises.

#### The form of enterprises purchasing and receiving transfer of land use right of households to expand production

This form has not been implemented in large scale because businesses often do not actively purchase agricultural land of households for large-scale production owing to the high price of agricultural land, making it difficult to generate attractive profits compared to the initial capital invested once focus on agricultural production solely. It is the matter not only in terms of price but also time consuming and complication in price negotiation with individual farmer to form a sufficient large piece of land. It is the reason for the model's unpopularity. What is the most crucial issue is creating new jobs and livelihoods for a large number of households who transfer agricultural land use rights to enterprises on a large scale.

#### The form of enterprise renting land from farmer households

Enterprises in need of operating large-scale agricultural production and trading without stable raw material areas will sign a land lease contract with farmers who have fallow land to make concentrated agricultural production areas. Enterprises are able to apply science - technology, mechanization and take leading role in the raw material areas to synchronously invest to ensure the quality requirements of agricultural goods. This model is similar to that of farmers leasing land from farmers in which the cost of this model is relatively low. The procedure for renting land is relatively simple. It is advantageous that farmers keep their land use right while having additional income. In some localities, many businesses have currently rented thousands of hectares of household land, public land of villages and communes for agricultural production, such as Vincom, TH \* True Milk, etc.,. However, the percentage of enterprises renting agricultural land is even lower than the level of farming households' renting agricultural land from other farmers. This is partly due to the relatively low percentage of enterprises investing in agriculture (accounting for less than 1% of the total number of businesses across the country). Enterprises renting land must complete contract procedures with multiple individuals with different conditions and requirements to

achieve a sufficient large area, causing costs and risks for enterprises. The investment cost is relatively high while enterprises are unable to mortgage the rental land. Moreover, there is no sufficient strong legal and policy framework for developing intermediary organizations, such as a public utility of the State that leases out land from farmers and then leases it to another enterprise.

The form of land contribution by farmers and converting land value into shares of enterprises

This form is somehow favored by farmers as they are able to keep their land use rights and increase their income from dividends on an annual basis according to the shares converted into the value of farmers' land use rights when the enterprise is profitable. When farmers are interested in participating in the production, they will be given priority. For their part, enterprises will have a sufficient large piece of land for professional investment as regards to science - technology and mechanization to improve production efficiency and reduce costs. In the whole country, there are only a few models that are piloting farmers' contributions of land use rights, such as rubber land contribution models in Son La and Lai Chau provinces; land contribution model of farmers in Van Son commune, Trieu Son district (Thanh Hoa province). However, this model has shown little effectiveness since it is unclear in contributing capital with LUR or LUR value. Farmers are concerned about losing their land use right when enterprises lose money (Examples are unsuccessful lessons of rubber companies receiving land contribution from households in Northwest provinces, affecting the lives of households as shareholders). Enterprises are unable to mortgage land use rights as well as capitalize land use rights value to get loans for investment in production. At the same time, enterprises also face risks in the management and operation of the company due to the number of farmers as shareholders. The applicability of this model is currently very low because it is difficult to have a comprehensive legal framework for capital contribution contracts of enterprises and the coordination of farmers and enterprises in management is very limited.

### *3.2.2. Outcomes related to land accumulation and concentration policies in Vietnam and other countries*

#### *Experiences in Vietnam*

The Mekong Delta (Mekong Delta) is considered an area with strong agricultural advantages. However, the growth rate in this area is decreasing gradually. Traditional production methods, farm size, small size, lack of linkages are believed to be the main causes. In order for agriculture to develop sustainably and farmers can get rich on their own gardens, their fields have no other way to reorganize production. In that accumulation, concentration of land becomes a very important content.

The efficiency brought about by land accumulation has been clearly demonstrated.

Farmers benefiting from the land lease policy have earned great profit from their land and become farmer billionaires in many part of Mekong Delta in mountainous districts of An Giang province such as: Tri Ton, Thoai Son, and location in Hau Giang province including Vi Thanh city, Hoa Tien commune (Thuý An, 2017).



In the Red River Delta, many firms have established big agricultural production farms thanks to the form of land transfer from farmer households to enterprises. For examples, a part of farmers finding it ineffective in separate agricultural production at small-scale voluntarily complete the land allocation to enterprises under the support and assistance by the local government (Do, 2016).

For example, in Ha Nam province, where farmers find that the initiative of farming is not as effective as focusing on businesses, local people voluntarily stand out and represent the land allocation to enterprises. The land use rights are actually still of farmers and can only be transferred to enterprises within a certain time limit. Farmers still have the opportunity to work on their own land when returning to work for businesses. In Nam Dinh and Thai Binh provinces, a number of businesses have boldly received land use rights through the transfer of the local farmers and have outstanding performance in agricultural production.

### *3.2.3. International experiences*

#### *In Ethiopia*

Smallholder agriculture accounts for 85 per cent of Ethiopia's total agricultural output (Fantu et al., 2015), and 60 per cent of farming households operate on less than one hectare of land (CSA, 2015). Due to the low availability of farming land per capita and use of rudimentary farming methods, smallholder agriculture has failed to meet these farmers subsistence needs (EEA, 2002). Many of these farms are split into numerous spatially dispersed parcels, exemplifying the phenomenon of land fragmentation in rural Ethiopia. Land fragmentation refers to a situation where... the cultivators' land is distributed among many parcels or fragments, often of very small size... (Daniel et al., 2015; Huang, 2011). Analysts distinguish between four types of land fragmentation - of land ownership, of land use, within a farm (internal fragmentation), and with separation of ownership and use. According to a study conducted in two widely differing farming communities in north-west Ethiopia, farmers may cultivate up to 14 scattered plots (Teshome, 2009). Nearly half of these plots were less than 0.2 hectares in area. Ethiopia's agricultural policy makers therefore face the task of organizing a socially inclusive and sustainable rural transformation. Reorganizing land holdings that are predominantly characterised by small and fragmented holdings is one important aspect of this transformation. With respect to land fragmentation and in direct reference to the benefits of land consolidation, the federal land law states that «in order to make small farm plots convenient for development, farmers are encouraged to voluntarily exchange farmlands (FDRE, 2005; 3141, Article 11.3). The regulation implementing the Amhara region's rural land administration and use system encourages consolidation through voluntary exchange of land between farming households (ANRS, 2007, 14, Article 10; ANRS, 2017, 32, Article 20). The regulation enacted in 2007 further states that the government must provide technical services and renew landholding certificates free of charge (ANRS, 2007, 14; Article 10.2). Consultations with experts and officials from state organizations, institutes and development agents and a survey of 395

farmers in the study by Girum et al. (2019) revealed that voluntary land consolidation can be a policy instrument to address the challenges of subsistence agriculture in Ethiopia. Farmers expressed their positive recognition of the potential of land consolidation. Among other things, land consolidation can lead to improved agricultural productivity and management of natural resources. It can also improve rural development and enhance land administration systems. For example, it is easier and less costly to monitor and document farming practices on consolidated holdings than on scattered plots.

#### Rwanda

Besides several positive practices of land accumulation and concentration's policy elsewhere as above-mentioned, study by Blarel et al. (1992) have found an opposite outcome of such consolidation programs in Rwanda. It indicated that consolidation programs are unlikely to lead to significant increases in land productivity and may actually make farmers worse off. Policymakers should focus instead on reducing the root causes of fragmentation: inefficiencies in land, labor, credit, and food markets.

#### Limitations

Despite many efforts of the government from the central to local levels, the process of land accumulation and concentration over time has been very slow, which is a major obstacle for modern agricultural development. In addition, the process of land accumulation and concentration also raises a number of issues as follows: Firstly, land accumulation and concentration cause loss of livelihood to a part of farmers. Land accumulation and concentration can be considered as a process in which land is concentrated in one hand and then out of the other. For whatever reason (voluntary or compulsive, rational or unreasonable, plausible or unwarranted), land accumulation and concentration are the cause of losing land to a part of the farmers, meaning that they lose their traditional livelihood. Livelihoods include the capabilities, assets and activities necessary to make a living: LUR is an important asset for rural livelihoods, especially for farmers living only on farming. The loss of land-based livelihoods affects not only income but also the psychology and spirit of the people and may lead to other social problems, etc.. Secondly, rural inequality in terms of both income and land happen. Land accumulation leads to rural division because the tendency of accumulation land to some people leads to an income imbalance. People with a lot of land find it easier in making a living and hence have a higher income compared to those with less land. This has caused negative thought and inferiority in a part of the farmers and consequently lead to social issues. Thirdly, it is worth to mention social issues posed in the process of land accumulation and concentration. As the land size gets bigger, a part of the labor force will have to withdraw from the agricultural sector. The problem is actually: Where are they going, what to do? And how do social issues arise? That is the problem that needs to be solved in parallel with the accumulation of land for large production. The negative effects of this process indicate that: agglomeration and concentration of land can become sociopolitical issues, and harmonizing the relationship between equity and

efficiency is a major challenge. Fourthly, land accumulation has not been closely associated with the reallocation of labor in rural and agricultural areas: farms with size under 3ha mostly use family labor or combine with hiring seasonal labor. They rent machines for land preparation and rent combined harvestors. Only a few big farms are equipped with ploughing machines and combine harvesters with regular labor and seasonal workers.

Experience from Ethiopia has also shown some limitation of the Government's policy promoting voluntary land consolidation which requires several conditions to be in place before a land consolidation project is initiated. First, stakeholders should be willing to participate actively in the decision-making process. Second, the process should be demand-driven and a project site must be identified where farmers and local authorities are interested in land consolidation. One important policy lesson that can be drawn from this is that, with adequate incentives in place, it is possible to promote land consolidation in a voluntary yet systematic manner. To achieve this, the different departments under the Ministry of Agriculture need to identify the pull factors that may attract farmers to land consolidation and respond accordingly.

#### Causes hindering the process of land accumulation and concentration

The causes derived from creating a driving force for land accumulation and concentration

- Narrow land, crowded population, rapid increase in agricultural population and weak ability to attract workers in industry and urban areas.

- The opportunity cost of land is relatively low. Small farmers with inadequate financial conditions, production and management skills, information and social relations are unable to accumulate their land. Besides, the agricultural sector is insufficiently attractive to private investors owing to unstable and low interest from agricultural production.

- Lack of planning for conversion of agricultural land use.

- Cooperative economy has not developed. Although this form is being supported by guidelines, policies and the promulgation of the Cooperative Law in 2012, the development capacity of cooperatives is limited, especially in management and accessibility to credits.

- Lack of effective policy to attract enterprises' investment in agriculture and rural areas. Enterprises with sufficient capital and technology with demands for agricultural production are not allowed to receive rice land or protective forest land transfer. Access to agricultural land of enterprises faces difficulties due to the public announcement and disclosure of land fund for agricultural development in unclear land use plans and plans. Conditions for enterprises to be allocated or leased land to implement large-scale projects in agriculture are still very difficult and complicated without provision in support of enterprises subleasing or receiving capital contribution by agricultural land use rights. The implementation of investment projects of large-scale agricultural production enterprises thus faces constraints.

#### Issues related to land policy

- Constraints on land area limit and land use time. For households and individuals having problems with the limit for receiving LURs transfer of annual crops and aquaculture land not exceeding 10 times of the land allocation limit (Article 130 of the 2013 Land Law). In the Southeast region, the Mekong Delta it does not exceed 30 hectares and no more than 20 hectares for each type of land for households and individuals in the remaining provinces. Households and individuals are not allowed to transfer rice land use rights, if not directly engaged in agricultural production or agricultural land in protection forests, strictly protected sections or ecological restoration forests of special-use forests if they do not live in a forest (Clauses 3 and 4, Article 191 of the 2013 Land Law). The conversion of rice land use is only implemented in the same commune, ward and town.

- The conversion of rice land use to aquaculture land still faces many difficulties. The treatment of fallow land is insufficiently strong, leading to the tendency of keeping the field as an "insurance", inefficient use of land and farming ceasing.

- The value of agricultural land use rights transfer is rather high with risky and low profit in agricultural production, insufficient strong mechanisms and policies to support the transfer, lease of land use rights causes the inefficient and quiet operation of agricultural land market.

The cause related to awareness and thought

- Having thought that agriculture is the only livelihood of farmers, many people still have the spirit of keeping agricultural land. In fact, many rural labor leaving agriculture mainly enters the informal labor market, which is potentially risky. This makes them more determined to keep agricultural land.

- Concerns about social division associated with land accumulation which has already happened.

- Several people assume that scattered plots might help reduce risks (eg. Food security in crisis), diversify production, use resources effectively, and increase the liquidity of the land.

### ***3.3. Recommendations***

Directions, views and groups of solutions to promote the efficiency of land accumulation and concentration in the future.

- Guarantee that the purpose of land accumulation and concentration is to develop large-scale commodity agriculture and hi-tech applications.

- Must consider the peculiarities of the formation of specialized agricultural production areas to promote the effective use of land after accumulation and concentration.

- The accumulation and concentration of land must be voluntary and mutually beneficial between the LUR authorizer, the unit that receives and uses the land after accumulation, concentration and the State.

- The process of land accumulation and concentration must be associated with the development of the land market and solving arising social problems, such as income inequality, land loss, poverty, unemployment ...

## Direction

- The selection of forms and solutions to promote agricultural land consolidation and concentration is based not only on the past and present practices, but also on the future vision and goals of Vietnam rural and agricultural development in particular and socioeconomic development in general in the next 10 - 15 years, taking into account the current rational cost reduction.

- Aiming at building a modern agriculture with a high level of commercialization, high international competitiveness, based on large scale and more concentrated production models such as: family farms and farms, Cooperatives, and unions of cooperatives in close association with enterprises. In this process, close attention should be paid to the shift of redundant agricultural labor to non-agricultural occupations either in the rural areas or joining the urban labor force.

## Solution groups

### *- Group of solutions related to promoting land accumulation and concentration*

Medium and long-term planning for development of agricultural regions and commodity agricultural products, especially high-quality agricultural goods. Planning on commodity agricultural development must be associated with bringing into play the comparative advantages of each region and each product; associated with promoting the development and healthyization of the domestic agricultural commodity market that effectively connecting with the international market.

Associate the process of land accumulation and concentration with the process of restructuring the economy and re-assigning labor in the locality. Thanks to this, it is guaranteed to create jobs for those redundant laborers who lack of production land. Therefore, the speed of restructuring the economy will directly affect the speed and scale of land accumulation and concentration. Due to the different characteristics of socioeconomic structure in each locality, the speed and scale of land concentration should also be taken into consideration to fit the characteristics of each locality.

Promote the economic development of farmer households in the direction of commodity production suitable to the conditions of each region, each field and according to the planning. Overcoming household farming practices mainly by hiring labor; implementing measures to improve capacity in production, trading, quality assurance, efficiency and competitiveness of farmers' households; promote the development of households specializing in producing high-quality goods and the development of modern farms.

Developing new cooperative models. Fundamentally renovate existing cooperative models as well as develop new types of cooperative models on the basis of ensuring the principle of "voluntariness, democracy, equality, mutual benefit"; proper recognition of households and cooperatives as two economic entities, cooperatives operate on the basis of their own efficiency, at the same time support the farmer households' economy to develop commodity production.

Attracting enterprises to invest in agriculture and rural areas, especially in intersectoral clusters in specialized agricultural areas, industrial zones / clusters, agricultural support services, green and safe agricultural parks providing goods and tourism services for urban areas, innovation centers, promoting entrepreneurship in rural areas. Provide a special incentive mechanism for enterprises that develop large-acre fields. Encourage farmers to buy shares in enterprises that have contracts with farmers in large fields or rent land from farmers' households.

Building agricultural land transaction support centers, performing the function of providing information, supporting valuation, contract design and resolving disputes in the process of land transactions between individuals and enterprises. This is the initial foundation to build the market of agricultural land use rights and promote property rights to agricultural land in the future.

Renovating and completing mechanisms and policies to promote research and application, science and technology transfer in agriculture, especially high technology in agriculture.

- Group of solutions related to completing land policies

Regarding the land allocation quota policy: The 2013 Land Law was officially applied from July 1, 2014, in which there were multiple new points regarding the encouragement of land accumulation and concentration, especially land allocation quota in receiving transfer of land use right. However, the policy of land allocation quota is currently still considered to be a "hindrance" to the process of land accumulation and concentration that needs to be removed.

In addition to the completion of the land allocation quota policy, the State should have a policy to ensure land accumulation for agricultural production purposes, such as the provisions on the quota for acquisition of agricultural land use rights for fallow land, revoking the decision to land grant, land leasing (if allocated and leased by the State), compulsory transfer of land use right (for purchased land); apply taxes on those people who accumulate land not for "direct cultivation" or unuse for agricultural production; reducing taxes and fees related to the transfer of agricultural land in the 2014 Law Amending Tax Law; regulations and strict supervision of the minimum area to avoid household splitting the plot through inheritance of agricultural land; To elaborate regulations on rented land of 10 years or more, individuals and economic organizations are allowed to mortgage with the leased value to get loans for agricultural production; develop mechanisms to allow flexible transformation and decentralize the local authorities to expertise plans of conversion of land use purpose between rice land, annual crop land, perennial crop land, land for animal husbandry and farming aquaculture according to planning and environmental conditions; securing property rights on land of investors in agriculture and rural areas.

- Group of support solutions

Well implement policies and solutions of withdrawing labor out of agriculture sector while supporting livelihood changes, such as supporting investment in agriculture and rural

areas; strengthen linkages in agriculture; rural labor export; training and vocational training for rural workers.

Facilitate the capitalization of land, assets and develop social insurance for farmers who leave agriculture to participate in the non-agricultural sector in rural and urban areas.

Synchronously addressing social issues through agricultural insurance; multi-dimensional poverty reduction; social insurance policies for rural workers; policies to protect rights and assist the poor

Promote the development of non-agricultural activities in rural areas and enhance rural industrialization.

- Communication solutions

Continue to promote propaganda, encourage farmer households to perform the rights of leasing, capital contribution, land use rights transfer to manage land use effectively, bringing greater benefits to land users, and at the same time, create a large land area for investment in agricultural development towards commodity production.

#### **4. Discussion and Conclusion**

Vietnam is one of the countries with the lowest land per capita in the world with over 11 million individual farmer households owning over 76 million small and scattered plots. Fragmentation of plots is a great challenge for the process of building large model wings, high-tech, high-value-added production areas. With increasing population pressure and a scarcity of land, promoting agricultural productivity is seen as an effective way to ensure Vietnam's long-term food production. The paper has explored a number of solution groups for land accumulation and concentration regarding the completion of land policy, particularly issues in land allocation quota, the provisions on the quota for acquisition of agricultural land use rights for fallow land, revoking the decision to land grant, land leasing, applying taxes on those people who accumulate land not for “direct cultivation” or unuse for agricultural production; reducing taxes and fees related to the transfer of agricultural land in the 2014 Law Amending Tax Law; allowing individuals and economic organizations to mortgage with the leased value to get loans for agricultural production inheritance of agricultural land, developing mechanisms to allow flexible transformation and decentralize the local authorities to expertise plans of conversion of land use purpose between rice land, annual crop land, perennial crop land, land for animal husbandry and farming aquaculture according to planning and environmental conditions; securing property rights on land of investors in agriculture and rural areas, and other supporting solutions such as promoting propaganda, encouraging farmer households to perform the rights of leasing, capital contribution, land use rights transfer to manage land use effectively, bringing greater benefits to land users, and at the same time, create a large land area for investment in agricultural development towards commodity production.

## 5. References

1. Blarel Benoid, Peter Hazell, Frank Place, John Quiggin (1992), 'The economics of farm fragmentation: evidence from Ghana and Rwanda', *The World Bank Economic Review*, 6(2), 233-254.
2. Communist Party of Vietnam (2016), *Documents of the 12th Party Congress*, Party Central Office, Hanoi.
3. CSA (Central Statistical Agency) (2015), *Agricultural Sample Survey 2014/2015: Report on Land Utilization*, CSA, Addis Ababa, Ethiopia.
4. Daniel A., Deininger, K., and Loraine R. (2015), 'Costs and benefits of land fragmentation: evidence from Rwanda', *Policy Research Working Paper 7290*, Washington DC: World Bank Group, Development Research Group, Agriculture and Rural Development Team.
6. Do Huong (2016), *Studying land accumulation models in agriculture*, retrieved on September 17th 2019, from <<http://baochinhphu.vn/Kinh-te/Nghien-cuu-cac-mo-hinh-tich-tu-ruong-dat-trong-nong-nghiep/286846.vgp>>.
7. Do Kim Chung (2018), 'Land accumulation and concentration: Theoretical and practical basis for the development of commodity agriculture in Vietnam', *Vietnam Journal of Agricultural Science*, 16(4), 412-424.
8. Ethiopian Economic Association - EEA (2002), *A Research Report on Land Tenure and Agricultural Development in Ethiopia*, Addis Ababa, Ethiopia: Ethiopian Economics Association.
9. Fantu N., Guush B., Minten, B. and Alemayehu S. (2015), 'Agricultural growth in Ethiopia (2004-2014): Evidence and drivers', *Working Paper 81*, IFPRI. Girmu Getachew Alemu, Ezana Amdework Atsbeha, Larissa Stiem-Bhatia Jes Weigelt (2019), 'Opportunities for voluntary land consolidation in Ethiopia: Farmers' perspectives', *TMG working paper*, TMG.
10. Ho, D. and McPherson, M. (2010), 'Policy for socioeconomic development in Vietnam', Full-bright Economics Teaching Program and Ash Center for Democratic Governance and Innovation, John F. Kennedy School, Harvard University.
11. Huang, Q., Manchun, L., Zhenjie, C. and Feixue, L. (2011), 'Land consolidation: An approach for sustainable development in rural China', *AMBIO*, 40, 93-95.
12. Kim Van Chinh (2012), 'Concentrated accumulation and efficient use of agricultural land in Vietnam', Master Thesis, Environmental Science.
13. Nguyen Quang Thuan (2017), 'Land accumulation and concentration for agricultural development in Vietnam in new conditions', *Journal of Sociology*, 4(140), 3-14.
14. Prosterman, R., Hanstad, T. and Ping, L. (1998), 'Large-scale farming in China: An appropriate policy', *Journal of Contemporary Asia*, 28(1).



15. Thuy An (2017), *Mekong Delta: Land accumulation seen from reality*, retrieved on August 20th 2019, from <<http://www.baohaugiang.com.vn/nong-nghiep-nong-thon/dongbang-song-cuu-long-tich-tu-ruong-dat-nhin-tu-thuc-te-55518.html>>.
16. Vietnam Development report (2016), *Transforming Vietnamese Agriculture: Gaining more from less*, World Bank Group, Hong Duc Publishing House.
17. Vu Trong Khai (2008), 'Policies for rural areas are still slow and weak', *Journal of New Rural*, 227.

# APPLYING THE COMMUNITARIANISM IN THE ORIENTATON OF SUSTAINABLE DEVELOPMENT IN THE ENVIRONMENT IN VIETNAM TODAY

*Dr. Nguyen Hong Son*

*sonnh@neu.edu.vn*

*Dr. Nguyen Thi Bich Thuy*

*thuyobb@neu.edu.vn*

*MA.Nguyen Thi Mai Lan*

*mailan78neu@gmail.com*

*Faculty of Political Theory, National Economics University, Hanoi, Vietnam*

## **Abstract**

*In recent decades, "sustainable development" has become a fashionable key phrase in mass media and academic research. In broad terms, sustainable development can be applied at different levels: international, regional, national, regional, human communities, families as well as individuals. Vietnam is also not out of this trend, in which applies Vietnamese communityism to solve a range of cultural and development issues. Vietnamese communityism is one of the core values of Vietnamese traditional political culture, conceived and developed in the history of national construction, defense and the openness of the Vietnamese nation. Today, in the context of globalization and international integration, it is necessary to fully realize and promote Vietnamese communityism in order to arouse social forces and social capital, in order to best deal with the situation. between the individual, the community and the entire nation; between national and international; between history, present and future; between survival and development.*

**Keywords:** *Communitarianism, sustainable development, Vietnam.*

## **1. Introduction**

According to the Organization for Economic Co-operation and Development (OECD), sustainable development is the development that meets the needs of their own in the present without harming future generations. In other words, sustainable development is a form of development with a vision for generations, guaranteed security, a comprehensive and balanced development between economy, society and culture, and getting children. People and quality of life is the center, which is the starting point, and also the final destination.

Over the past few decades, global and regional environments have tended to change complexly. Air quality, water resources, other natural resources, ecosystems, many places are at alarming levels. Environmental pollution and pressure on nature happen daily in countries, regions and at the global. Recognizing that, in recent years, especially in recent years, the Communist Party and the Government focused its interest in taking various

measures to protect the environment. One of the important tools in protecting the environment why not apply the Vietnamese Communityism itself to create the cohesion of individuals into the community, creating a great force that would be much more powerful, in comparison with that of each individual, in order to solve a series of issues to carry out that community governance, the most important is to solve the relationship between the community and the individual.

## **2. Method**

The authors based on the philosophical methodology for cognitive and practical activities, which plays a guiding role in the process of exploring, selecting and applying the method in researching the role of social community with environmental protection towards sustainable development in Vietnam today. As the most common theoretical knowledge system of human about the world, the position and the role of human in that world, philosophy plays the role of the theoretical core of the world view. Philosophy plays a guiding role in the process of strengthening and developing the worldview of each individual and every community in history.

At the same time, using Marxist - Leninist philosophy, as the most common human knowledge system about the world and the role of man in that world, performs the most common methodological function. The methodology of Marxist - Leninist philosophy has contributed significantly to directing and orienting people in awareness and practical activities in environmental protection.

## **3. Results**

*Firstly*, the concept and content of Vietnamese Communitarianism. Communitarianism is a concept that appeared in the late twentieth century, derived from the word "community". Communityitarianism was born due to the need to oppose extreme individualism; at the same time support a civilized society. The focus of communityism's attention is shifting attention from individuals to the community and society.

Vietnamese Communitarianism not only addresses that problem, but also deals with other fundamental relationships. It is to associate the existence of separate communities within the national ethnic community, to place small communities within the existence of national communities. The national community of Vietnamese people exists in a common sense of ethnic origin, a very special geopolitical, geo-economic and geo-cultural position; is at the crossroads of civilizations, next to a giant empire with Han Chineseism. So in Vietnamese communityism, in addition to reflecting the popular connotations, must also reflect the way that Vietnamese people overcome territorial annexation, national and cultural assimilation, protection and development of their own identities. It is not only the mode of existence, but also governs the choice of behavior of each individual, forming a trend of action of individuals and the whole of Vietnamese society in the development process.

Vietnamese communityism is a total of values, ideas, philosophy, conduct standards, promoting the community, for the community, in order to consolidate the Vietnamese people

into a collective power, strong enough to solve the problems posed in social life, creating synergy to hold the country, build the country, open the country and develop; To mold, share and preserve common cultural values as the basis for the existence and development of each individual and the entire nation.

Therefore, the mention of Vietnamese communityism is mentioned and should consider the following main contents:

- Community awareness about the root, community origin, ethnic origin;
- Community cohesion and ethnic cohesion;
- Method of community consolidation, ethnic cohesion (house - village - the state);
- Optimal handling of the relationship between the national ethnic community and its community communities; between community and individuals;
- Handling relationships between the national community and the international community.

The sense of community and solidarity is a value and traditions of the Vietnamese nation. This tradition has deep roots from the mode of survival and mode of development. Over thousands of years of building and defending the country, the spirit of community and tradition of solidarity, this has been forged, becoming one of the core cultural values and a valuable tradition - a the most important pedestal of patriotism - the basis and source of vitality and internal development power of the Vietnamese nation.

*Secondly*, applying the method of community consolidation (House - Village - the state) in solving current environmental problems.

House-village- the state are three social entities with three different levels of socio-economic space but are closely related. The unity between the house - the village - the country has created a great power to bring Vietnam through many ups and downs, standing firm after many invasions of strong enemies such as the Northern feudal dynasties. to the French colonialists and the American empire .

In Vietnam, the house-village-the state relationship is a unique relationship, playing a pivotal role in Vietnamese culture in general, and Vietnam's political culture in particular. Above all else, houses - villages - water are the places where the most interference between what is considered "non-political" and the "political", between the state and community self-governance. Traditional Vietnamese communityism addresses all community issues in a house-village-water relationship. There exists a relationship that is both united, intertwined, and contradictory at the same time. Include five problems: (1) *the marine environment is increasingly polluted*; (2) *deforestation causes climate change*; (3) *water sources are scarce*; (4) *biodiversity and land use*; (5) *hazardous waste management*.

*The first*, the marine environment is increasingly polluted. The marine environment in the world in general and Vietnam in particular is a place to accumulate rich natural resources, including biodiversity (ecosystems, species composition, genetic resources) is one of the Foundation for human life. However, pollution of the marine environment is

increasingly serious. Therefore, preserving the sea and island environment is the responsibility of not only individuals but the whole community.

According to United Nations estimates, each year people release about 300 million tons of plastic waste, of which 80 million tons goes to the oceans; 80% of global ocean plastic waste has its origin on land. It is estimated that up to 1250 tons of plastic waste will pollute the ocean. Currently, disposable plastic waste, plastic bags discharged into the environment is a major cause of pollution of the marine environment - islands near and shore.

Environmental pollution due to garbage and plastic waste not only deprives the inherent beauty of the landscape on the shore and the coastal landscape, but also causes negative impacts on the depletion of soil minerals and devastation. coastal and island natural ecosystems; impoverishing coastal species, coral reefs and sea grasses, and affecting the health of coastal residents, including tourists. One-time plastic waste spreads to coastal areas and into the sea, leading to fish, shrimp eat up the waste and then humans eat the seafood. That leads to the risk of people suffering from digestive, respiratory, even cancer diseases.

It is estimated that each household in Vietnam in general and in coastal areas in particular uses about 1kg of plastic bags every month, especially in big cities like Hanoi and Ho Chi Minh City. Sources of plastic waste in coastal areas and oceans mainly come from the mainland to the sea by estuaries. In addition, plastic debris from the currents, from plastic food packaging that tourists and communities living in coastal areas throw away also drift to the sea.

In addition, plastic waste, including discarded fishing net fragments on mangrove trees, has long been a serious impact on the health of forest plants and animals living in mangroves. coastal landscape, affecting coral reefs and sea grass beds. The harmful effects of environmental pollution on the mainland as well as in Vietnam's waters are becoming more and more serious, especially the dangers of plastic waste on the environment and public health, so it is necessary to respond. positive community in preventing waste in general and plastic waste in particular.

Therefore, it is necessary to take measures to raise the awareness of each citizen to the village community through state policies such as: proactive response, strengthening propaganda and advocacy to implement Party policies, strategies and national action plans of the Government, the Ministry of Natural Resources and Environment on combating disposable plastic waste and plastic bags. Propaganda to raise the sense of responsibility of the community in 28 coastal provinces and cities. Arouse the pride of not only beautiful and poetic landscapes of each coastal village but also natural resources, marine biodiversity resources, serving as a foundation to promote the strength of the whole people living and living on the coast, including tourists.

It is necessary to connect with the artificial intelligence ecosystem of the Fourth Industrial Revolution to focus on economic development, intelligent exploitation and utilization of marine resources, protection of green, clean shores. garbage, disposable plastic waste. Promoting the responsible role of local village communities, political and social

organizations in raising awareness of keeping the marine environment clean, especially coastal communities. The fact that no one can keep the sea and coast clean is equal to the communities living and earning careers in the coastal area because they are the direct beneficiaries or indirectly from marine ecosystem services.

The community of houses - villages - water together to preserve the green - clean - beautiful Vietnam islands is the way to save the existence and sustainable development of marine ecosystems, conserve biodiversity and serve the health and prosperity of both coastal communities and the land-based community.

*The second*, deforestation causes climate change. Today natural disasters flood, drought is increasingly heavy, worthy of warning, and the underlying reason is due to the part of forest exploited in a bluff. Deforestation is almost universal, and green tree organizations around the world have warned a great deal about the destruction of green ecosystems that will affect the global climate. Development life, demand for staple food and food increased, leading to people having to destroy many forest areas for cultivation. Social development, urban areas, big cities sprouting up made forests replaced by high-rise buildings. Mining of minerals, oil and other resources also leads to deforestation.

With deforestation many animal species are at risk of extinction. Soil erosion, significant climate change and in some natural disasters such as landslides and flash floods can be caused by, directly or indirectly, deforestation.

In Vietnam, the community-to-village community forest management policy is becoming one of the popular forest management practices in Vietnam and exists in parallel with other management methods such as forest management. Of the state forestry business and production system, private forest management. In practice, there are many different, diverse and plentiful forms of expression of this forest management method, which further affirms the role of community forest management such as: community-recognized forests and forest land. long-standing reason; forests and forest land used for forestry purposes, which are assigned by the local authorities to communities for long-term stable management and use; forests and forest land used for forestry purposes by state organizations (forestry farms, special-use and protection forest management boards, project management boards) contracting to communities to protect and clear forests and new planting under forest contracting; forests and forest land of households and individuals that are members of a community unite themselves into community groups (household groups) that manage together to create the strength to protect, support and exchange labor for each other in forestry activities.

Up to now, Vietnam had a basic legal and policy framework for community forestry development, which is reflected in two major laws (Land Law 2003 and Law on Forest Protection and Development (BV & PTR) 2004) . This legal and policy framework represents the basic points such as forest owners as forest communities, forest users with full or incomplete legal status, depending on the conditions of each community and forest object. Delivered or contracted. Communities are assigned land, forests, and long-term forest

contracts when they meet the current laws and policies. Communities enjoy their rights and perform their obligations when participating in forest management in accordance with the law. In recent years, many programs, projects and projects on community forest management of the Government and international organizations have been implemented in many places, bringing many results. Many community forest management activities have been carried out throughout the country. Lessons learned from practice indicate that there are good examples of community forest management by community conventions, obligations and fair rights for community members, and community members. About the forest by its inherent self-awareness, by the rigor of the community and by faith or spirituality.

The question now is that it is necessary to establish the legal position of the community when participating in forest management as a forest owner with the same rights and obligations as other forest owners prescribed in the laws; A long-standing community recognition and institutionalization of forests; The policy aspects allow the expansion of forest objects allocated to communities for management such as protection forests and buffer zones of special-use forests. Forest management plans need to be fully institutionalized in terms of technical content, procedures and mandates for the forest management community. The community forest management plan is the basis for the state management agency in charge of forestry to be managed by the community. As for natural forests, the forest management plan is recognized as a community forest management plan based on the business community of natural forests in accordance with the current law on natural forest management. The issue of forest benefit in community forest management has become a hot issue in the workshop and it also requires breakthroughs in awareness, development of policy and management mechanisms.

There is a need to establish mechanisms for cooperation and partnership between internal and external organizations in forest management. In order to establish the legal status and legal status of the community in community forest management, the formation of community representative economic entities to have enough legal entities to manage community forests and new issues need to be encouraged. Rescue, pilot. Using a part of the forest for common purposes of the community such as providing timber for houses, keeping water sources, meeting spiritual needs, etc. must be seen as a form of community benefit that needs to be clearly institutionalized. The use of forests for the common purpose of the community is essential in the present and future context when the household economy, farm economy, commodity production development may be risks that affect the management of forests. Management, use and enjoyment of common property of the whole community as it appear in many places.

*The third*, water sources are scarce. Currently on earth, water accounts for about 70% of the surface, but only about 2% of water is suitable for consumption, is considered pure water. Water is considered to be one of the most used resources in the world. The problem mentioned is that the amount of clean water reaching everyone in the world is uneven. Many areas still depend on rainfall reserves, but if the climate changes; the water supply from nature is extremely scarce, leading to scarcity of water for living. However, there are places where natural disasters and flash floods destroy natural and artificial ecosystems in the area.

In recent years, Vietnam is also facing these challenges. Extreme weather events such as floods, droughts and saline intrusion occur more and more frequently, leading to water pollution, degradation of forest area, quality of forests and ecosystems. Ensuring the supply and sustainable management of water resources and hygienic conditions for everyone, the State aims to increase the efficiency of water use in all fields, ensuring water supply. Sustainable cleanliness to address water scarcity, significantly reducing the number of people facing water scarcity. Ensure that the exploitation of water does not exceed the limit of exploitation for the river, not exceeding the exploitable reserve for the aquifers. Accordingly, the focus is on issues such as increasing water use efficiency across all sectors and ensuring sustainable exploitation and supply of fresh water to address water scarcity and significantly reduce the number of people affected. Water scarcity. Improving water quality by reducing pollution and minimizing the release and discharge of dangerous chemicals and materials into water sources; reduce the proportion of untreated sewage and significantly increase the recycling and reuse of safe water.

In addition, carry out integrated management of water resources at all levels, including through cross-border cooperation; carry out protection and restoration of water-related ecosystems including mountains, forests, marshes, rivers, aquifers and lakes. In addition, expanding international cooperation and supporting capacity building for developing countries on water and sanitation related activities, including: water collection, desalination, and wastewater treatment, recycle and apply water reuse technology. Support and increase the participation of local communities in improving water management and sanitation.

In addition, strengthening the propagation and dissemination of laws and measures to effectively save water to all levels, sectors, individual organizations and village communities. Join hands to protect water's natural resources:

- Reducing climate change: Supporting the development of renewable energy: solar power, wind, rain, tides, waves, using public transport, minimizing plastic use, participating in planting trees...

- Save water in daily activities: check for leaks in pipes, faucets, toilets, washing machines, use just enough water for daily activities: reuse water like using water to wash rice to water the plants, while washing clothes, clothes conditioner can finally be reused to clean the house, planting drought-resistant crops also helps to save water, water the trees in the early morning of the day, avoid watering when it is windy, give children the habit of saving water.

- Save water in public places such as offices, supermarkets, parks by maintaining general hygiene, protecting common facilities, and disposing of garbage in prescribed places.

*The fourth*, biodiversity and land use. Biodiversity means the diversity of life that exists in any given area. Today with a growing population and increasing demand for basic needs, biodiversity is at stake in many regions of the world. The high demand for clothing, food and shelter has led to a misleading pattern of land use.



Arable land for agriculture is dwindling now, plus many regions are short of cultivated water, or saline water cannot be cultivated. Much arable land can lead to water shortages and water intrusion. Saltwater intrusion. This also leads to other problems like overfishing. They may be able to grow food or cereals or even plants, but the effects of that change have long-lasting and damaging effects on the environment, making environmental problems more serious.

The Government of Vietnam has taken many actions to promote the conservation of nature and biodiversity. Specifically, Vietnam is a member of many international conventions and commitments on biodiversity conservation such as the Convention on Biological Diversity (CBD) and the Convention on Wetlands of International Importance (RAMSAR), Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Along with that, the system of domestic policies and laws on nature conservation and biodiversity is also on more perfect. Vietnam has enacted and implemented very important laws to conserve nature and biodiversity such as the Law on Biodiversity, the Law on Forest Protection and Development, the Fisheries Law, the Tourism Law, and the National Strategy. Biodiversity to 2020, vision to 2030 and many guiding documents.

In the community, launch village biodiversity conservation movements for rational and economical use of natural resources. Implementing green consumption, environmentally friendly and a healthy diet; not to trade, use endangered, precious and rare fauna and flora species, and prioritize protection. Implement models of biodiversity conservation and sustainable use associated with hunger eradication, poverty reduction and new rural construction. Carry out activities of rearing, planting, and sustainably exploiting species, plant varieties and domestic animals, especially in agriculture, forestry, pharmaceuticals and processing industries. Planning protection and special-use forest areas subject to strict biodiversity conservation...

Actively manage effectively sustainably priority areas for conservation; strengthen financing to conserve biodiversity; preserving and protecting the living environment in the province, especially preserving and promoting genetic resources of rare agricultural and medicinal materials, creating many agricultural products and traditional medicine for the health of community. At the same time, developing tourism activities, ensuring the use of land and natural

*The fifth*, hazardous waste management. Hazardous waste management is closely linked to the rapid population growth worldwide and its consumption, waste, and management rates have become a major problem around the world. The waste disposal is generated in many forms, which can be broadly classified in two forms. Some waste is biodegradable and some are not.

The problem of losing root in our way of life is fast and callous movement in thought and action. This problem is more evident around urban areas of the world. The quick fix solutions of landfills and recycling centers are not proven. In fact, filling landfills, especially in developed economies around the world, is causing more serious health and environmental problems in the region.

With the role of the State, it is managing waste, including hazardous waste, by implementing well the supervision of the implementation of the process of collection, transportation and disposal of hazardous waste. Residents and communities participate in the monitoring process, promptly report to the authorities on violations through images; call the hotline for timely handling measures. Contributing to reducing the pressure on state management agencies and local governments should promote the role of the community in supervision and law enforcement. Vietnam has mechanisms in place to encourage producers to change technology so that in the first place, minimizing hazardous waste will greatly reduce the management and treatment processes.

In addition, the enhancement of the capacity and the role of local environmental officials are also needed to increase the efficiency of the industrial waste treatment monitoring process. Before licensing waste treatment technologies, in addition to meeting current requirements and laws, environmental management agencies also invite experts to appraise technology before granting licenses.

*Thirdly*, for effective environmental protection, the community plays an extremely important role, because the power of the community will be multiplied many times by mutual agreement and agreement. The participation of the community is the participation of collectives and many people, so its sphere of influence is very large. To broadly mobilize communities in protecting the environment, we must identify four basic principles:

The first principle, increasing the power of the community, in particular the regulatory agencies encourage, create favorable conditions and empower the community with autonomy in specific areas or activities, such as strengthening control and outreach of the community in solving some environmental problems. Increasing power will help build community resources and capacity to effectively manage and address their local environmental problems in the most sustainable way.

The second principle is to create equity, that is, to create equality between individuals and organizations with respect to the opportunities offered in building environmental protection models. Everyone has the same right to receive information and the right to benefit from the implementation of environmental protection models.

The third principle is to promote indigenous knowledge, because traditional knowledge, indigenous knowledge has certain values in building environmental protection models. This is because the knowledge of people in a certain area is often drawn from experiences from many generations, suitable to the ecological, cultural and social characteristics of that place, so it is easy to be acquired by people. People understand and apply it in daily life.

The fourth is the principle of ecological rationality and sustainable development. Activities taken must take into account the tolerance thresholds of resources and ecosystems. Sustainable development requires consideration and study of the state and nature of the natural environment in economic development without harming the interests of the future.

Movements launched by mass organizations such as waste collection and treatment, forestation and forest protection, clean water and rural environmental sanitation, trade

village environment sanitation, etc., have been obtained. Some initial results but the effectiveness of the duality is low because it is not regular, continuous and even. There is no coordination and integration between the environmental protection movement and other movements, not closely associated with mass organizations together. That is not to mention the majority of movements that do not have specific criteria for commenting and grading, without checking and evaluation.

In order for community participation to be more active in environmental protection, we must first build a core force among the public, which is crucial to success or failure. Communities cannot be general but must have people and be organized by specific people. A community can be a village, a village, in which the head is an elder of a village; the head of a village is given the responsibility to mobilize the mass. This head will mobilize more core force of young people, women, and veterans to set up a task force to call for the participation of numerous people. Next, it is necessary to help communities identify problems, prioritize and set criteria for their local environmental protection models. See where your local environmental issues are emerging, pressing, damaging to the lives of people, then focus on solving. For example, if a commune has a weaving business, then the pollution will mainly be noise, it is necessary to focus on addressing this situation. In other places where there is an industrial scale animal husbandry, the problem of livestock waste will be the main pollution.

In order to protect the environment effectively, it is necessary to choose the organizational model. Whether the model is a team or a cooperative, if need to contribute money, the capacity to contribute, or possibility of sponsor or not? After having an organizational model, an action plan must be developed, documents must be drafted and "legal" and operational regulations of the model. It may be "Convention", "Commitment" or "Regulation". In this document, it is required to specify in full and in detail the form of organization of the model, operational contents, financial and human resource assurance, management forms, financial regimes and regimes of responsibility of the involved parties. Mandate, form of commendation, handling of violations, enforcement effect, etc.

After having already organized, it is necessary to mobilize resources, ensure financial resources for the operation model. The financial source may come from the people's contribution, the appropriate level of contribution must be determined, if the community is overbearing, the model will fail. The contribution may take the form of fees and charges per capita. In addition, it is advisable to mobilize external resources, which can be funded by international organizations, support from the state and enterprises. After the organization is established and the necessary conditions on personnel, equipment, finance, etc. must be conducted, there must be periodic evaluation to draw experience, so that it can improve the prestige. In the people and ensure the sustainability of the model.

As such, enhancing the role of community in environmental protection and sustainable development is really necessary. Protecting the environment is not only a matter of government agencies, but we all had to be responsible for our own lives.

#### 4. Discussion and Conclusion

The authors would like to raise some issues in the article hoping to receive the ideas of the conference

##### *What is the key force among the masses to protect the environment?*

This is the decisive factor for the success or failure of the implementation of sustainable environmental protection.

For the participation of the community more and more active in the protection of the environment, we must first build a core force among the masses, which is crucial to success or failure. Communities cannot be general but must have people and be organized by specific people. A community may be a village, a hamlet, in which the head of a village patriarch, the head of a village, a head of a village or a village head is given the responsibility to mobilize the masses. This head will mobilize more core force of young people, women, veterans ... to set up a task force to call for the participation of numerous people.

##### *Communities need to identify problems, prioritize and set criteria for appropriate environmental protection models.*

Need to help communities identify problems, prioritize and set criteria for their local environmental protection model. See where your local environmental issues are emerging, pressing, damaging to the lives of people, focus on solving. For example, if a commune has a weaving business, then the pollution will mainly be noise, it is necessary to focus on addressing this situation. In other areas where there is an industrial scale animal husbandry, the problem of livestock waste will be the main pollution ...

#### 5. References

1. Bell, Daniel 2004, "[Communitarianism](#)", Stanford Encyclopedia of Philosophy.
2. Government of Socialist Republic of Vietnam (2017), *A strategic plan 2017-2021 between the Vietnamese government and the United Nations in Vietnam*. Source: [baochinhphu.vn](http://baochinhphu.vn)
3. Ministry of Planning and Investment (2018), *Vietnam actively implements sustainable development goals, the people's newspaper*, source: [www.nhandan.com.vn](http://www.nhandan.com.vn)
4. Socialist Republic of Vietnam (2017), *the national action plan to implement the 2030 Program on sustainable development in Vietnam*, source: [www.un.org.vn](http://www.un.org.vn)
5. UNDP Viet Nam (2015) "*What is the goal of sustainable development*"? Source: <https://vietnam.opendevelopmentmekong.net>
6. United Nations (2015) "*Changing our world: 2030 Program for Sustainable Development*". Source: <https://js.vnu.edu.vn>
7. Vietnam Socialism (2012), *Vietnam Sustainable Development Strategy for the period 2011-2020*, source: <https://m.vov.vn>

# EMPIRICAL RESEARCH ON THE ROLE OF LAND USE RIGHTS ON THE TOTAL FACTOR PRODUCTIVITY IN AGRICULTURE IN VIETNAM

*Kieu Nguyet Kim*

*kimkn@hvnh.edu.vn*

*Banking Academy, Hanoi, Vietnam*

*Nguyen Thi Minh*

*minhkthn@gmail.com*

*National Economics University, Hanoi, Vietnam*

## **Abstract**

*Land use rights play an important role in agricultural productivity because they have some certain effects on farmers' decisions and therefore they also affects productivity. This research focuses on analyzing the impact of agricultural land use rights on the total factor productivity of farm households by using fixed effect and quantile regression. The results show that, in both models, households with the land use right certificates (LURCs) had higher total factor productivity than others. In addition, other factors such as growing area, weather, ethnic group, householder's qualification, average income and local governance policies also have a significant impact on productivity. In this article, the author has suggested some recommendations to improve the farm productivity of farm households.*

**Key words:** *fixed effect, quantile regression, total factor productivity, farm households in Vietnam.*

## **1. Introduction**

Agriculture plays an important role in economic development, especially in the developing countries in all the regions. In addition to ensuring food and nutrition security, this sector provides a major source of employment and develops rural economies. In the developing economies, agriculture also makes some significant contributions to income through exporting agricultural products. After the 2008-09 world food price crisis, agriculture has regained its importance in the political and policy-planning priorities lists of countries in the world.

During the past few decades, Vietnam's agriculture has played an important role in poverty reduction and social stability (World Bank, 2016). Agricultural output increased by 5.3% per annum between 1990 and 2008. After a period of strong growth in the 1986-1990 period, Vietnam's rice output increased from 10 million tons to 34 million tons from 1980 to 2004 (Kompas et al., 2012). The value of agricultural outputs increased from VND 62 trillion in 1990 to VND 156 trillion in 2008, excluding inflation effect. Vietnam's agricultural growth comes from the Agricultural Total Factor Productivity (TFP) and the growth of

agricultural inputs such as labor, tractors, land and animal traction. Changes in land and market management mechanisms have made Vietnam's agriculture to flourish during 20 years of innovation. Markets and individuals are active in making decisions about agricultural activities (Kompas et al., 2009).

However, in spite of remarkable achievements after reforms in the late 1980s and early 1990s, Vietnam's agriculture made some contributions which were not proportional to its size. In the current period of industrialization and urbanization in Vietnam, the role of agriculture has become even less important. Low income and fallow land are a major problem in the rural areas of Vietnam. Industrialization moves agricultural resources such as labor and land to the industrial sector, and less resources are left for agricultural production. The share of agriculture in GDP decreased from 40.5% in 1990 to 16.3% in 2016 (GSO, 2016). Moreover, agricultural productivity is still lower than that of industrial sector and service sector. In 2016, the average labor productivity of the agricultural sector was 32.9 million VND/employee while that of the industrial sector, construction and service sector reached 112 million VND/employee and 103.5 million VND/employee, respectively (Mai and Yen, 2018). In addition, population growth increases the demand for agricultural outputs, which requires substantial agricultural supply to keep prices and support economic growth. Therefore, in order to sustainably develop the agricultural sector, it is essential to improve productivity.

Economic theories predict that the lack of land use rights may limit farmers' access to land as well as loans needed for land improvement activities for increasing productivity. The reason is that land is the center of agricultural development, income from land is considered as a major contributor to agricultural income. It can be said if the land plots are guaranteed in term of long-term use rights, their owners will make decisions which are different from those made by the owners who only have short-term use rights or who lease the land plots temporarily. This is a consideration between profit and risks, because the more the land use rights are established, the less risks in investing in the land plots are, the more investment options land users will have. As a results, farm households will find a better option. In addition, the more stable the land use rights are, the higher the access to loans is, which will help increase the investment capacity for land owners. This is confirmed in the researches on policy making in developing countries (Abdulai et al., 2011; Ballesteros and Bresciani, 2008; Arun, 1999). In terms of macroeconomics, if land use rights are secured, it could lead to a larger land lease market. As a result, people who are able to invest in expanding production towards industrialization and crop plants diversity will have more opportunities and motivation in production investment.

Based on the estimated Agricultural Total Factor Productivity (TFP) for 2012, 2014 and 2016, this research presents a model to explore the determinants of agricultural TFP in Vietnam. We hope to achieve two goals: (i) estimating TFP for farm households planting short-day crops and (ii) thereby analyzing the impacts of these factors on agricultural TFP; primarily focusing on the role of land use rights. This is the first research in Vietnam on this issue. We have shown that land use rights' role, farm size, weather and demographic characteristics have some effects on the total factor productivity in agricultural production.

Along with the introduction, the rest of this research is organized as follows: The second part presents theoretical bases and an overview of the research; The third part presents the model and data of research; The fourth part presents results and policy recommendations.

## **2. Theoretical bases and an overview of the research**

Productivity is commonly defined as "a ratio of a volume measure of output to a volume measure of input use" (OECD, 2001). Productivity can be classified as (i) single factor productivity (or partial factor productivity) and (ii) total factor productivity (or multifactor productivity) (OECD, 2001). This definition is appropriate and accepted in several existing studies (Banker et al., 1989, Owyong, 1999, Oyeranti, 2000, Rogers, 1998, Syverson, 2011). Studies also show that single factor productivity is not a comprehensive measure of productivity. Rogers (1998) argued that the use of partial factor productivity measures can be misleading because different inputs are interchangeable (Rogers, 1998). For example, if capital inputs increase while other inputs are remained unchangeable, it will lead to an increase in outputs. This increase in outputs will lead to an increase in the ratio of outputs such as labor and may lead to the conclusion that labor productivity increases even though there is no real increase in labor productivity. Therefore, total factor productivity is considered to be a more comprehensive measure of productivity (Coelli and O'Donnell, 2005). It provides additional information on technical changes to labor productivity and is a widely used concept in researches (Bartelsman and Doms, 2000).

Rising productivity implies either more output is produced with the same amount of inputs, or that fewer inputs are required to produce the same level of outputs (Rogers, 1998). Many studies have been carried out to explain agricultural productivity, in which productivity analyzes using micro-level data in various aspects are also widely used by economists and policymakers for both developed and developing countries. This is partly due to the increase of micro-level data and the development of different methodologies. Another major reason is that productivity growth at the micro level has been considered as a key factor for long-term macro-economic growth.

Most studies have focused on capital intensity, human capital, land quality and other factors to explain the productivity growth. An influential scholar in this field, Griliches (1963) studied U.S. agriculture by using a stable production function and identified four main productivity growth sources that are measured in U.S. agriculture in the period of 1940 - 1960: (i) improvements in labor quality as a result of an increase in qualification; (ii) improvements in the quality of machine services; (iii) underestimating the contribution of capital and appreciating the contribution of labor to weighted output growth; and (iv) economic scale. And another influential researcher on this topic, Hayami (1969) identified the role of education and research on labor productivity in agriculture in addition to common inputs such as land, fertilizer and machines. Hayami and Ruttan (1970) classified productivity growth sources into three categories, namely, (i) natural resources; (ii) technologies, expressed in fixed or working capital; and (iii) human capital, including

education, skills, knowledge and competencies expressed in a population country. Their analysis concluded that these three factor groups accounted for 95% of the labor productivity difference in agriculture between a representative group of least developed countries and that of developed countries.

From these key studies, empirical researches on agricultural productivity determinants have occurred across transnational and inter-provincial, state or regional levels within a country. Many transnational researchers focus on studying the role of education and infrastructure in differences in agricultural productivity across countries. Nguyen Dung (1979) expanded the research done by Hayami and Ruttan (1970) to estimate the impacts of general and technical education on agricultural productivity by using cross-country data in the periods of 1968 - 1976. Similarly, studies by Antle (1983), Kawagoe et al. (1985) show that least developed countries were neutral on farm size, while developed countries experienced profit growth by scale, and education. Studies also show a clear difference in labor productivity between countries, especially for least developed countries. Researchers (Craig et al., 1997; Thirtle et al., 2003; Wiebe et al., 2000, 2003; Rao et al., 2004; Alauddin et al., 2005; Headey, Alauddin and Rao, 2010) also mentioned some unusual determinants of agricultural productivity (i.e. input quality (labor, land and institutional quality)) in addition to the above said factors. In addition, the determinants of agricultural TFP among farm households, provinces, states or regions within a country also attract the attention of agricultural economic researchers (Appleton and Balihuta, 1996; Teruel and Koruda, 2005; Chen et al., 2008; Fare et al., 2008; Fuglie, 2010).

In Vietnam, there has been some researches on total factor productivity. Nguyen Khac Minh et al. (2008) estimated changes in productivity, technical and technological efficiency of the economic sectors in the period of 1985-2006. Tran Xuan Hong (2014) examined both Levinsohn - Petrin, and Olley - Pakes and found that during the global financial crisis, Vietnam's TFP decreased from 2007 to 2008 but increased in 2009. Pham Thi Thu Tra (2015) focused on the causal relationship between export participation and firm productivity. Huang and Zhang (2016) used the Levinsohn and Petrin's approach to measure TFP and showed that companies with different ownership structures were more productive after Vietnam joined the World Trade Organization in 2007. However, in agriculture, there are very few studies on productivity, especially total factor productivity. Kompas et al. (2004) used SFA to measure TE and productivity in Vietnam's rice production based on both provincial and household data. They estimated some key determinants of TE such as farm size, land plot number, soil conditions, soil quality, irrigation and education in addition to conventional inputs. Rios and Shively (2005) used Tobit regressions based on Data Wrapping Analysis (DEA) from the technical efficiency (TE) for coffee farms in a province in Vietnam to estimate that small-scale farms are less efficient than large-scale ones. Vu Hoang Linh (2012) used both DEA Tobit and SFA regressions to estimate that Vietnam's agricultural TE is positively influenced by education, soil quality and irrigation. In terms of total factor productivity, Ho Dinh Bao (2014) conducted a study on agricultural data in 60 provinces of Vietnam in the period of 1990 - 2006. The TFP level in Tornqvist form was



used to regress on 4 groups of determinants. The research shows that agricultural TFP is significantly affected by soil quality, farm size and land fragmentation. The latest study by Mai Huong Giang et al. (2019) on examining productivity and determinants from 420 firms operating in agriculture showed that the determinants of TFP include size and age, share of state and foreign ownership, export, accessibility to Internet and bank loan of firms.

In this research, we wish to continue to improve our understanding of the total factor productivity in Vietnam's agriculture. In addition to measuring productivity for farm households with data from 2012 to 2016, we point out the factors that affect productivity, with particular emphasis on agricultural land use rights. Not being different from previous studies, either estimating single factor productivity, or studying the total factor productivity of firms, in this study, we estimated total factor productivity for nearly 2000 farm households over 6 years and thereby analyzed the effects of these factors on productivity efficiency. We hypothesize that improved land use rights will motivate farmers to make better investment decisions in production, leading to an increase in the total factor productivity of households in the study area. As agricultural land management reforms are continuing in Vietnam and land use right insecurity is still a major problem in many developing countries, we will, in the research, provide more relevant information useful for releasing land conservation and management policies. We hope that, together with the efforts of other sectors, our findings will contribute more knowledge to identify more comprehensive solutions to the agricultural production efficiency in Vietnam.

### **3. Model and data of research**

#### ***3.1. Measuring the agricultural productivity of farm households***

To measure TFP, there are two main research approaches, namely, parametric methods and non-parametric methods. The non-parametric methods measure the indicators determining productivity, which is the growth ratio of outputs to inputs. This method is flexible, involves technological differences between firms or sectors (Van Biesebroeck, 2007). Input and output quantity indices can be calculated using some common methods such as Laspeyres, Paasche and Tornqvist indices (Rogers, 1998). This technique is considered an easy-to-use, straight-forward method and does not require any complex estimation techniques. However, it requires making some stronger assumptions and more information about input and output prices. These assumptions relate to company behaviors and market structures. For example, companies are optimizing input and output options in a perfectly competitive market.

Regarding the parametric methods, a form of production technology function is estimated by the econometric model. There are several methods for estimating production functions, namely, (i) Ordinary least squares (OLS); (ii) Generalized method of moments (GMM); (iii) Olley and Pakes (OP); and (iv) Levinsohn and Petrin (LP). The main difference between these methods is the approach to solve the concurrency problem between unobserved inputs and productivity as well as other econometric issues arising from estimating the production technology function. It is expressed through the following simple

production model, where the output is the product of the input function that can be observed with parameter  $A_{it}$  (referred to as Hicks-neutral) (Syverson, 2011).  $A_{it}$  is a quantity capturing technological change due to research and development, learning or imitation, leading to the improvements of manufacturing processes.

$$Y_{it} = A_{it} F(L_{it}, K_{it}, M_{it}) \quad (1)$$

In this research, to measure the total factor productivity in the agricultural production of farm households, we use:

$$\text{output}_{it} = A_{it} f(\text{invest}_{it}, \text{labor}_{it}, \text{area}_{it}, \text{fer}_{it}) \quad (2)$$

Where:

(1). *Output* means the total agriculture income of the  $i^{\text{th}}$  farm households in year  $t$ . Unit: thousand Vietnamese dong.

(2). *Invest* means the total investment for agriculture, including: production materials (sickles, shovels, etc.); minor maintenance and repair; hired machines; hired cattle of the  $i^{\text{th}}$  farm households in year  $t$ . Unit: thousand Vietnamese dong.

(3). *Labor* includes the total working days of farm households and the total working days of hiring employees of the  $i^{\text{th}}$  farm households in year  $t$ . The total working days of hiring employees is calculated by dividing the total expenses of hiring employees by the price of hiring employees in the corresponding year. Unit: Working day.

(4). *Area* means the total area of annual crops of the  $i^{\text{th}}$  farm households in year  $t$ . Unit:  $\text{m}^2$ .

(5). *Fer* means the total cost for chemical fertilizers of the  $i^{\text{th}}$  farm households in year  $t$ . Unit: thousand Vietnamese dong.

The quantities represent value that has been taken into account inflation in 2012.

The next concern in (2) is production technology, which can be explained by various hypotheses, in which logarithmic and Cobb-Douglas production functions are the two most commonly used methods. There is an opinion that both methods exhibit mathematical properties well. However, the elasticity of the production process with the inputs in the Cobb-Douglas production function is easier to interpret than that in the logarithmic function. Specifically, the logarithmic method often encounters collinearity problems among the regression variables (Kinda et al., 2011). Therefore, in this research, we assume that the production technology follows the Cobb-Douglas production function. The equation (2) can be written as follows:

$$\text{output}_{it} = A_{it} \text{invest}_{it}^{\beta_1} \text{labor}_{it}^{\beta_2} \text{area}_{it}^{\beta_3} \text{fer}_{it}^{\beta_4} \theta_{it} \quad (3)$$

Transforming (3) into a linear expression by taking logarithm both side of the equation, we have:

$$\ln_{\text{output}_{it}} = \ln A + \beta_1 \ln_{\text{invest}_{it}} + \beta_2 \ln_{\text{labor}_{it}} + \beta_3 \ln_{\text{area}_{it}} + \beta_4 \ln_{\text{fer}_{it}} + \ln \theta_{it} \quad (4)$$

Assuming  $\theta_{it} = e^{u_{it}}$ , we can rewrite (4) as:

$$\ln\_output_{it} = \ln A + \beta_1 \ln\_invest_{it} + \beta_2 \ln\_labor_{it} + \beta_3 \ln\_area_{it} + \beta_4 \ln\_fer_{it} + u_{it} \quad (5)$$

From Equation (5), according to Solow we have:  $\ln TFP = u_{it} + \ln A$ .

### 3.2. Measuring the determinants of agricultural productivity of farm households

In the second phase, with the estimated total factor productivity, in order to explain the effects on productivity, we considered a comprehensive set of variables related to agricultural production. This research used the array data procedure because the sample contained household data by the measurement years. Therefore, to measure the factors affecting TFP, we used the fixed effect (FE) model and the quantile regression model. The FE regression takes into account the individual effects of each household included in the sample, which allows a change in each household's blocking coefficient while the slope is constant. The basic idea in the quantile regression according to O'Garra and Mourato (2007) is to estimate the  $p$ th quantile of the conditional performance variable with different explanatory variables, assuming that the quantile can be expressed as a linear function of the same variable. Therefore, the use of quantile regression to estimate changes in the dependent variable on the specific median and quantile shows that it leads to results with many aspects on the impact of variables on crop production and economic efficiency (Chamaillé-Jammes et al., 2007). The model is as follows:

$$\begin{aligned} \ln TFP = & \gamma_0 + \gamma_1 \text{redbook} + \gamma_2 \text{arean} + \gamma_3 \text{weather} + \gamma_4 \text{income\_per} \\ & + \gamma_5 \text{female} + \gamma_6 \text{kinh} + \gamma_7 \text{educn} + \gamma_8 \text{agen} + \gamma_9 \text{pci} + u_i \end{aligned} \quad (6)$$

Where:

(1). The land use right (*redbook*) is a dummy variable. It is agreed that  $\text{redbook} = 1$  if the household's land plots have a land use right certificate;  $\text{redbook} = 2$  if coming soon and  $\text{redbook} = 3$  if no certificate.

(2). Size (*arean*) is a dummy variable. It is agreed that  $\text{arean} = 0$  if household's cultivated area is less than  $1,500\text{m}^2$ ;  $\text{arean} = 1$  if household's cultivated area is more than  $1,800\text{m}^2$  and less than  $6,200\text{m}^2$ ;  $\text{arean} = 2$  if household's cultivated area is more than  $6,200\text{m}^2$ .

(3). Weather (*weather*) is a dummy variable. It is agreed that  $\text{weather} = 1$  If the weather is favorable for agriculture;  $\text{weather} = 2$  If the weather is not favorable for agriculture.

(4). Average income (*income\_per*) means the average income of household members. Unit: Thousand Vietnamese dong.

(5). Age of the householder (*agen*) is a dummy variable. It is agreed that  $\text{agen} = 0$  if the householder is under 40 years old;  $\text{agen} = 1$  if the householder is from 40 to less than 60 years old;  $\text{agen} = 2$  if the householder is more than 60 years old.

(6). Education (*educn*) is a dummy variable. It is agreed that  $\text{educn} = 0$  if the person who goes to school the most has not yet finished the programs of Grade 5;  $\text{educn} = 1$  if the

person who goes to school the most has not yet finished the programs of Grade 9; educ2n = 2 if the person who goes to school the most has finished the programs of Grade 9.

(7). Gender of the householder (*female*) is a dummy variable. It is agreed that female = 1; male = 0, to assess how the gender role of the householder influences production decisions and hence productivity.

(8). Ethic group (*kinh*) is a dummy variable. It is agreed that *kinh* = 1 if the householder is Kinh person; *kinh* = 0 if the householder has other ethnic groups, to evaluate the production efficiency of the Kinh compared to other ethnic groups.

(9). Provincial PCI data (*pci*) are used to control differences in local private economic environment, which is understood to also impact on agricultural TFP.

### 3.3. Data

The Vietnam Access to Resources Household Survey (VARHS) data from 2012 to 2016 is used in the study. This data explores the rural economic transition process and its effects on most of the aspects of farmer life; economic activities and structural shifts that focus on access to land, labor and capital markets (which are the main factors of production) and related institutions. Questions asked to access public services are based on the data from more than 3500 randomly selected households from 12 provinces: Ha Tay, Lao Cai, Phu Tho, Lai Chau, Dien Bien, Nghe An and Quang Nam , Khanh Hoa, Dak Lak, Dak Nong, Lam Dong and Long An. For expanded issues, they are questions on land, agriculture, income, spending, assets, investment, market linkage, etc.

Theoretically, productivity is measured in terms of outputs and inputs. Therefore, problems arise when productivity is measured regarding outputs and how to measure inputs. In term of output, there are two common methods of output measurement: total output (GO) and value-added (VA) in the context of manufacturing. Each method has its own advantages and disadvantages. Some argue that GO-based productivity metrics are more comprehensive than VA-based one. Cobbold (2003) argued that GO-based productivity metrics are more relevant and representative to describe technological changes. Moreover, this method recognizes intermediate inputs as sources of growth; thus there is less distortion so that total productivity changes over time. Therefore, in this research, we use the total value of agricultural output of farm households as inputs. The statistical values of the variables in the sample are given in Table 1.

**Table 1. The summary statistics of variables.**

Variables	2012			2014			2016		
	Observed value	Average value	Standard deviation	Observed value	Average value	Standard deviation	Observed value	Average value	Standard deviation
output	1,632	15445.49	18090.53	1,529	19307.15	20766.75	1,402	18767.93	28371.71
invest	1,643	1319.135	1561.866	1,530	2065.293	2728.516	1,402	2021.901	3496.438
labor	1,652	137.0703	105.8149	1,535	117.4395	105.1292	1,414	113.54	103.6555
fer	1,643	3666.127	11280.09	1,530	5622.863	9813.876	1,402	6832.041	16555.53

Variables	2012			2014			2016		
	Observed value	Average value	Standard deviation	Observed value	Average value	Standard deviation	Observed value	Average value	Standard deviation
area	1,652	2941.099	2415.497	1,535	3113.958	2517.592	1,414	3217.686	2559.256
lnTFP	1,486	3.189162	0.460663	1,444	3.831247	0.53424	1,287	4.19623	0.57567
redbook	1,652	1.306901	0.640545	1,535	1.282736	0.67903	1,414	1.259547	0.55913
arean	1,652	0.69007	0.679062	1,535	0.73095	0.69355	1,414	0.752475	0.70151
agen	1,652	1.9546	0.684516	1,535	1.998046	0.66137	1,414	2.052334	0.65170
educn	1,652	1.13862	0.840112	1,535	1.201303	0.83627	1,414	1.344413	0.78615
female	1,652	1.183414	0.387123	1,535	1.186971	0.39002	1,414	1.183168	0.38694
weather	1,641	1.489945	0.500051	1,531	1.517309	0.49986	1,411	1.562721	0.49623
kinh	1,642	0.68575	0.464358	1,531	0.62116	0.485256	1,414	0.608204	0.48832
income_per	1,642	15592.25	18862.17	1,531	19407.73	19209.02	1,414	21371.06	19414.04
pci	1,652	56.28944	4.241342	1,535	58.24591	4.053674	1,414	59.2507	2.97006

Source: Calculated from VARHS data of the authors.

#### 4. Estimated results

##### 4.1. Measuring the total factor productivity

The total factor productivity is developed based on the estimated coefficients of investment, labor, fertilizer costs and cultivated area as shown in Table 2. TFP in the agriculture production of farm households between 2012 and 2016 was estimated by using the Solow method. The results also show that agricultural TFP has increased over the years.

**Table 2. Regression estimates for TFP**

Variables	Regression estimates for TFP		
	2012	2014	2016
ln_invest	0.176697*** (0.0209356)	0.169458*** (0.02383)	0.1308394*** (0.012852)
ln_labor	0.1704122*** (0.0122256)	0.112904*** (0.011504)	0.0814117*** (0.025414)
ln_fer	0.3752263*** (0.0182131)	0.368687*** (0.019659)	0.0804359*** (0.01647)
Area	0.1755409*** (0.0144888)	0.184441*** (0.016472)	0.4547214*** (0.022042)
_cons	3.203251*** (0.1304728)	3.751127*** (0.15248)	4.104023*** (0.167433)
R <sup>2</sup>	0.6242	0.5398	0.4636
lnTFP	3.189162	3.831247	4.19623

Notes: \*, \*\* and \*\*\* denote statistical significance at the 0.10 level, 0.05 and 0.01 level respectively.

#### 4.2. Factors affecting agricultural TFP

The regression results in Table 3 and Table 4 show that, in both the fixed effect model and the quantile regression model, the households whose householders have the land use right certificates have a higher total factor productivity than households whose householders are waiting for certificates or whose householders have land without any certificates of land use rights. In most of the quantiles, the regression coefficient of the redbook variable is negative and statistically significant. This result clearly reflects the role of land use rights to productivity efficiency. When land use rights are not guaranteed, farm households are less likely to invest in land reclamation activities, resulting in lower productivity (Abdulai et al., 2011). Similarly, due to lack of ownership security, the householders do not have enough incentives for investment return. Farms run by such householders may not work effectively (Otsuka and Hayami, 1988).

Not as expected, in both the fixed effect model and the quantile regression model, there is a decrease in the total factor productivity decreases when there is an increase in crop size; This may be explained by the fact that farmers still do not use the land resources properly because profit from food crops is not as high as that from other economic sectors, or partly because the households' land plots used for planting short-term crops are still scattered, not concentrated into a large land plots, which affects the application of advanced technology in production. Weather has a significant impact on productivity, particularly on all the quantiles when the weather is not favorable for production, the total factor productivity decreases.

**Table 3. Estimating fixed effect for total factor productivity**

Variables	Estimating fixed effect regression		
	Coefficient	Standard deviation	P_value
redbook_2	-0.1553320	0.0618267	0.012
redbook_3	-0.2235920	0.0843487	0.008
arean_1	-0.0811490	0.0504567	0.108
arean_2	-0.2622830	0.0976158	0.007
weather_2	-0.1073220	0.0231453	0.000
agen_2	0.2133261	0.0552938	0.000
agen_3	0.2825268	0.0835226	0.001
educn_1	0.2503983	0.0454253	0.000
educn_2	0.2414530	0.0372388	0.000
female	0.1520606	0.1001330	0.129
kinh	0.1102393	0.1206903	0.361
income_per	0.0000052	0.0000015	0.001
Pci	0.1451509	0.0058880	0.000
_cons	-5.1292200	0.3411571	0.000

**Table 4. Estimating quantile regression for total factor productivity**

Variables	Estimating quantile regression					
	q10	q20	q40	q50	q75	q85
redbook_2	-0.18203* (0.10362)	-0.17483** (0.08594)	-0.16739** (0.06979)	-0.15454*** (0.05276)	-0.13686** (0.06777)	-0.13389* (0.07367)
redbook_3	-0.31154** (0.14660)	-0.28782** (0.12160)	-0.26331*** (0.09879)	-0.22097*** (0.07477)	-0.16274* (0.09588)	-0.15297 (0.10425)
arean_1	-0.08594 (0.08047)	-0.08465 (0.06674)	-0.08331 (0.05419)	-0.08101** (0.04096)	-0.07784 (0.05263)	-0.07730 (0.05721)
arean_2	-0.31146** (0.14758)	-0.29819** (0.12240)	-0.28449*** (0.09941)	-0.26082*** (0.07518)	-0.22826** (0.09652)	-0.22280** (0.10493)
weather_2	-0.08074** (0.03825)	-0.08791*** (0.03173)	-0.09535*** (0.02578)	-0.10811*** (0.01952)	-0.12572*** (0.02502)	-0.12867*** (0.02720)
agen_2	0.24138*** (0.09020)	0.23381*** (0.07481)	0.22599*** (0.06075)	0.21249*** (0.04594)	0.19392*** (0.05899)	0.19080*** (0.06413)
agen_3	0.34518*** (0.12725)	0.32828*** (0.10555)	0.31082*** (0.08574)	0.28066*** (0.06487)	0.23918*** (0.08323)	0.23222*** (0.09049)
educn_1	0.26927*** (0.07367)	0.26418*** (0.06111)	0.25892*** (0.04962)	0.24984*** (0.03752)	0.23734*** (0.04819)	0.23524*** (0.05238)
educn_2	0.26133*** (0.06075)	0.25597*** (0.05039)	0.25043*** (0.04092)	0.24086*** (0.03095)	0.22770*** (0.03973)	0.22549*** (0.04319)
Female	0.180754 (0.14793)	0.17301 (0.12270)	0.16502* (0.09963)	0.15121** (0.07533)	0.13221 (0.09676)	0.12902 (0.10518)
Kinh	0.14344 (0.17275)	0.13448 (0.14328)	0.12523 (0.11634)	0.10925 (0.08796)	0.08727 (0.11299)	0.08358 (0.12282)
income_per	0.000005 ** (0.000002)	0.000005*** (0.000002)	0.000005*** (0.000002)	0.00001*** (0.000001)	0.000005*** (0.000002)	0.000005*** (0.000002)
Pci	0.14735*** (0.00897)	0.14676*** (0.00743)	0.14614*** (0.00604)	0.14509*** (0.00456)	0.14363*** (0.00586)	0.14339*** (0.00637)

Notes: \*, \*\* and \*\*\* denote statistical significance at the 0.10 level, 0.05 and 0.01 level respectively.

Similar to other studies, regression coefficients are positive and significant with the variable which is the qualification of householders. It means that farm households whose householders has the greater number of years of schooling will have a higher factor productivity. This shows that qualification is essential for increasing production efficiency

for farm households. Farmers with a secondary or higher education can generate more or better productivity than those without any education or with primary education. This result is consistent with most studies on the agricultural production efficiency, for examples, studies by Abedullah and Mushtaq (2007), Khai and Yabe (2011), Koirala et al (2014). However, the results also indicate that farmers' qualification is still at a low level, mainly in lower-secondary education. The age of householders has a fairly clear role on the factor productivity; on all the quantiles, the elderly householders can cultivate with a higher productivity. It can be explained by the fact that Vietnam is a country with traditional agriculture and young people have not really chosen agriculture as their main job. This is also reflected in average income. The research results show that households with higher average income have higher factor productivity in agricultural production. It can be said that households with additional income from other sources have additionally invested in agricultural production. In addition, local management policies have a positive effect on productivity. In particular, in provinces with higher PCI, farmers have a higher factor productivity. Factors such as ethnic group and gender of the householders do not affect the total factor productivity in this research.

## **5. Discussion and Conclusion**

Agriculture is still a major source of income for farm households and increased agricultural productivity is likely to reduce poverty for farmers. Improvements in agricultural productivity are one of the important topics in agricultural policy research and planning. Currently, a number of farmers have been doing off-farm jobs and agricultural land is left vacant, so developing appropriate agricultural policies to effectively use land and minimize soil degradation is very necessary.

The research uses VARHS data from 2012 to 2016 to identify the factors affecting productivity efficiency in agricultural production in Vietnam. Thanks to a fixed effect model and a quantile regression method, an interesting finding from this research shows that farm households plant crops on land with land use right certificates have a higher total factor productivity than those grow rice on land which householders are waiting for certificates or on land without any certificates. Therefore, it is necessary to pay much attention to transferring land use rights to farmers so that they can feel assured to invest in land reclamation and have long-term production plans as well as have more conditions to access credit sources (loans). It is necessary to improve the legality of land so that people can feel secure in producing and investing in their land plots.

Empirical results also show that in addition to the impact of land use rights, the total factor productivity also depends on crop size, weather, age and education of householders, each household's average income and local governance quality. This again recommends that the government should focus on encouraging farmers to improve their education, continue to learn technology transfer, and create a synchronous development environment with other sectors to support agricultural development. In addition, government policies are required to



focus on investing in irrigation, ensuring land conservation for agricultural purposes and ensuring profits from rice cultivation for farmers so that they feel secure to have a strong attachment to farming.

During the recent years, although the Government has made many reforms in the land law, especially on agricultural land use rights, agricultural policies on increasing the efficiency of rice cultivation have not gained really good achievements. Results about the productivity of households with large areas of growing rice show that farmers have not used their land resources appropriately, maybe partly because their dispersed land plots makes them not apply science and technology in farming. This in-depth research is essential to find out the determinants to suggest solutions for agricultural policies. Paying attention to land use rights for farmers will increase investment in natural resource management and land reclamation practices.

## 6. References

1. Anik, A.R., Rahman, S. and Sarker, J.R. (2017), 'Agricultural productivity growth and the role of capital in South Asia (1980-2013)', *Sustainability*, 9(3), p.470.
2. Coelli, T.J. and Rao, D.P. (2005), 'Total factor productivity growth in agriculture: a Malmquist index analysis of 93 countries, 1980-2000', *Agricultural Economics*, 32, pp.115-134.
3. Diewert, W. E. (1992), 'The measurement of productivity', *Bulletin of Economic Research*, 44(3), 163-198.
4. Dinh Bao, H., Provincial Total Factor Productivity in Vietnamese Agriculture and Its Determinants. *Journal of Economics and Development*, 16(2), p.5.
5. Giang, M. H., Xuan, T. D., Trung, B. H., & Que, M. T. (2019), 'Total Factor Productivity of Agricultural Firms in Vietnam and Its Relevant Determinants', *Economies*, 7(1), p.4.
6. Griliches, Z. (1963), 'The sources of measured productivity growth: United States agriculture, 1940-60', *Journal of Political Economy*, 71(4), pp.331-346.
7. Hayami, Y., & Ruttan, V. W. (1970), 'Agricultural productivity differences among countries', *The American economic review*, 60(5), 895-911.
8. Hulten, C. R. (2001), 'Total factor productivity: a short biography', In *New developments in productivity analysis*, pp. 1-54. University of Chicago Press.
9. Hoang Linh, V. (2012), 'Efficiency of rice farming households in Vietnam', *International Journal of Development Issues*, Vol. 11, No. 1, pp. 60-73.
10. Kompas, T. (2004), 'Market reform, productivity and efficiency in Vietnamese rice production', *International and Development Economics*.
11. Machek, O. and Špička, J. (2013), 'Measuring performance growth of agricultural sector: a total factor productivity approach', *International Journal of Economics and Statistics*, 1(4), pp.200-208.

12. Minh, N.K. and Long, G.T., (2008), 'Factor productivity and efficiency of the Vietnamese economy in transition', *Asia-Pacific Development Journal*, 15(1), p.93.
13. Nguyen, D. (1979), 'On agricultural productivity differences among countries', *American Journal of Agricultural Economics*, 61(3), 565-570.
14. Pham, Thi Thu Tra. (2015), 'Does Exporting Spur Firm Productivity? Evidence from Vietnam', *Journal of Southeast Asian Economies*, 32, 84 -105.
15. Rios, A. R., & Shively, G. E. (2005), 'Farm size and nonparametric efficiency measurements for coffee farms in Vietnam'.
16. Tran, X. Hong (2014), 'The Evolution of Productivity in Vietnam's Manufacturing Sector', Ph.D. thesis, The University of Wollongong, Wollongong, Australia.
17. World Bank Group (2016), *World development report 2016: digital dividends*. World Bank Publications.

# RESULTS OF A CHOICE EXPERIMENT SURVEY TO ESTIMATE WILLINGNESS-TO-PAY FOR AIR QUALITY IMPROVEMENTS IN HANOI CITY

*Nguyen Cong Thanh*

*thanhnc@neu.edu.vn*

*Faculty of Environmental, Climate Change and Urban Studies*

*National Economics University, Vietnam*

## **Abstract**

*Air pollution has been a major concern for people around the world, especially in urban areas of developing countries, such as Ha Noi city. Based on the choice experiment approach, this paper presents estimates of residents' willingness-to-pay (WTP) for improving air quality of Ha Noi. Hanoi residents expressed their strong preferences for increase of green spaces and reduction of air pollution-related deaths. The mean marginal WTP for the increase of 1 m<sup>2</sup> in per-capita tree cover is estimated at 3,692 VND per month; and for the reduction of 1 in 100,000 death related air pollution is about 1,591 VND per month. Hanoi residents appear to be willing to pay monthly 97,000 VND for the maximal improvements in air quality. This maximum amount of WTP accounts for about 0.43% of household income. The information on residents' WTP for improving air quality would be useful for policy makers in investing effectively in controlling air pollution given the budget limitation.*

**Keywords:** *Air pollution, Choice experiment, Ha Noi*

## **1. Introduction**

Air pollution is one of the most serious problems in the world. According to World Health Organization (WHO), more than 80% of people in urban areas are living in an atmosphere with quality levels not satisfying the WHO recommended limits. Recent estimates by WHO show that ambient air pollution accounts for an estimated 4.2 million deaths per year. While ambient air pollution affects developed and developing countries alike, low- and middle-income countries experience the highest burden, with the greatest toll in the WHO Western Pacific and South-East Asia regions<sup>1</sup>. According to the Vietnam Health Statistical Year Book 2015 (Ministry of Health, 2017), diseases of the respiratory system accounted for the highest numbers of both proportion morbidity and mortality by disease chapters (Ministry of Health, 2017).

Air pollution in Ha Noi is considered to be more serious when compared with other big cities in Vietnam (Luong et al., 2017). The WHO Global Ambient Air Quality Database

---

<sup>1</sup> Information is provided by WHO: <http://www.who.int/airpollution/ambient/en/> (accessed date: 01/09/2018)

(update 2018)<sup>2</sup> shows that PM concentration in Ha Noi are usually higher than in other cities of Vietnam, such as Ho Chi Minh City, Da Nang and Ha Long. The annual concentration of PM<sub>2.5</sub> (monitored by the Vietnam's U.S. Embassy at 7 Lang Ha Street, Ha Noi) in 2016 reached 50.5 µg/m<sup>3</sup>, and in 2017 was 42.6 µg/m<sup>3</sup> nearly twice as compared to the Vietnamese standard (25 µg/m<sup>3</sup>) and five times as recommended by WHO (10µg/m<sup>3</sup>) (GreenID, 2017, 2018). According to the Department of Natural Resources and Environment of Ha Noi city, 70% of air emissions are caused by traffic activities. Emissions from more than 4 million vehicles account for 85% of CO<sub>2</sub> emissions and 95% of volatile organic compounds (Box 2.1, MONRE (2017))

The health effect of air pollution was first studied in Vietnam as early as in 1995 with a focus on traffic police officers (Dang, 1995). The health effects of air pollution to Hanoi citizens seem to be a serious problem. Hieu et al. (2013) estimated the number of deaths due to PM<sub>10</sub> pollution from traffic in 2009 was 3200 people, greater than the number of deaths from traffic accidents. Luong et al. (2017) showed that in the period of 2010-2011, if the PM<sub>10</sub>, PM<sub>2.5</sub> concentration increased to 10µg/m<sup>3</sup>, the number of children hospitalizations related to the respiratory diseases in Hanoi increased by 1.4% and 2.2%, respectively.

To cope with this situation, the Government of Viet Nam in June 2016 has issued the National Action Plan on Air Quality Management until 2020 with the main goal of strengthening air quality management based on controlling emission sources and monitoring ambient air quality. In recent years, Hanoi's Government also has made efforts to implement measures for improving air quality such as cleaning dust on trucks before entering the city, installing additional air monitoring stations, planting one million trees in the period of 2016-2020. However, air pollution is still a major concern of the Hanoi citizens, demanding for more effective solutions to improve air quality.

The aim of this paper is to estimate households' willingness-to-pay (WTP) for improvements in air quality in Ha Noi by using the choice experiment approach. Such information is important for policy makers when determining public investments and policy instruments in order to effectively improve air quality in Ha Noi city.

## **2. Choice experiment design and implementation**

### ***2.1. Theoretical framework for the choice experiment valuation***

Air quality is a non-market commodity, so that market prices are not available to measure users' WTP. Instead, non-market valuation method - measuring the monetary value of changes in individual welfare associated with the change in environmental quality - should be applied. Questionnaire surveys were conducted using choice experiment approach, a stated preference method, which involves the construction of a hypothetical market to obtain and analyse respondents' choices of a program for improving air quality.

---

<sup>2</sup> The WHO database on air quality provides information on PM concentration of 4000 cities in 108 countries over the period 2008 - 2017 (<http://www.who.int/airpollution/data/cities/en/>, access 10/8/2018)

Choice experiment (CE) has its roots in conjoint analysis where individuals make choices between multi-attribute goods and services (Adamowicz et al., 1998; Adamowicz et al., 1994; Alriksson and Öberg, 2008; Boxall et al., 1996). In a CE survey, individuals are requested to decide over a series of choice sets. Each choice set includes a number of alternatives, which are described by different levels of the attributes or characteristics of the good or service that is being valued. In choosing between the alternatives, the individuals also make a trade-off between the levels of the attributes. If a monetary (cost) attribute is included in the choice sets, the researchers can estimate the individual's marginal willingness to pay for a change in each of the other non-market attributes.

CE is an application of Lancaster's theory of value, combined with random utility theory (Hanley et al., 1998; Wang et al., 2007). According to Lancaster's theory, individuals' choices are determined by the utility or value that is derived from the attributes of the goods and services rather than directly from the goods and services themselves (Lancaster, 1966). CE is also based on the behavioral framework of random utility theory (RUT), which describes discrete choices in a utility maximizing framework. The researchers are able to observe only part of individuals' utility, and the unobserved component is randomly distributed. Under the RUT,  $U_{in}$ , utility that individual  $n$  enjoys from choice alternative  $i$  can be decomposed into two parts:

$$U_{in} = V_{in} + \varepsilon_{in} \quad (1)$$

where  $V_{in}$  is the systematic and observed component of the choice utility; and  $\varepsilon_{in}$  is the stochastic unobserved component.

The observed component of the choice utility can be disaggregated further, as utility can depend on the choice attributes ( $Z_{in}$ ) that may be viewed differently by different individuals and the characteristics of the individual ( $S_n$ ). Then equation (1) can be rewritten as follows:

$$U_{in} = V(Z_{in}, S_n) + \varepsilon_{in} \quad (2)$$

Alternative  $i$  is chosen over some other option  $j$  if and only if  $U_i > U_j$ . Due to the unobserved component, the researchers are unable to predict choices perfectly. This uncertainty is expressed in terms of choice probability, and the probability that individual  $n$  will choose option  $i$  over other options  $j$  in choice set  $t$  is given by:

$$\text{Prob}(i | t) = \text{Prob}(V_{in} + \varepsilon_{in} > V_{jn} + \varepsilon_{jn}; \text{all } j \in t \text{ and } j \neq i) \quad (3)$$

The individual's indirect utility function ( $V_i$ ) in Equation (2) for a choice option can be modelled with various specifications. If assuming that the relationship between the utility and attributes of the choice is linear such that  $V = \beta Z_{in}$ , and that only the main effects are considered, the functional form of the indirect utility function is as follows:

$$V_{in} = \beta_i + \sum_k \beta_k Z_{kn} + \sum_p \theta_p S_{pn} \quad (4)$$

where:

$\beta_i$  is vector of constant terms (alternative specific constants) for  $i = 1, \dots, I$  choice options;

$\beta_k$  is a vector of coefficients attached to the vector of attributes ( $Z_{kn}$ ) for  $k = 1, \dots, K$ ;

$\theta_p$  is a vector of coefficients attached to the vector of respondent's characteristics ( $S_{pn}$ ) for  $p = 1, \dots, P$ .

The utility function estimated for each alternative, therefore, contains a unique alternative specific constant (ASC), the effects of a choice's attributes, and the individual's characteristics. The ASCs represent the average effect on choices of any variation that cannot be explained by the observed attributes or the socio-economic characteristics.

With the assumption of linear indirect utility function, compensating surplus (CS) welfare estimates may be obtained in the following formula (Hoyos, 2010):

$$CS = -\frac{1}{\alpha} [\ln \sum \exp V_{0n} - \ln \sum \exp V_{1n}] \quad (5)$$

where  $\alpha$  is the marginal utility income (represented by the  $\beta$  coefficient of the cost attribute), and  $V_{0n}$  and  $V_{1n}$  are indirect utility functions before and after a specified change in the non-market good or service, respectively.

The marginal benefit of an improvement on a single attribute can be estimated by the ratio of coefficient given in equation 6 (Hanley et al., 2001):

$$\text{marginal WTP} = -\left(\frac{\beta_{\text{attribute}}}{\beta_{\text{cost}}}\right) \quad (6)$$

The above ratio is usually known as the implicit price of the non-market attribute. It shows the trade-off made between the non-market attribute and the cost attribute, and an estimate of the individual's willingness to pay for a unit change in the non-market attribute.

## ***2.2. Survey design and implementation***

### ***• The choice experiment design***

The design of choice experiment includes decisions about attributes and their levels, the design of choice tasks, and questionnaire design. The attributes are used to describe to the respondents an air quality improvement program. For the estimated utility function of users, the attributes will be the observed independent variables. The appropriate selection of attributes is a critical component in a CE exercise, since the selected attributes affect respondents' choices, as well as the policy under concern. Having defined the attributes, the levels of these attributes must be determined. Levels can be expressed qualitatively or quantitatively, and the quantitative attributes can be presented in absolute or relative terms (Bennett and Blamey, 2001). In this part of a CE exercise, a series of focus group studies should be conducted with the aim of selecting the relevant attributes and levels (Alpizar et al., 2001). The focus studies could be in the form of verbal group discussion or actual surveys. In order to obtain contrasting opinions and to obtain a representative sample of the population, the focus group composition should be heterogeneous in terms of occupation, background, age and gender (Suh, 2002).

The most notable disadvantage of CE approach is the cognitive burden associated making choices between bundles of attributes and levels. The larger the number of attributes and the levels, the bigger the cognitive burden that the respondents face. The solutions for this stage of survey design are to carefully select attributes and choose the optimal number of attributes (DeShazo and Fermo, 2002). One important lesson, learned from reviewing the previous studies, is that most CE studies in environmental and meteorological valuation have used 4-5 attributes including the cost attribute in each choice set.

Following the above instructions and lessons from the literature, this research started by studying the attributes and attribute levels used in previous studies. A key lesson is that attributes related to health effects of air pollution have been commonly selected in the design of CEs for air quality improvements (Rizzi et al., 2014; Yoo et al., 2008). This selection is reasonable, since many epidemiological studies have indicated that air pollutants such as particulate matter (PM), nitrogen dioxide (NO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>), and ozone (O<sub>3</sub>) are responsible for increasing mortality and morbidity in different populations around the world, especially from respiratory and cardiovascular diseases (CVD) (Phung et al., 2016).

Attributes selected should be both relevant and understandable to respondents. To collect residents' desire for air quality improvements, two focus studies were conducted in the form of an internet survey with 191 respondents and 212 face-to-face interviews in Hanoi city. In the surveys, respondents were presented a list of measures, which were designed based on a rigorous review of international experiences and the Government's plans on controlling air emission sources in order to improve urban air quality. Then, we asked respondents to choose their preferred measures that should be implemented at high priority to improve air quality of Ha Noi city. The most preferred measure chosen by more than 70% of respondents is the increase of green spaces.

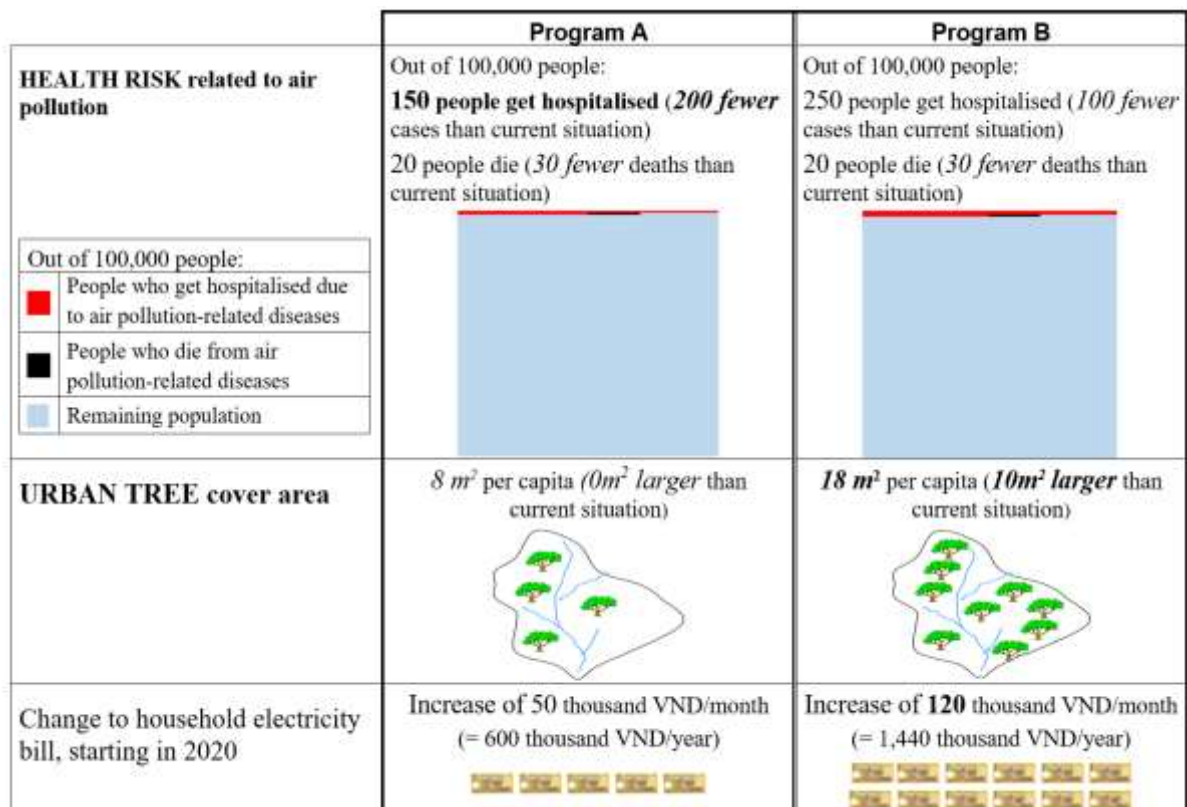
In recent years, researchers have been looking into potential benefits of green space and vegetation, including temperature reduction and other microclimatic effects, removal of air pollutants, emission of volatile organic compounds and tree maintenance emissions and energy effects on buildings etc. Reduced air pollution was acknowledged and developed by several authors such as Antoine et al. (2017), Wissal et al. (2016), The Nature Conservancy (2016), Beckett et al. (2000) and Lovett (1994) among others. Authors generally agree that the use of urban vegetation is often promoted as an effective measure to reduce air pollutants concentrations. This measure is based on the underlying argument that trees (and vegetation in general) have the capability of cleaning the air by filtering out the pollutants. Different studies of Antoine et al. (2017), Wissal et al. (2016) have experimentally assessed the deposition rate at which pollutants are taken up by the urban vegetation and showed that trees trap air pollution by up to about 7%.

Based on the focus studies, in concert with an in-depth literature review, the proposed attributes and their levels are presented in Table 1.

**Table 1: Attributes and levels**

Attributes	Variables	Current levels	Improvement levels
Health risk related to air pollution: People who get hospitalised due to air pollution-related diseases	Morbidity	350 people	350; 250; 150 people
People who die from air pollution-related diseases	Mortality	50 people	50; 35; 20 people
Urban tree cover area	Urban tree cover	8 m <sup>2</sup> per capita	8; 13; 18 m <sup>2</sup> per capita
Change to household electricity bill	Cost	No change	Increase of 15; 50; 85; 120 thousand VND/month = 180; 600; 1020; 1440 thousand VND/year

Having attributes and levels determined, an orthogonal choice task design was used, resulting in thirty-six choice tasks. In order to reduce the cognitive burden on respondents, each respondent was randomly chosen to face a block of six choice tasks. For each choice task, respondents indicated their preference between two potential improvement programs; if they didn't satisfy with the improvement levels proposed in the two alternatives, they could refuse both two improvement programs and keep the status quo (i.e., keeping all levels at their current levels). An example of a choice task is presented in Figure 2.



**Figure 2: An example of a choice task**



- *Survey implementation*

In May and June 2019, face-to-face interviews were conducted in Hanoi city. Residents of Hanoi city were invited to participate in the survey using a recommendation letter from Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE), a unit of Ministry of Natural Resources and Environment. The ISPONRE's recommendation letter was expected to lead respondents to believe that their responses to the survey would potentially influence Government's actions on improving air quality, and their "yes" responses would result in their payment in the future. The dominant strategy of the respondents, therefore, would be to answer truthfully.

To ensure the quality of responses, our questionnaire included a follow-up question of "How likely do you think it is that the results of this survey will affect the Government's decisions about improving air quality?". The surveyed results indicate that 49 respondents selected the option of "No effect at all". Carson and Groves (2007) distinguish between inconsequential surveys (where respondents believe that there is a zero percent chance the survey results will influence the agency's decisions) and consequential surveys (where respondents perceive their responses will influence the agency's decisions up to some non-zero probability). Vossler et al. (2012) suggest that consequential choices encourage truthful preference revelation. To enhance the quality of data, we removed respondents selected the option "No effect at all" indicating that their choices will have a zero percent chance to influence policy makers' decisions. The survey was completed by 1028 respondents, but after removing 49 inconsequential responses, our analysis focuses on responses of 979 respondents.

Table 2 presents summary statistics from the data for all the variables used in this paper for two different sets of samples. As Table 2 shows that the full sample and the data sets with the exclusion restriction imposed have very similar characteristics.

**Table 2: Descriptive statistics by dataset**

Variables	Full sample				Sample with non-consequential responses removed			
	Mean	Std	Min	Max	Mean	Std	Min	Max
Age = Age of respondent	42.35	13.26	18	84	42.08	13.17	18	80
Male =1 if respondent is male	0.42	0.49	0	1	0.41	0.49	0	1
Years of education = Respondent's years of education	15.18	1.87	5	18	15.23	1.82	5	18
Household income (millions VND/month)	22.27	15.60	5	105	22.42	15.73	5	105
Having children =1 if household has children under 15 years old	0.71	0.45	0	1	0.71	0.45	0	1
Having elderly people =1 if household has elderly people over 60 years old	0.49	0.50	0	1	0.48	0.50	0	1
Household size = Number of people living in the household	4.51	1.62	1	15	4.52	1.62	1	15

Variables	Full sample				Sample with non-consequential responses removed			
	Mean	Std	Min	Max	Mean	Std	Min	Max
No additional insurance =1 if household doesn't have any additional health or life insurance	0.52	0.49	0	1	0.52	0.49	0	1
Years lived in Ha Noi = Respondent's years lived in Ha Noi City	28.50	16.60	1	73	28.27	16.55	1	73
Smoker =1 if respondent is a current smoker	0.11	0.32	0	1	0.10	0.31	0	1
Own experience of respiratory illness =1 if respondent has personally been hospitalised due to respiratory illness	0.20	0.40	0	1	0.20	0.40	0	1
Time on roads = Respondent's average number of hours per day travelling on roads	1.77	1.59	0	17	1.77	1.59	0	17
High exposure to traffic sources =1 if respondent rates 4-5 out of 5 to indicate the likelihood that his/her household could be affected by traffic exhaust	0.80	0.39	0	1	0.80	0.39	0	1
High exposure to industrial sources =1 if respondent rates 4-5 out of 5 to indicate the likelihood that his/her household could be affected by industrial air pollution	0.46	0.49	0	1	0.47	0.49	0	1
Trees reduce air pollution =1 if respondent answers that one of top three benefits of tree is to reduce air pollution	0.81	0.38	0	1	0.81	0.38	0	1
High subjective role of tree cover area =1 if respondent rates 4-5 out of 5 to indicate that increase in tree cover can improve air quality	0.70	0.45	0	1	0.70	0.45	0	1
High effectiveness of government =1 if respondent rates 4-5 out of 5 to indicate that the government measures would be effective to reduce air pollution	0.87	0.32	0	1	0.87	0.32	0	1
High personal benefits =1 if respondent rates 4-5 out of 5 to indicate that the improvements in air quality would have direct benefits to his/her household	0.50	0.50	0	1	0.51	0.49	0	1
Subjective symptoms <sup>a</sup>	0.00	1.00	-3.68	2.51	0.01	0.99	-3.68	2.40
Subjective protection <sup>a</sup>	0.00	1.00	-3.99	2.42	0.02	0.98	-3.57	2.42
Number of respondents	1028				979			

<sup>a</sup> The respondents' perception was measured using the questions as follows: "Over the past month, as a result of air pollution, did you: S1. have "red" eyes; S2. suffer from nose irritation and sneeze; S3. have a dry throat and cough; S4. have difficulty breathing; P1. stay indoors and avoid outdoor activities (e.g. outdoor physical exercise, outdoor leisure activities); P2. avoid opening your windows to reduce outdoor air emissions; P3. wash your hands or face more frequently; P4. seek information about the levels of air quality in your living and working places. For each question, the respondents' scores were collected on a five-point scale including: 1 Never; 2. Rarely; 3. Occasionally; 4. Often; 5. Very often (Always). Scores of each respondent were transformed into a single continuous score by using factor analysis. The questions were designed based on certain of those included in Deguen et al. (2012) and Oltra and Sala (2018)'s scales. The respondent's subjective symptoms were measured using the questions S1-S4, and their protective measures were examined using the questions P1-P4.

### 3. Willingness-To-Pay for improving air quality in Hanoi city

#### 3.1. Econometric analysis

To estimate the WTP for improving air quality in Hanoi, conditional logit (CL) models were developed using NLOGIT 5.0 software. Results of the CL models without and with covariates are presented in Table 3. The sign of all attribute variables in Table 3 confirming the prior expectation that the likelihood of choosing an improvement program decreases as the increased payment in the electricity bill rises; the likelihood of choosing an improvement program decreases as numbers of air pollution-related illness and death increase; and as tree cover area rises, the likelihood of supporting an improvement program increases. All variables are statistically significant at the 1% or 5% level, confirming effects of the independent variables on residents' choices of supporting the improvements in air quality.

**Table 3: Results of conditional logit model for air quality improvements in Hanoi City**

Variables	Without covariates		With covariates	
Status quo ASC	0.425***	(0.065)	0.969	(1.002)
Morbidity	-0.003***	(0.0002)	-0.003***	(0.0002)
Mortality	-0.024***	(0.001)	-0.025***	(0.001)
Urban tree cover area	0.056***	(0.005)	0.059***	(0.005)
Cost	-0.015***	(0.0005)	-0.015***	(0.0006)
	Interaction between ASC and covariates			
Age			0.149***	(0.016)
Age squared			-0.001***	(0.0001)
Male			-0.081	(0.067)
Years of education			-0.426***	(0.134)
Years of education squared			0.017***	(0.004)
Household income			-0.018***	(0.005)

Variables	Without covariates	With covariates
Household income squared		0.0001*** (0.0001)
Having children		0.328*** (0.072)
Having elderly people		0.149** (0.068)
Household size		-0.060*** (0.021)
No additional insurance		0.173*** (0.060)
Years lived in Ha Noi		-0.035*** (0.007)
Years lived in HN squared		0.0007*** (0.0001)
Smoker		-0.404*** (0.105)
Own experience of respiratory illness		-0.308*** (0.075)
Time on roads		0.048** (0.018)
High exposure to traffic sources		0.390*** (0.081)
High exposure to industrial sources		-0.269*** (0.064)
Trees reduce air pollution		-0.229*** (0.076)
High subjective role of tree cover area		-0.806*** (0.069)
High effectiveness of government		-0.627*** (0.091)
High personal benefits		-0.475*** (0.065)
Subjective symptom		0.134*** (0.035)
Subjective symptom squared		0.032* (0.019)
Subjective protection		-0.055* (0.032)
Subjective protection squared		0.065*** (0.020)
Log-likelihood values	-5741.105	-5349.944
Pseudo-R <sup>2</sup>	0.095	0.156
AIC/n	1.956	1.832
n (observations)	5874	5874
k (number of parameters)	5	31

Standard errors are in parentheses; ASC: alternative specific constant, equal to 1 for the status quo option;

\*\*\* = Significance at 1% level. \*\* = Significance at 5% level. \* = Significance at 10% level.

With the aim of *examining the effects of observed heterogeneity*, we also estimated CL models with demographic and attitudinal variables interacted with a generic alternative specific constant for the status quo option. CL models were estimated with both the first choice data and the six choices pooled data. The signs of the covariates' coefficients are the same in the two CL models with covariates. Comparing with the first choice only data, the number of observations in the all choices pooled data is six times larger; hence, there are more covariates which are statistically significant in the CL model estimated with the all

choices pooled data. Our discussion of factors affecting preference for air quality improvement will focus on the models using all choices of each respondent.

In our investigation of standard socioeconomic factors affecting preference for the status quo, we used quadratic specifications to examine effects of age, years of education and household income. The quadratic specifications significantly fit in with our data at the statistical level of 1%, but we find no statistically significant difference by gender. The fitted quadratic form in age for the probability of choosing the status quo option has an inverse-U shape with a maximum at age of 74.5 years old (within the data range of 18 - 84 years). This indicates that age has an increasing effect on a respondent's propensity to choose the status quo up to 74.5 years old, but decreasing effect after that level, independent of the attributes of the alternatives. It seems that when comparing with younger people, elderly people might be more susceptible to health effects of air pollution; hence, the elderly respondents with very old age are more likely to choose an improvement program. The quadratic specifications fitted in with years of education and household income have a U-shaped form with a trough point at approximately 12.5 years of education (with the data range of 5 - 18 years); a minimum at a household income of about 90 million VND (within the range of 5 - 105 million VND). This suggests both education and household income has a negative effect on an individual's likelihood of opting for the status quo option to the minimum levels, but a positive effect after those levels. The positive relationship between high levels of both education and household income and the status quo may seem counterintuitive results. However, individuals with very high levels of education and household income may have less need for public programs to reduce health risks of air pollution, perhaps because they have better information and resources to find and afford private measures (e.g. to afford air purifier, moving homes to better places, etc.).

Our examination of household characteristics indicates that respondents in households having children under 15 years old, elderly people over 60 years old, and no additional insurance coverage are more likely to choose the status quo option, while respondents having a bigger family are more likely to choose the improvement programs. Individuals, who have to take care of more vulnerable family members (i.e. children, the elderly) in the situation where they cannot afford additional insurance coverage, may be better prepared themselves with the protective measures to prevent the health risks of air pollution, such that they would less appreciate a public program for air quality improvement. Individuals may believe that an improvement program would benefit all family members; hence, the bigger number of family members is, the more likelihood they would opt for the air quality improvement.

Our examination of observed heterogeneity is continued with factors related to respondents' connection with Ha Noi City, smoking status, own experiences of respiratory illness. Regarding connection with Ha Noi City, we applied a quadratic form to explore effects of respondents' years lived in Ha Noi. The fitted quadratic form for the propensity to choose the status quo option has a U-shaped curve with a minimum at 25 years (within the data range of 1 - 73 years). This suggests that respondents lived less than 25 years in Ha Noi

are less likely to choose the status quo, while respondents with more than 25-year stay in Ha Noi are more likely to opt for keeping the current situation. The smoking status has negative effect on the probability of choosing the status quo. Smoking habit is believed to have bad effects on smokers' respiratory system; hence, smokers appear to better appreciate the health risk reduction thanks to air quality improvements. The coefficient of "own experience of respiratory illness" variable is also negative. This suggests that respondents who have experienced respiratory illness are less likely to opt for the current situation in which they have to face higher health risk related to air pollution.

As for exposure to air pollution, respondents with potentially high level of exposure to traffic sources (i.e. longer time on roads, high subjective rating on the exposure to traffic exhaust) are more likely to choose the status quo, while respondents with high subjective exposure to industrial sources are more likely to desire for a public improvement program. A possible reason is that individuals may apply private measures (e.g. face masks) to reduce effects of their exposure to traffic exhaust, but public measures seem to be needed to reduce air emissions from industrial sources.

Our exploration of subjective perceptions shows that respondents with high ratings on the roles of tree and its cover area in reducing air pollution are less likely to choose the status quo. It is immediately intuitive, as individuals holding a high appreciation for the tree role in improving air quality would prefer the increase in tree cover area proposed in improvement programs. We also find that individuals are more likely to choose public improvement programs over the status quo, when they strongly agree that government measures would be effective to reduce air pollution. To study about respondents' motivation behind their choices, respondents were requested to rate the extent to which they perceived the improvement program to yield personal benefits to themselves or their families. The negative and significant variable of "high personal benefits" indicates that respondents perceiving there to be high levels of personal benefits from the improvement program in question are less likely to choose the status quo. This suggests that respondents are more likely to support improvement programs, when they judge the improvement more likely to benefit their own household. It appears that self-interest has significant impact on respondents' choices in our survey. Again, quadratic specifications were applied to examine the effects of subjective symptom and protection on preference for the status quo option. The quadratic specifications fitted in with subjective symptom and protection have a U-shaped form with minimum points at a subjective symptom factor score of -2.09 (within the range of -3.68 - 2.51) and at a subjective protection factor score of 0.42 (within the range of -3.99 - 2.42). This suggests both subjective symptom and protection has a negative effect on respondents' propensity to opt for the status quo option to the minimum levels, but a positive effect after those levels. It may be counterintuitive to find that respondents with high levels of both subjective symptom and protection appear to support the status quo. However, individuals with higher levels of subjective symptom and protection may become increasingly conservative - focusing on actions that minimize risk exposure, such that they perhaps have less need for public programs to reduce health risks of air pollution.

### 3.2. Willingness-To-Pay estimates

Mean marginal and total WTP per household for improvements in air quality in Hanoi city are reported in Tables 4 and 5, respectively. The total WTP was estimated for two improvement programs described as follows:

+ Low improvement: number of people hospitalised 250/100,000, number of people died 35/100,000 and urban tree cover area of 13 m<sup>2</sup> per capita.

+ High improvement: number of people hospitalised 150/100,000, number of people died 20/100,000 and urban tree cover area of 18 m<sup>2</sup> per capita.

**Table 4: Mean marginal WTP estimates in thousand VND per month**

Attribute variables	WTP estimates	Standard deviation
Reduction in air pollution-related Illness	0.201***	0.018
Reduction in air pollution-related Death	1.591***	0.134
Urban tree cover area	3.692***	0.361

Notes: \*\*\* = Significance at 1% level

**Table 5: Total WTP estimates in thousand VND per month**

Program	WTP estimates	Standard deviation
Medium improvement	34.528***	2.030
Maximal improvement	97.000***	3.553

Notes: \*\*\* = Significance at 1% level

### 4. Discussion and Conclusion

In this paper, residents' WTP for improving air quality of Ha Noi was estimated. Hanoi residents expressed their strong preferences for increase of green spaces and reduction of air pollution-related death. The mean marginal WTP for the increase of 1 m<sup>2</sup> in per-capita tree cover is estimated at 3,692 VND per month; and for the reduction of 1 in 100,000 death related air pollution is about 1,591 VND per month. Hanoi residents appear to be willing to pay monthly 97,000 VND for the maximal improvements in air quality. This maximum amount of WTP accounts for about 0.43% of household income. The estimate in our study is similar to the WTP values of 0.4-0.7% of household income, which were estimated for improvements in air quality in some Chinese cities (Wang and Mullahy, 2006; Wang et al., 2006; Wang and Zhang, 2009).

### Acknowledgement

This research is funded by Vietnam National Foundation for Science and Technology Development (NAFOSTED) under grant number 502.99-2017.14.

## 5. References

1. Adamowicz, W., Boxall, P., Williams, M., Louviere, J., 1998. Stated Preference Approaches for Measuring Passive Use Values: Choice Experiments and Contingent Valuation. *Amer. J. Agr. Econ.* 80, 64-75.
2. Adamowicz, W., Louviere, J., Williams, M., 1994. Combining revealed and stated preference methods for valuing environment amenities. *J. Environ. Econ. Manage.* 26, 271-292.
3. Alpizar, F., Carlsson, F., Martinsson, P., 2001. Using Choice Experiments for Non-Market Valuation. *Economic Issues* 8, 83-110.
4. Alriksson, S., Öberg, T., 2008. Conjoint analysis for environmental evaluation. *Environmental Science and Pollution Research* 15, 244-257.
5. Bennett, J., Blamey, R.K., 2001. The choice modelling approach to environmental valuation. E. Elgar Pub., Cheltenham, UK ; Northampton, MA, USA.
6. Boxall, P.C., Adamowicz, W.L., Swait, J., Williams, M., Louviere, J., 1996. A comparison of stated preference methods for environmental valuation. *Ecolog. Econ.* 18, 243-253.
7. Carson, R., Groves, T., 2007. Incentive and informational properties of preference questions. *Environ. Resource Econ.* 37, 181-210.
8. Deguen, S., Ségala, C., Pédrone, G., Mesbah, M., 2012. A New Air Quality Perception Scale for Global Assessment of Air Pollution Health Effects. *Risk Analysis* 32, 2043-2054.
9. DeShazo, J.R., Fermo, G., 2002. Designing Choice Sets for Stated Preference Methods: The Effects of Complexity on Choice Consistency. *J. Environ. Econ. Manage.* 44, 123-143.
10. GreenID, 2017. GreenID: Chất lượng không khí Việt Nam 2016. Trung tâm Phát triển Sáng tạo Xanh (GreenID), Hà Nội.
11. GreenID, 2018. GreenID: Chất lượng không khí Việt Nam 2017. Trung tâm Phát triển Sáng tạo Xanh (GreenID), Hà Nội.
12. Hanley, N., Mourato, S., Wright, R.E., 2001. Choice Modelling Approaches: A Superior Alternative for Environmental Valuation? *J. Econ. Surveys* 15, 435-462.
13. Hanley, N., Wright, R., Adamowicz, V., 1998. Using Choice Experiments to Value the Environment: Design Issues, Current Experience and Future Prospects. *Environ. Resource Econ.* 11, 413-428.
14. Hieu, V.V., Quynh, L.X., Ho, P.N., Hens, L., 2013. Health Risk Assessment of Mobility-Related Air Pollution in Ha Noi, Vietnam. *Journal of Environmental Protection* 4, 1165-1172.
15. Hoyos, D., 2010. The state of the art of environmental valuation with discrete choice experiments. *Ecolog. Econ.* 69, 1595-1603.
16. Lancaster, K.J., 1966. A New Approach to Consumer Theory. *The Journal of Political Economy* 74, 132-157.



17. Luong, L.M.T., Phung, D., Sly, P.D., Morawska, L., Thai, P.K., 2017. The association between particulate air pollution and respiratory admissions among young children in Hanoi, Vietnam. *Science of The Total Environment* 578, 249-255.
18. MONRE, 2017. National State of Environment 2016: Urban Environment. Ministry of Natural Resources and Environment, Hanoi (in Vietnamese).
19. Oltra, C., Sala, R., 2018. Perception of risk from air pollution and reported behaviors: a cross-sectional survey study in four cities. *Journal of Risk Research* 21, 869-884.
20. Phung, D., Hien, T.T., Linh, H.N., Luong, L.M.T., Morawska, L., Chu, C., Binh, N.D., Thai, P.K., 2016. Air pollution and risk of respiratory and cardiovascular hospitalizations in the most populous city in Vietnam. *Science of The Total Environment* 557-558, 322-330.
21. Rizzi, L.I., Maza, C.D.L., Cifuentes, L.A., Gómez, J., 2014. Valuing air quality impacts using stated choice analysis: Trading off visibility against morbidity effects. *Journal of Environmental Management* 146, 470-480.
22. Suh, J., 2002. Estimation of Non-market Forest Benefits Using Choice Modelling, in: Harrison, S.R., Herbohn, J.L., Mangaoang, E.O. (Eds.), *Socio-Economic Research Methods in Forestry: A Training Manual* Leyte State University, ViSCA, Baybay, The Philippines, pp. 149-164.
23. Vossler, C.A., Doyon, M., Rondeau, D., 2012. Truth in Consequentiality: Theory and Field Evidence on Discrete Choice Experiments. *American Economic Journal: Microeconomics* 4, 145-171.
24. Wang, H., Mullahy, J., 2006. Willingness to pay for reducing fatal risk by improving air quality: A contingent valuation study in Chongqing, China. *Science of The Total Environment* 367, 50-57.
25. Wang, X., Bennett, J., Xie, C., Zhang, Z., Liang, D., 2007. Estimating non-market environmental benefits of the Conversion of Cropland to Forest and Grassland Program: A choice modeling approach. *Ecolog. Econ.* 63, 114-125.
26. Wang, X.J., Zhang, W., Li, Y., Yang, K.Z., Bai, M., 2006. Air quality improvement estimation and assessment using contingent valuation method, a case study in Beijing. *Environ Monit Assess* 120, 153-168.
27. Wang, Y., Zhang, Y.-S., 2009. Air quality assessment by contingent valuation in Ji'nan, China. *Journal of Environmental Management* 90, 1022-1029.
28. Yoo, S.-H., Kwak, S.-J., Lee, J.-S., 2008. Using a choice experiment to measure the environmental costs of air pollution impacts in Seoul. *Journal of Environmental Management* 86, 308-318.

# TWO-WAY IMPACTS OF CRUDE OIL PRICE MOVEMENTS FOR SOCIO-ECONOMIC SUSTAINABLE DEVELOPMENT OF ENVIRONMENTAL PROTECTION AND NATIONAL ENERGY SECURITY IN VIETNAM

*Dr. Luong Van Hai*

*hangngan06@yahoo.com*

*Hanoi Open University, Hanoi, Vietnam*

## **Abstract**

*The paper focuses on the development of crude oil prices in the international market in recent years, analyzing the two-way impacts of such developments on the Vietnamese economy from different perspectives on security, national capacity and socio-economic sustainable development goals, environmental protection, on which basis to draw conclusions and recommend solutions according to the research objectives of the article.*

**Keywords:** *two-way impact, oil price volatility, sustainable development, energy security*

## **1. Introduction**

Crude oil is a strategic commodity, traded daily in the international financial market, with two main operations: spot and forward trading. Oil prices fluctuate, affecting the global economy, energy security of a number of countries, including Vietnam. For Vietnam, when crude oil prices decline, the state budget revenue may be reduced but the influence on the budget revenue has been decreasing in recent years, but the overall economy will not be affected. much influence. The price of crude oil decreased, the price of imported gasoline in Vietnam decreased, and it was able to reduce the selling price for consumers in the market, and to reduce transportation costs for businesses, people and organizations. However, the decrease in crude oil prices reduces the revenue of the Vietnam Oil and Gas Group, affects the progress of implementation of projects on exploitation, processing of petroleum and petrochemical products, and to sustainable development of the commune economy. Assembly, environmental protection, national energy security.

## **2. Methods**

Research articles on practice, without conditions to use quantitative methods, to survey and calculate the impact level of factors, the author uses methods of qualitative research, analysis, synthesis and comparison based on secondary data sources, documents of the authorities that formulate, operate and implement policies, such as: international financial information agencies, Ministry of Industry and Trade, and Vietnam Oil and Gas Group Vietnam, the State Bank of Vietnam, commercial banks, other credit institutions, the General Statistics Office and a number of other agencies involved in the formulation and

administration of credit policies, and exchange. with oil and gas experts with bank staff and enterprise officials to make comments and assessments according to the research objectives of the paper.

### **3. Results**

#### ***3.1. Overview of crude oil price movements from 2008 to the present and impact on national energy security***

After the global economic crisis in 2008, crude oil prices on the world market plummeted, from a record of US \$ 147 per barrel on July 11, 2008, to the end of November 2008, down to US \$ 44-46. / barrel, the lowest level in the last 4 years since 2004, Since the end of 2008, the price of crude oil has continuously decreased, sometimes down to around USD 30 / barrel. [first]

In 2018, world oil prices had mixed fluctuations when 9 months tended to increase steadily, but by the end of November, oil prices plunged and evaporated by 30% compared to the "peak" of 86.74. USD / barrel of Brent North Sea oil, established on October 3.

The price of crude oil in the first quarter of 2019 rose to a record, a feat after more than 14 years. However, from the beginning of March 2020 until now, the world price of crude oil has continued to decline the most in more than 4 years. As of March 23, 2020, Brent oil price delivered in April 2020 stopped at USD 25.66 / barrel. With the current reduction rate of 7-8% / day, the world crude oil price is likely to drop to below 20USD / barrel in the coming days.

Oil prices have a double impact on the economy, on national energy security. If the price of oil increases, the budget revenue is beneficial but it will entail all the input costs of many sectors in the economy, which are underpriced, affecting production growth, the CPI, and the goal of curbing inflation. In order to regulate financial and monetary policies, it is possible that the Central Bank (the State Bank - the State Bank of Vietnam) will have to tighten monetary policy, limit credit, increase interest rates, affect the progress. implementing projects of Vietnam Oil and Gas Group, of many other energy sectors and many other economic sectors.

When crude oil prices fall, the cost of importing petroleum products of all kinds reduces the most benefits for businesses (businesses) dealing in the transport sector because this is a field that consumes a lot of gasoline. Other fields directly related, such as fertilizer production, plastics, resource exploitation, fishing, metallurgy, construction of transport works ... also benefit when gasoline accounts for 20- 30% of the input costs of these industries. Reduced freight rates also reduce the input costs of most industries. In particular, falling gasoline prices also help households reduce daily travel expenses and benefit dually when the price of consumer goods has the opportunity to fall. Thus, the reduction in petrol prices can help increase production growth, so that the increase in domestic revenue can offset budget revenues, and the opportunity to increase petroleum reserves for national energy security, accelerate the progress of energy projects.

In the past, the rise and fall of oil prices was very normal, but a "head start" like in March 2020, in the history of the world economy over 30 years has never happened, there is a day oil prices fell by 30%, a record in recent decades.

According to calculations, for every USD 1 reduction in oil price, PVN's oil sales will decrease by approximately USD 225,000 / day. Thus, with the oil price of 30-35 USD / barrel, PVN will lose about 3 billion USD in revenue in 2020, seriously affecting the business results of the Group and the national budget revenue.

For oil and gas exploitation enterprises which are core activities like Vietnam Oil and Gas Group, the low oil price also means that the revenue of the industry will be reduced, even investment and exploration plans and develop new mines, ensure that the output of exploited in the following years will be affected; It also affects the progress of energy projects of the oil and gas industry. When the price of crude oil is only 60-65 USD / barrel, some fields that are expected to be put into development are likely to be delayed, down to 30 USD / barrel, the situation is worse. In the short term, the additional investment is also affected by insufficient revenues for the current additional funding for mines. As for the new mines, it is sure to be affected, to stop operating.

According to PVN, in 2020, crude oil price is estimated at 60 USD / barrel. But so far this plan price has plummeted more than half, to less than 30 USD / barrel. Therefore, the revenue from selling oil and paying to the State budget from crude oil will also drop sharply because the cost of oil exploitation of PVN is over 30 USD / barrel.

In recent years, oil prices in the world market have fluctuated in a declining direction and are now fluctuating around low levels, having had multidimensional impacts on the subjects of Vietnam's economy, foreign currency revenue and expenditure and national foreign currency balance. Some published documents show that Vietnam's oil is of good quality and reserves of about 4.4 billion barrels, accounting for 0.3% of the oil reserves discovered around the world, the second highest level. in East Asia, ranked third in Asia and ranked 28 worldwide. Vietnam is both a country and an exporter of crude oil, and is likely to maintain its production at around 340,000 bpd in the next few years, ranking 36th in the world in terms of production scale. and ranked fourth among Southeast Asian countries in crude oil exports. Vietnam is also a country that both imports crude oil and finished petroleum products. [2]

### ***3.2. Some assessments of the two-way impact of crude oil price fluctuations on the world market on Vietnam's economy and monetary policy management of the State Bank***

#### ***3.2.1. Positive impact***

- Firstly, the reduction of oil price has a positive impact on people's consumption and enterprises' activities. Thanks to falling oil prices, it has created conditions for the majority of people to save transportation costs, thereby increasing consumption for the economy. On the business side, households with production, business and service, including fishing, aquaculture, production sectors and services that use a lot of gasoline, when oil prices fall,

helps reducing input costs, increasing profits thereby increasing spending, reinvestment of businesses of production and business households, fishermen, farm owners, .... Demand for bank credit and ability to pay debt on time is also higher. Accordingly, the target of credit growth, the target of managing interest rates and exchange rates of the State Bank are also more favorable according to the Government's Decrees.

- Secondly, the business efficiency of the majority of businesses has been improved, contributing to the increase in domestic revenue from taxes, contributing positively to the state budget.

Operating more favorable fiscal policies also creates favorable conditions for operating monetary policies, especially in issuing government bonds, balancing foreign currencies for national goals, etc.

Along with low labor costs, bright prospects for the domestic market and enhanced FTA signing, falling oil prices increase Vietnam's attractiveness in attracting FDI capital, contributing to facilitating credit activities. Bank. This is an opportunity for Vietnam in the medium and long term to attract foreign capital and technology and accelerate the process of industrialization and modernization of the economy. Thus, it is clear that operating monetary policy to implement the objective of controlling inflation is also more favorable in the context of low and low oil prices, and the rising oil price has a significant impact on CPI.

- Fourthly, stabilize interest rates and exchange rates. Oil prices fell and fluctuated around low levels, impacting on the aforementioned subjects of the economy, low CPI, paving the way for stability and a slight reduction in interest rates. Besides, the USD has dropped, contributing to stabilizing the VND / USD exchange rate. This development created a psychology of the people peacefully depositing their local currency into banks and businesses and households to secure loans for investment and consumption. Oil prices are low and plummet, and foreign currency spending on imports of petroleum, gas and other petrochemical products also decreases, creating opportunities for increasing foreign exchange reserves of the State Bank and the nation.

### *3.2.2. Negative impact*

- Firstly, reducing state budget revenue from crude oil

State budget revenue from crude oil has decreased from an average of 5.2% of GDP in the 2006-2010 period to less than 1% in 2015. [8]

Previously, revenues from crude oil in the state budget accounted for a large proportion. In the years 2006-2010, the average revenue from crude oil accounted for about 30% of the total State budget revenue, so when there is a fluctuation in oil prices, it will have a great influence on the budget revenue. But in fact, up to now, the share of crude oil revenue in the State budget has decreased to 4% in 2018 and in 2019 only accounted for 3.2%. Thus, it can be seen that the impact from crude oil on the State budget is negligible.

In 2019, PVN has paid VND 108 trillion to the State budget, exceeding 23% of the plan. In 2020, if this situation persists and if crude oil price drops below 30 USD / barrel,

the revenue and ability to contribute to the State budget of Vietnam Oil and Gas Group will be significantly reduced compared to the next plan. plan and affect the progress of national energy projects.

However, in recent years, revenues from crude oil in the total budget revenue have been much lower, having to find other sources to offset the budget revenues, but must be sustainable sources of revenue, that is to promote economic growth. then there is a basis to increase budget revenue. Current revenue from crude oil is not large and is offset by domestic revenue; This includes revenues from state-owned enterprises, FDI enterprises and non-state economic sectors. It is estimated that if the price of oil in 2020 drops below US \$ 30 / barrel, lower than the estimate of US \$ 60 / barrel, the budget deficit will be about VND 70,000 to VND 80 trillion.

- Secondly, negative impacts on Vietnam's stock market through the influence of oil and gas enterprises stocks

The revenue of most listed oil and gas enterprises in 2015 fell sharply; total revenue of these businesses decreased by 16.5% and profit after tax decreased by 15.4% over the same period and directly affected the prices of oil & gas stocks. [4]

The years 2016-2020 continue to be a difficult year for the oil and gas industry when oil prices fluctuate in two directions, limited workloads and service prices decline, and share prices of oil and gas enterprises also fluctuate sharply. Oil prices on the world market.

- Thirdly, investment attraction activities are affected, especially oil and gas industry and related industries, many investment projects have been delayed, stopped implementing due to low oil prices.

Many petrochemical projects are being implemented slowly as well as being delayed and simplified; There are even projects that are at risk of having their licenses revoked. This situation greatly affects enterprises related to oil and gas in repaying loans borrowed by commercial banks for construction. contracting, implementing projects, ... as well as executing signed credit contracts.

- Fourth, promote petrol smuggling activities

The price of petroleum on the world market often fluctuates, the retail price of gasoline in the domestic market does not adjust in time, sometimes higher or lower than the world market price, stimulating activities. smuggling petroleum at sea and across borders. When domestic gasoline prices are lower than those of neighboring countries, the means of neighboring countries in transit to buy petrol in Vietnam or illegal petrol and oil export activities through many different ways. Similarly, when domestic gasoline prices are higher than world market prices, illegal import of petrol and oil also develops, causing loss of state budget revenues as well as other negative effects, affecting energy security. nation. The situation also greatly affects foreign currency control, underground transactions, illegal foreign currency transactions.

- Fifth, impact on the number of tourists from major oil and gas exporting countries

This case is most evident for Russia and other countries of the former Soviet Union. In the years when oil and gas prices have risen, the economy has grown, people's incomes have increased, and tourists from those countries have come to Vietnam to increase, especially the Mui Ne area of Binh Thuan and Da Nang provinces. Danang, Nha Trang ... entailed many tourism development projects, hotels, restaurants, resorts, ... aviation services have also grown, many charter flights have taken guests directly to Vietnam. But until the price of oil and gas fell, the economy was isolated many things, the ruble devalued, the number of tourists decreased, the hotel and resort projects, etc. stalled. abandoned, causing bad debts for commercial banks and the effect of attracting foreign tourists to this sector of this area.

By the time oil prices and gas prices recover slightly, inflation stops, tourists from Russia and the above countries gradually recover, but not as expected and if Brent crude oil price rises above 65 USD. / barrel and the price of light sweet crude oil increased to over 60 USD / barrel, the situation of the number of tourists of those countries visiting Vietnam in general and the Central region in particular is forecast to increase even higher.

Foreign currency revenue from tourists from countries affected by oil prices is not as expected, also affecting the international balance of payments, the revenue of businesses targeting this flow.

#### Sixth, great impact on the rubber industry

Because the price of crude oil in the world market does not increase and fluctuates around a low level, making the price of natural rubber does not increase, the export price of natural rubber latex also does not increase, greatly affecting businesses and households. planting rubber, purchasing and processing rubber latex. Regarding employment and income of the majority of households and people in the provinces of the Southeast, Central Highlands and the Central Region.

Rubber industry is an important source of foreign exchange earnings from export activities; At the same time, this is also an important field of credit capital investment of commercial banks, in both planting and tending, purchasing and processing, especially in provinces with natural rubber area, from which there are influences. Certain to operating monetary policy.

#### Seventh, impact on other industries related to oil

A series of investment projects of enterprises directly related to mines, such as artificial fibers, plastics, chemical fertilizers, etc. were greatly affected. Typically, the Dinh Vu fiber project (Hai Phong) has an objective reason due to the large fluctuations in oil prices. Because the fiber industry is tied to the oil market, at the time when the project was built and approved, the world crude oil price was at its peak, then dropped to only US \$ 50 / barrel, sometimes down. Under 40 USD / barrel, so the project lost. However, it should be really frankly acknowledged that the subjective reason for the project's rapid loss is due to limited awareness and mistakes in the forecast of crude oil and fiber markets. gender, weaknesses and negatives in project implementation management.

Investment projects directly related to crude oil with the capital up to tens of thousands of billion VND have been delayed, suffered losses, caused bad debts to commercial banks, greatly affecting the management of monetary policy.

### ***3.3. Forecast of supply and demand of petroleum in Vietnam in the coming time and national energy security issues***

National energy security is quite wide, from gasoline to gas to electricity. But petroleum and gas itself are also related to electricity because there is a fair share of annual electricity production coming from gas-fired thermal power plants. In addition, in the coming years, Vietnam's petroleum consumption has not been able to replace or reduce the proportion to be replaced by other energy sources, moreover this item is directly affected by price movements. oil in the world market, affecting domestic petroleum supply. Therefore, Vietnam's energy security in the coming years is most relevant to petroleum.

With the development and growth of Vietnam's economy in the next 5 years, the total petroleum demand in the country from 2018 to 2022 will reach 6.5 million tons of gasoline and 8.5 million tons on average. DO oil. Meanwhile, with the design capacity of Dung Quat oil refinery and current NSRP, from 2018, the total gasoline supply of the whole country will be nearly 6 million tons / year and the total oil supply will be nearly 7 million tons / year (equivalent to about 92% and 82% of domestic demand).

Thus, with the current situation of supply and demand of petroleum, the Vietnamese market is still lacking an average of 0.8 million tons of gasoline and 1.8 million tons of DO oil annually. This shortfall will be imported to Vietnam from regional countries such as Singapore, Malaysia, Thailand, South Korea and China.

## **4. Discussion and Conclusion**

Crude oil prices have a multidimensional impact on the Vietnamese economy, however, with crude oil prices falling and at a low level overall, many sectors in the economy benefit more. Crude oil price fluctuations in the direction mentioned above also have a multidimensional impact on monetary policy management and commercial operations of commercial banks. Operating macro policies, including fiscal policy, should not be too dependent on revenues from crude oil exports for the purpose of economic growth but should promote the development of other sectors of the economy. Oil and gas resources of Vietnam are limited and Vietnam is still a country importing petroleum for domestic consumption.

Firstly, the Ministry of Planning and Investment and the State Capital Management Committee should urgently review investment projects on oil and gas, gas, electricity, fertilizer, etc., which have been registered but not yet implemented or developed. slow declaration, resolutely take measures to timely remove, resolutely revoke the project, revoke the project license slow implementation, or promote project transfer.

Secondly, the Vietnam Oil and Gas Group, the relevant functional agencies, need to ensure on schedule, accelerate the implementation of projects being implemented, take measures to remove difficulties and soon put projects in. projects into commercial activities.



To accelerate the construction and early operation of projects on oil and gas prospection, exploration and exploitation, development of gas industry, development of electricity industry, development of petroleum services in the period to the year 2020, as well as paving the way for related projects, in those areas of the period to 2025, will contribute to Vietnam stopping the import of electricity from China, self-sufficient 100% of the electricity demand of the platform. To be economically self-sufficient, 100 domestic petrol and gas demands are exported to the international market.

Thirdly, Vietnam Oil and Gas Group, its subsidiaries and joint ventures promote strong, equal and competitive competition with each other's petroleum products, from NSRP, BSR and imported goods. Companies need to develop a business strategy to reduce product costs, improve the competitiveness of products of Dung Quat Refinery, of NSRP, in which focus on production planning according to operational capacity. The reality of the plant and flexible adjustment to the market, maximizing the capacity of technology workshops, applying innovations and improvements to optimize energy, reduce costs, reduce inventories and focus. produces many petrochemical products, products of high economic value.

In addition, NSRP, BSR, and other factories should always actively expand consumption markets, increase domestic market share as well as develop plans to export products to neighboring countries in the region such as Laos and Cambodia. , Indonesia ...

Fourthly, the SBV continued to be proactive and flexible in managing monetary policy, contributing to controlling inflation, in the direction of further reducing operating rates, stabilizing exchange rates, strictly controlling credit quality, flexibly credit growth targets according to development signals of the economy, associated with continuing to implement drastically solutions to restructuring credit institutions in the period to 2020.

Sixthly, the Ministry of Industry and Trade cooperates with relevant ministries and localities to limit the situation of smuggling gasoline across the border.

The tourism industry needs a strong marketing strategy for Russian visitors and countries of the former Soviet Union. The rubber industry needs to have a cautious strategy in expanding the area of planting new rubber trees. Instead, promote intensive farming, increase productivity, and promote processing of natural rubber products in the country.

## 5. References

1. <http://bnews.vn/gia-dau-the-gioi-tang/47213.html>
2. [www.nhandan.com.vn/.../nhan.../28415502-trien-vong-thi-truong-dau-tho-nam-2016...](http://www.nhandan.com.vn/.../nhan.../28415502-trien-vong-thi-truong-dau-tho-nam-2016...)
3. [www.vietnambiz.vn/tong-quan-thi-truong-xang-dau-viet-nam-2016-11485.html](http://www.vietnambiz.vn/tong-quan-thi-truong-xang-dau-viet-nam-2016-11485.html)
4. Evaluation report on impacts and impacts of oil price reduction on macroeconomics, Vietnamese enterprises and some recommendations and recommendations - BIDV Research Center
5. <http://thoibaotaichinhvietnam.vn/pages/kinh-doanh/2016-12-28/ban-le-hang-hoa-dich-vu-tieu-dung-dat-hon-352-trieu-ty-dong-39328.aspx>

6. [www.cafef.vn/thu-ngan-sach-2016-dat-1094-nghin-ty-dong-2017010615184393.chn](http://www.cafef.vn/thu-ngan-sach-2016-dat-1094-nghin-ty-dong-2017010615184393.chn)
7. [www.kinhdoanh.vnexpress.net/.../nguồn-thu-tu-dau-lao-doc-ngan-sach-trong-vao-dau-341...](http://www.kinhdoanh.vnexpress.net/.../nguồn-thu-tu-dau-lao-doc-ngan-sach-trong-vao-dau-341...)
8. [vneconomy.vn/.../thu-ngan-sach-viet-nam-tu-dau-tho-xuong-duoi-1-gdp-201601230...](http://vneconomy.vn/.../thu-ngan-sach-viet-nam-tu-dau-tho-xuong-duoi-1-gdp-201601230...)
9. Socio-economic report for 2017-2019 and in the first 6 months of 2020
10. [www.sbsc.com.vn/News/2017/7/17/46283.aspx](http://www.sbsc.com.vn/News/2017/7/17/46283.aspx)
11. [www.vietnamtourism.gov.vn/index.php/items/14032](http://www.vietnamtourism.gov.vn/index.php/items/14032)
12. <https://www.customs.gov.vn/Lists/ThongKeHaiQuan/ViewDetails.aspx?ID=1159>
13. [www.anninhthudo.vn/chinh-tri-xa.../12...cong-thuong-thua...hay...sinh/724894.antd](http://www.anninhthudo.vn/chinh-tri-xa.../12...cong-thuong-thua...hay...sinh/724894.antd)
14. [www.cafef.vn/san-luong-dau-tho-khai-thac-giam-manh-trong-2-thang-dau-nam-20170305](http://www.cafef.vn/san-luong-dau-tho-khai-thac-giam-manh-trong-2-thang-dau-nam-20170305)
15. <http://www.baohaiquan.vn/Pages/Chi-so-gia-tieu-dung-11-thang-tang-361.aspx>
16. <https://baomoi.com/tap-doan-dau-khi-viet-nam-da-dat-doanh-thu-367-5-nghin-ty-dong/c/23452266.epi>

# PAYMENTS FOR FOREST ENVIRONMENTAL SERVICES IN VIETNAM WITH THE DIFFERENT MECHANISMS

*M.S. Mai Thi Khanh Van*

*mtkvan@hueuni.edu.vn*

*School of Hospitality and Tourism, Hue University, Hue, Vietnam*

## **Abstract**

*In Vietnam, payment for forest environmental services (PFES) is in the orientation for socialization of national forest protection in Vietnam and has made great strides in the last decade. The paper clarified two cases of implementing PFES with the different mechanism of payment in Phu Loc district (Thua Thien Hue province) and Phong Nha - Ke Bang National Park (Quang Binh Province). In the first case, PFES is indirect method by a clean water supply company. With an appropriate mechanism, indigenous people has been able to involve in PFES policy. However, due to the low payment amount, PFES money has not had a prominent role in improving the local livelihoods. In the second one, tourism companies have been the direct payers to use the environmental services from forest. It is worth mentioning in this situation that there was no involvement of local people in PFES. This implementation mechanism prevented local people from participating and benefiting from the policy. Whether it is direct payment or indirect payment, the overall goal of PFES is always concern to ensure the livelihoods of local people. Therefore, after awarding the limitations from the PFES implementation process, the suggestions will be given to improve the policy.*

**Keywords:** *Local livelihoods, payment for Forest environmental services, ,payment mechanism of PFES, PFES.*

## **1. Introduction**

Paying for Environmental Services (PES) is a scheme that involves transferring financial resources to those who provide environmental services from those who use it, in order to create positive impacts to environment (Miranda et al, 2003; Mayrand & Paquin, 2004; Locatelli et al, 2008; Baker & Rice, 2012). In Vietnam, Environmental Services (ES) are paid mainly for forest environmental services. In 2004, through the revised Forest Protection and Development Law (2004), the foundation for a national Payment for Forest Environmental Service (PFES) program was conducted by the Government of Vietnam (Pham TT. Et al, 2013).

According to Decree 99/2010/ ND-CP and Decree 147/2016/ND-CP, there are 4 types of ES integrated in PFES, in which the framework for "watershed protection" services (protection of water sources for production and life) and "landscape beauty" services (for tourism services) has been clearly defined since January 1st, 2011. (Government, 2010; Government, 2016)

For the first study site: Phu Loc District, Thua Thien Hue Province, PFES was made for "water protection" service (water supplied to clean water company in the province). The form of payment used is indirect payment through Thua Thien Hue Forest Protection and Development Fund.

At the second study site: Phong Nha - Ke Bang National Park (PNKB NP), Quang Binh province, the "landscape beauty" service is the only type of forest environmental service to be paid. Direct payment is applied in PFES here, where the environmental service provider makes the contracts directly with the user without going through any intermediaries.

For each study site, different payment mechanisms are implemented, the policy implementation process also achieved certain results. However, the negative or limited effects from the PFES implementation still exist, making the achieved effectiveness not meeting expectations.

Thus, clarifying the positive results of applying PFES policy with 2 forms of payment, as well as pointing out the limitations in the implementation process; finally, making suggestions for improving the PFES implementation will be the main goals that the authors aim for in this research.

## **2. Method**

Information related to the PFES and local livelihoods at two research sites was collected from 2017 to 2019. The field trip in Phu Loc district was from January 2<sup>nd</sup>, 2017 to April, 30<sup>th</sup>, 2017. After that, the author collected and updated the information in September, 2019 and April, 2020 by calling for the interviewees. The fieldtrip in PNKB NP area were from August, 6<sup>th</sup>, 2019 to September, 5<sup>th</sup>, 2019.

### ***2.1. Data collection methods***

The research focus on PFES implementation and its effects on forest protection and livelihood of local people in 2 case studies. The two sources of information used in this study are primary data and secondary data.

#### ***2.1.1. To case study in Phu Loc district***

Primary data will be collected from interviews with local people and local authorities in Loc Tien commune and Loc Hoa commune (in Phu Loc district) through sample questionnaires and depth interviews. Group discussions and individual observations are also applied in the primary data collection process.

Secondary data has been collected from the People's Committee of Phu Loc district; Forest Protection Department of Phu Loc District, and Thua Thien Hue's forest protection and development fund, as well as related studies and reports that have been published in newspapers, magazines and websites.

#### ***2.1.2. To case study in Phong Nha - Ke Bang National Park***

Primary data will be collected from interviews with staff of PNKB NP Management Board, and local people through sample questionnaires and depth interviews. Group discussions and individual observations are also applied in the primary data collection process.

Secondary data has been collected from the Management Board of PNKB NP, as well as related studies and reports that have been published in newspapers, magazines and websites.

## **2.2. Data analysis methods**

- Quantitative method: Primary data sources from household interviews and staffs were used. These types of information could be quantified and processed by Excel to serve the research.

- Qualitative methods: Data from secondary data, important information from in-depth interviews, and unquantifiable information in the questionnaires were aggregated to apply.

## **2.3. Research questions**

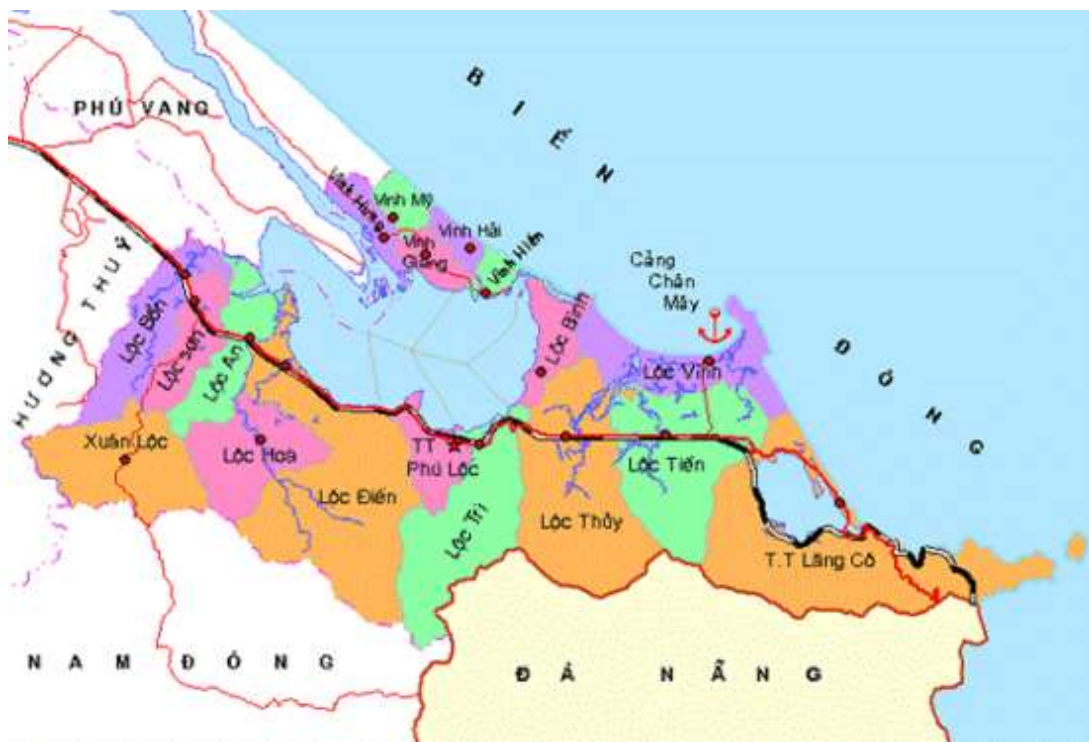
- What is the mechanism of PFES in two study sites?
- What are the impacts of PFES on local livelihoods in two study sites?

## **3. Results**

### **3.1. PFES implementation in Phu Loc district, Thua Thien Hue province**

#### **3.1.1. Introduction of Phu Loc district**

Phu Loc District<sup>14</sup> is a district located in the South of Thua Thien Hue Province, with an area of 720.9 km<sup>2</sup>, an average population of 134,628 people, a population density of 187 people / km<sup>2</sup>.



**Figure 1: Map of Phu Loc district**

*Source: Website of Phu Loc district, Thua Thien Hue province*

<sup>14</sup> Website of Phu Loc district, Thua Thien Hue province.

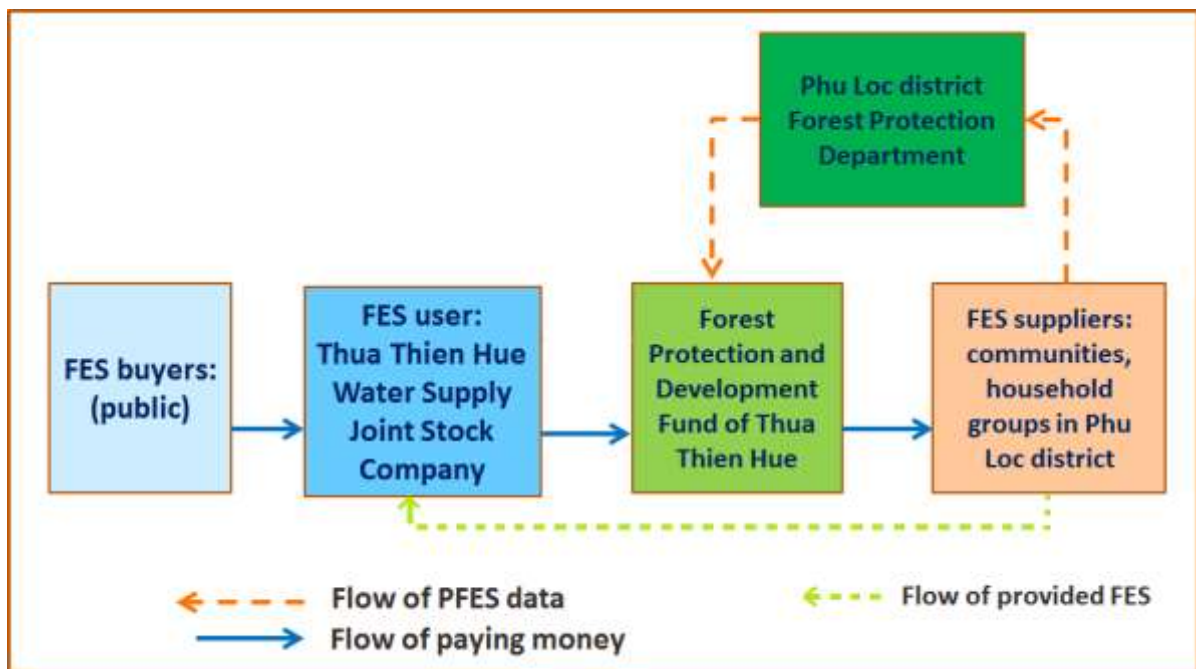
### 3.1.2. The implementation of PFES in Phu Loc district

Phu Loc district is not on the list of piloting PFES policy under Decision 380 / QD-TTg dated April 10, 2008 of the Prime Minister on the pilot policy of payment for forest environmental services. In there, the PFES program only started to implement at the time when Thua Thien Hue province implemented the PFES policy in 2011. From 2011-2013, policy-related activities mainly reviewed the situation and area of forests to develop payment options. Therefore, PFES payment activities have been started since 2014.

#### 3.1.2.1. The mechanism of PFES policy in Phu Loc district

The Stakeholders in the implementation of PFES policy, including:

- Forest environmental service (FES) providers: Communities or household groups and households assigned to manage the forest area to be paid - represented by: Head of forest fund management board (for community) or group leader (for household group) or head of household.
- People's Committees of communes where the Communities or household groups are the object of payment
- Phu Loc District Forest Protection Department
- Thua Thien Hue Forest Protection and Development Fund
- User of FES (Thua Thien Hue Water Supply Joint Stock Company)



**Figure 2: Process of PFES in Phu Loc district**

#### 3.1.2.2. The implementation of PFES in Phu Loc district

Among the five types of forest environmental services prescribed in Decree 99, one of them has implemented payment in Phu Loc district. It is the service of regulating and maintaining water sources for production and social life (water supply to Thua Thien Hue Water Supply Joint Stock Company).

**Table 1: Area of forest in PFES program and actual payment level of Phu Loc district from 2014 to 2019**

Year	Area of forest in PFES program (ha)	Forest area to FES supply (ha) (converted)	Unit price (VND/ha)	Amount (VND)
2014	1,385.40	1,385.40	100,000	138,540,000
2015	1,136.24	969.02	158,800	153,881,000
2016	1,136.24	969.02	165,132	160,016,000
2017	1,136.24	975.69	297,728	290,491,000
2018	1,218.37	936.37	400,000	374,548,000
2019	1,213.45	932.58	400,000	373,032,000

*Source: Thua Thien Hue Provincial People's Committee (2014, 2015, 2016, 2017, 2018, 2019)*

From 2014 to 2019, the PFES-paid forest area was adjusted due to a review of PFES-covered forest areas. Besides, except for 2014, there is no difference between forest area in PFES program and forest area in FES supply (converted), from 2015 onwards, converted area is always much lower than the area of natural forest in PFES payment list throughout Phu Loc district. This is due to the application of coefficients regarding the volume and quality of forests in the payment process. In addition, to encourage the spirit of forest protection of local people, the unit price for PFES payment has been constantly increasing over the years. (Table 1)

**Table 2: The objects received money from PFES in Phu Loc district from 2014 to 2019**

Year	Number of household	Number of group of household	Number of community
2014	-	-	7
2015	-	2	3
2016	-	2	3
2017	-	2	3
2018	3	7	3
2019	3	7	3

*Source: Thua Thien Hue Provincial People's Committee (2014, 2015, 2016, 2017, 2018, 2019).*

2014 is the first year Phu Loc district has paid PFES. In this year, there are seven communities belong the list of PFES payment. From 2015 to 2019, in the Decision approving the payment plan for forest environmental services of the Provincial People's Committee, Phu Loc District is still on the list of payments. However, there had been some changes in specific subjects being payed. Since 2015, there were only three instead of seven communities on the payment list as 2014 data. Instead, there were two groups of households

that was placed on the PFES receiving list. By 2018, this list has changed again. Currently, Phu Loc district has 13 beneficiaries, including: 3 communities, 7 groups of households and 3 households (Table 2).

The reason for the change is that the Thua Thien Hue Forest Protection and Development Fund reviewed and revised the list of localities where forest areas have been paid for PFES. This is to ensure that the forest areas in the list are in the water supply basin for Thua Thien Hue Water Supply Joint Stock Company.

### *3.1.3. Impact of implementation PFES on local people in Phu Loc district*

When mentioning the impact of PFES policy implementation for the local people, the author focus on the local livelihoods in 2 villages: Thuy Duong village (having one community related to PFES policy) and Lang Dong village (having three groups of households related to PFES policy). It is impossible to simply mention the direct change of income. Due to the income from the workdays involved in patrolling and checking the forest is not much.

For the Community Forest Protection Patrol Team in Thuy Duong village, the daily workday of a person, from 2014 to 2016 is from VND 50-100,000 / day / person, this amount only reaches about 50% of the total income. Patrol team members obtained when doing other jobs. For the Patrol Team of Lang Dong village household group, this figure is much lower (only 20-40,000 VND / day / person).

Income from by-product forest products such as rattan, conical leaves, honey, etc. was insignificant, mainly serving the needs of the exploiters. Households in the community, the group of households can also exploit some of the trees from the forest area in PFES policy. However, they are only exploited for the purpose of building in the family. The harvesters are also limited in the number of trees to be harvested and need permission from community forest management boards and household groups. Obviously, if the economic benefits of PFES policy only stop at such small and erratic revenues, it is difficult to make people willing to respond and wholeheartedly participate in patrol activities, management and protection of forests.

However, the positive impact of PFES policies also comes from the indirect benefits that forests bring. Specifically: For the community in Thuy Duong village, Loc Tien commune, the forest is maintained to help ensure the supply of water in the upstream for clean water company, the water in the middle to bring business opportunities for some households in Suoi Voi tourist site, and water downstream is an important factor for the agricultural production activities of the people. Similarly, groups of households in Lang Dong village also have a life dependent on the amount of water maintained and stored from the natural forests they are protecting.



### 3.2. PFES implementation in Phong Nha - Ke Bang National Park, Quang Binh province

#### 3.2.1. Introduction about Phong Nha - Ke Bang National Park

After 2008, the area PNKB NP is 123.326 ha of core zone. It is consisted of 3 subdivisions: Strict protection zone (100,296 ha); Ecological rehabilitation subdivision (19,619 ha); Administrative services subdivision (3,411 ha). The buffer zone of PNKB NP has a total of 155 villages in 13 communes of Bo Trach, Minh Hoa and Quang Ninh districts. The buffer zone of PNKB NP has a total natural area of 217,908.44 ha (without the area of special-use forest), located to the west - north of Quang Binh province.<sup>1</sup>



**Figure 3: Map of Phong Nha - Ke Bang National Park**

*Source: People's committee of Quang Binh province (2010)*

#### 3.2.2. The implementation of PFES in Phong Nha - Ke Bang National Park

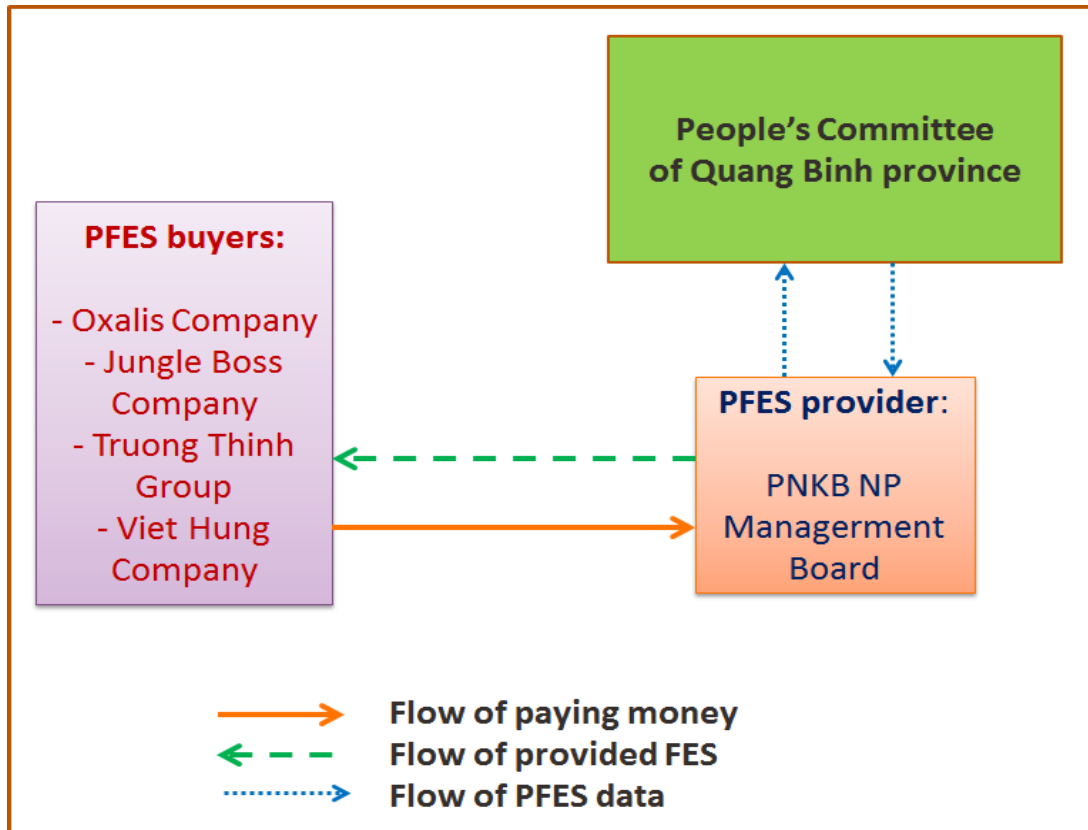
##### 3.2.2.1. The mechanism of PFES policy in Phong Nha - Ke Bang National Park

According to the regulations from Decree 99 in 2010, until 2011, PFES was implemented in PNKB NP. Since 2012, the German Agency for International Cooperation (GIZ) helped to turn this national park into a pilot site for collecting forest environmental services in tourism. In the plan, PFES will be collected for each visitor through the entrance fee; Service providers are PNKB NP; The service buyers will be tourism companies and other small businesses related to tourism. (Pham TT et al, 2013)

Key stakeholders in the implementation of the PFES policy included into three subjects. The FES provider: PNKB NP (representer is Management Board of National Park);

<sup>1</sup> PNKB NP website

the FES user (Tourism company operates some tours in Phong Nha - Ke Bang, such as: Oxalis Company; Jungle Boss Company; Truong Thinh Group; Viet Hung Company); and the People's Committee of Quang Binh Province: Responsible for checking, monitoring and issuing regulations on PFES for application in PNKB NP.



**Figure 4. Payment mechanism of PFES in Phong Nha - Ke Bang National Park**

### 3.2.2.2. The implementation of PFES in Phong Nha - Ke Bang National Park

In PNKB NP, landscape beauty services have been used to pay for PFES. In fact, from 2011 to 2013, PFES money was only collected from the ticket to visit Paradise Cave (invested by Truong Thinh Group), and the collected amount was about 390 million VND. The application of new PFES is in the pilot implementation stage for evaluation and adjustment, so there are many shortcomings in information and mechanism. By 2015, when the Son Doong cave was discovered, the tourism activities here expanded, a number of sightseeing routes in the Phong Nha - Ke Bang area was built and put into operation. At that time, the PFES in PNKB NP was officially implemented. (Table 3)

**Table 3: Proceeds from PFES in Phong Nha - Ke Bang National Park from 2016 to 2018**

Year	2016	2017	2018
Amount of PFES	6,352,665,000	8,180,010,000	8,024,936,000

Source: PNKB NP Management Board (2019)

### 3.2.2.3. Impact of implementation PFES on local people in PNKB NP

The author focused the impacts of PFES on two villages: Rao Con village and Xuan Tien village.

#### *a) Impacts of PFES on Rao Con villagers*

The location of Rao Con village is close to the core zone of PNKB NP, if PFES in PNKB NP has policies on forest allocation to the local community, Rao Con village will be a potential object. Because the villagers have possessed appropriate experiences and indigenous knowledge to support forest patrolling and protection activities thanks for the many years of life based on the forest. In addition, at present, income generating activities for villagers were not much and not enough for maintaining a medium level of daily life. Participating in PFES and benefiting from this policy will be a good opportunity for them to reduce poverty. Moreover, providing the occasion for the Rao Con villagers to become PFES providers will effectively reduce the case in illegal logging of timber and non-timber products. Therefore, this option will also create the forest protection more effectively for policy makers.

However, in reality, the provider of FES was only PNKB NP Management Board because this agency has the right to use to land in National Park (red book). Although living near the PFES implementation area, in buffer zone of National Park, PFES had no relation to the livelihoods of the local people in general and the Rao Con people in particular.

Addition, Rao Con villagers have lived in the buffer zone, but the forest area paid for forest environmental services was estimated in the core zone, which was completely under the control and protection of the Forest Protection Department (forest rangers) belonged to the National Park. The forest ranger team was in charge of protecting the forest in the National Park of about 100 people. In addition, they also hired a support team (54 members). This force was fully able for patrolling and protecting forests.

For the implementation of PFES in PNKB NP, local people had no opportunity to consider whether or not to participate in PFES. The reason for this problem came from the process of determining who is the FES provider? According to PFES regulations in Vietnam, FES providers in tourism has been identified as the objects that are authorized by the state to manage and use forests for tourism development. However, those who used to FES but after that, they stopped their use to support the FES supply for tourism should also be considered. In this study, the livelihoods of Rao Con people used to depend heavily on forest resources. However, they have committed to the State not to exploit forest resources. This means that they have decided to sacrifice their benefits to support the forest protection and provide FES for tourism whether they understand or not understand PFES. Because of this decision, their lives changed as well as encountered many difficulties. In this case, their role in providing FES should be considered and calculated.

Although many studies showed that the economic benefits from participating in PFES were not much and few people were willing to participate in PFES. However, at least, Rao Con

people should be given the opportunity to understand PFES and consider whether or not to participate in this program. In practice, the contribution of Rao Con people in PFES implementation has not been realized, and they were not considered as one of the FES providers.

*b) Impacts of PFES on Xuan Tien villagers*

Xuan Tien village was the tourism development center of PNKB NP, where people got many benefits from tourism development. In other words, the people here have benefited from PFES indirectly.

In the past, Xuan Tien village had about 10 people who regularly harvest timber and non-timber forest products from the forests of Phong Nha - Ke Bang National Park. However, from 2013 up to now, illegal forest exploitation has decreased sharply due to enhanced protection of forests, in order to ensure the quality of forest environmental services to provide tourism. Also during this period, Xuan Tien's tourism-based income generating activities also increased rapidly. With nature-based tourism, and an increase in tourism-based livelihood activities, villagers in Xuan Tien are the users of forest environmental services, who benefit from tourism.

Basing on the definition of PFES of tourism, people here benefited from tourism so they belonged to the PFES's buyer group. However, the tourism business of the local residents has been mainly small-scale, and the current policy did not specify their role, so Xuan Tien people have not yet been responsible for paying PFES money. Until the present, PFES money was only collected from revenues of a number of large businesses and entrance tickets of visitors. This made the definition that FES users must pay money for their consumption was not fully implemented.

#### **4. Discussion and Conclusion**

PFES with indirect payment is carried out quite well and standards in Loc Tien commune. From the PFES implementation mechanism, the participation of local people is guaranteed. However, the issue of livelihood development for forest-based people still needs more attention. In Phu Loc district, there are ecotourism attractions using forest environmental services. This gives Phu Loc the potential to implement PFES in tourism and the potential should be concern to do like a solution to improve the local livelihoods.

PFES of tourism's scheme in Phong Nha - Ke Bang National Park has corresponded with the PFES scheme in PFES policy of Vietnam government. However, it cannot reach the society goals in the original PFES idea. With the implementation of PFES as a "closed box", local people could not participate in the program. Rao Con villagers should be considered to be FES providers and have the right to decide about joining PFES program or not. Moreover, Xuan Tien villagers using forest environmental services for tourism activities did not have to pay PFES money. To deal with these issues, the mechanism should be more flexible in participating in PFES of local people. Creating more activities and contests to give local people (including Kinh and ethnic minorities) an opportunity to participate in the PFES process for improving the livelihoods of local poor people.

## 5. References

1. Baker, R. M., & Rice, J., (2012), *Stakeholder Perceptions of Mexico's Payment for Environmental Services Program: A Comparative Study of Socioeconomic and Environmental Impacts in Oaxaca and Yucatan*. Master's project, Nicholas School of the Environmental, Duke University.
2. Locatelli B., Rojas V., Salinas Z., (2008), *Impacts of Payments for Environmental Services on Local Development in Northern Costa Rica: A Fuzzy Multi-Criteria Analysis*. *Forest Policy and Economics* 10, 275-285.
3. Mayrand, K., and Paquin, M., (2004), *Payment for Environmental Services: Investigation and Evaluation of Current Programs*. For the Commission for Environmental Cooperation of North America. Unisféra International Center. Montreal, 2004
4. Miranda, M., Porras, I.T., & Moreno, M. L., (2003), *The Social Impacts of Payments for Environmental Services in Costa Rica. A Quantitative Field Survey and Analysis of the Virilla Watershed*. International Institute for Environment and Development, London.
5. People's committee of Quang Binh province, (2010), *Sustainable Tourism Development Plan 2010 to 2020 PNKB NP Region*. As part of the Nature Conservation and Sustainable Management of Natural Resources in the PNKB NP Region Project.
6. Pham, T. T., Bennett, K., Vu, T. P., Brunner, J., Le Ngoc, D., & Nguyen, D. T., (2013), *Payments for Forest Environmental Services in Vietnam: from Policy to Practice*. CIFOR Occasional Paper, (93).
7. PNKB NP Management Board, (2019), *Number of Tourists and Total Revenue from 2009 - 2019 in PNKB NP*.
8. PNKB NP website. (Retrieved 2019, September 23rd). Retrieved from <https://phongnhakebang.vn/tong-quan-ban-quan-ly-vuon.html>
9. Prime Minister of Vietnam, (2008), *Decision 380 / QD-TTg on The Pilot Policy of Payment for Forest Environmental Services*. Ha Noi city. 2008
10. Thua Thien Hue Provincial People's Committee, (2014, 2015, 2016, 2017, 2018, 2019), *Decision on Approving PFES Plan of Thua Thien Hue Province in 2014, 2015, 2016, 2017, 2018, 2019*.
11. Vietnam Government, (2010), *Decree 99/2010 / ND-CP on Policy about Payment for Forest Environmental Services*. Dated: 24th September 2010.
12. Vietnam Government, (2016), *Decree 147/2016 / ND-CP on Amending and Supplementing A Number of Articles of The Government's Decree No. 99/2010 / ND-CP of September 24, 2010 about Policy on Payment for Forest Environmental Services*. Dated: 2nd November 2016.
13. Website of Phu Loc district, Thua Thien Hue province. (Retrieved 2019, 13rd September). Retrieved from <https://phuloc.thuathienhue.gov.vn/?gd=1&cn=69&cd=2>

**CURRENT SITUATION OF ENVIRONMENTAL  
SANITATION AND SOLUTIONS TO IMPROVE ENVIRONMENTAL  
SANITATION IN THE MONG ETHNIC MINORITY AREAS  
IN THE NORTHWEST REGION**

**Assoc.Prof. Dr. Ngo Quang Son**

*ngoquangson2018@gmail.com*

*Director General of Community Education, Continuing Education and  
Development - NOCEAD VIETNAM (Editor)*

**Dr. Vu Thi Binh**

*vuthibinh@tnu.edu.vn*

*Deputy Director of Thai Nguyen University's Branch in Lao Cai*

**M.Sc Do Thi Nguyen Tieu**

*donguyentieu2103@gmail.com*

*Principal of Hoa Tham Primary and Lower Secondary School, Chi Linh, Hai Duong*

**B.Sc Pham Van Phuc**

*Phucmn80@gmail.com*

*Principal of Thanh Yen Lower Secondary School, Dien Bien district, Dien Bien province*

**M.Sc Le Thi Nhu Quynh**

*nhuquynh.ktkd@gmail.com*

*Deputy Head of Testing and Quality Control Division, Ha Giang Department of  
Education and Training*

**M.Sc Vu Xuan Hung**

*vuvietminhdang@gmail.com*

*Center for Learning Resources, Central Kindergarten Pedagogy College*

**M.Sc Tran Thi My An**

*tranmyan1974@gmail.com*

*Vice Principal of Think Quang Lower Secondary School*

**M.Sc Ha Thi Giang**

*gianght@hvdt.edu.vn*

*Basic Faculty, Vietnam Academy for Ethnic Minorities (VAEM)*

**Abstract**

*The study of the situation of environmental sanitation, identification and evaluation of the situation of environmental sanitation so that there is a basis for proposing solutions to improve environmental sanitation for the Mong ethnic minority area in the Northwest region is very important and urgent in the current period and must be implemented through*

*01 project. This project was conducted in 2013 and 2014. The method of implementing the project is based on two specific contents: Content 1: Investigating, surveying and assessing the situation of environmental sanitation in the Mong ethnic minority communities in the Northwest region (Case study of two provinces of Son La and Dien Bien in 2013), Content 2: Building a model to improve environmental sanitation in Kho Bua village, Pu Nhung commune, Tuan Giao district, Dien Bien province (2014).*

**Key words:** *Environmental sanitation; Assess the status of environmental sanitation; Solutions to improve environmental sanitation; Mong ethnic minority area; Northwestern region.*

## **1. Introduction**

Rural clean water and sanitation are basic needs in the daily life of rural people, where up to 75% of the population lives. The Northwest is the western mountainous region of northern Vietnam, with rugged terrain, with many blocks and high mountain ranges running in the Northwest - Southeast direction. Difficulties in the socio-economic life are also one of the reasons hindering people's access to quality of life services including clean water and sanitation. The percentage of Mong households with hygienic toilets, latrines and breeding facilities is still very low. Awareness and behavior of Mong people in the use of household toilets is limited, even there are households with standard toilets but the use and storage are not in accordance with the regulations. Breeding in the form of dispersed around the residence or natural grazing, so the production waste, domestic waste, livestock waste... are not managed, causing unsanitary environment. Low economy, people do not have enough conditions to invest in sanitation facilities. The study of the situation of environmental sanitation, identification and evaluation of the state of environmental sanitation so that there is a basis for proposing solutions to improve environmental sanitation for the Mong ethnic minority people in the Northwest region is very important and urgent in the current period. The project was conducted in 2013 and 2014.

## **2. Project implementation method**

The project has applied the methods for each specific implementation content:

2.1. Content 1: Investigating, surveying and assessing the situation of environmental sanitation in Mong ethnic community in the Northwest region. Case study of Son La and Dien Bien provinces (implemented in 2013). In this content the project implements the methods:

- Methods of inheriting secondary documents, Expert methods, Methods of sociological investigation and ethnographic fieldwork

2.2. Content 2: Building models to improve environmental sanitation in Kho Bua village, Pu Nhung commune, Tuan Giao district, Dien Bien province (2014)

For this content, the project uses the following methods:

- Methods of community planning and implementation, expert methods, results-based project management methods, classroom training methods

### **3. The real situation of environmental sanitation of the Mong ethnic minority community in the Northwest region and of the study area**

#### ***3.1. General situation of environmental sanitation of Mong ethnic community in Northwestern region***

Firstly, clean water systems as well as toilets serving 6 people in the Northwestern region in general and the Mong ethnic community in particular are still at a low rate compared to the national average. The survey results show that, compared to the target of clean water and rural sanitation in the 2006-2010 period: 85% of the rural population can use hygienic domestic water, 70% of households communal houses with hygienic latrines; 70% of farming households have hygienic breeding facilities, all the results of the six Northwest provinces as of 2010 did not reach the national average.

Secondly, the culture, customs and practices in daily life and production of the Mong people have been having a great impact on environmental sanitation issues for the Mong ethnic minority community in the Northwest. As mentioned above, the cultural nuances and customs of the Mong ethnic minority people in the Northwest are very diverse and diverse.

There are still customs and practices in production such as shifting cultivation and nomadicism of the Mong people that have a great impact on environmental sanitation. Living in an unstable way, therefore, investing in programs and projects also encountered many difficulties; nomadic farming is aimed at finding new fertile lands and remote areas, difficult-to-access forest areas, people continue to follow the old farming method of deforestation. protection for rice cultivation, husbandry for self-sufficiency, seriously affecting the ecological environment, planning of population arrangement in localities, etc.

Thirdly, the policies related to clean water and sanitation for the Mong community in the Northwest are very modest. In fact, the policy to support Mong households, especially for poor households to improve sanitation is very modest, poor households are less likely to contribute more to policy implementation, many places It is difficult to implement because the living habits of the people are backward, they themselves are not self-sufficient in improving environmental sanitation; propaganda is not really effective due to the lack of science in how to implement it to each household, each individual so that people raise awareness in improving environmental sanitation.

#### ***3.2. Actual situation of environmental sanitation in the study area***

##### ***3.2.1. General situation of Son La and Dien Bien provinces***

Firstly, to thoroughly grasp and implement the policies of the Party and the State on environmental sanitation

Implementing Decision 62/QD-TTg of the Prime Minister on credit for implementation of the National Strategy for Rural Water Supply and Sanitation, National Standards on Commune Health, National Target Program on building a new countryside, the national target program on clean water and rural environmental sanitation in the 2012-2015 period; Circular 08 supports the construction of a model of hygienic latrines. The provincial



Party Committee and the People's Committees of the two provinces have implemented documents to direct the Department of Agriculture and Rural Development to assume the prime responsibility and coordinate with the provincial functional departments and agencies, People's Committees of rural districts and cities to make communication plans. about clean water, environmental sanitation and personal hygiene.

Secondly, some results of implementing programs and policies related to clean water and environmental sanitation in Dien Bien province. According to the survey results of the Steering Committee for clean water and environmental sanitation program in Dien Bien province in 2012: In urban areas, garbage is collected but not yet processed in the right process. The situation of households having no latrines or having unhygienic ones in Dien Bien province accounts for 70%. Regarding the situation of clean water for life still faces many difficulties, as of 2012, in the province, the number of rural households using clean water is 313,483 people, accounting for 72%, but the number of This is mostly concentrated in densely populated areas, communes and lowland villages. A number of water-borne and sanitation-related illnesses occur frequently, mainly with diarrhea. According to the statistics of functional branches, in the three years (2010 - 2012), the whole province had 46,902 cases of typhoid, diarrhea, rectal dysentery, dysentery dysentery, hand, foot and mouth disease; of which, there are 5 deaths.

Thirdly, some results of the implementation of the program of clean water and environmental sanitation in Son La province. According to the report of the Center for Rural Water Supply and Sanitation in Son La Province, by 2011, 73.7% of rural people had access to hygienic water, 21.8% of rural population used it. clean water according to Ministry of Health standards, 78% of schools have clean water and hygienic toilets, 80% of commune health stations have clean water and hygienic toilets, 52% of People's Committee headquarters. Communes and markets have clean water and hygienic toilets, 30.5% of households have hygienic toilets, 20.7% of households have sanitary cattle sheds and 100% of craft villages have Waste water treatment system.

*3.2.2. Situation of environmental sanitation in Son La and Dien Bien provinces through the study sites (Xim Vang commune, Lang Chua commune of Bac Yen district, Son La province and Toa Tinh and Pu Nhung communes of Tuan Giao district, Dien Bien province)*

Firstly, propaganda, raising awareness about environmental sanitation in general and Mong ethnic minority community in particular. Survey results in 4 communes of Bac Yen and Tuan Giao districts show that propaganda to raise awareness of people in communes with a large number of Mong people in particular and ethnic communities in general. The annual operation is implemented periodically according to the district's plan. The survey results show that the number of propaganda activities to raise awareness about sanitation in the districts of Son La and Dien Bien are carried out by many different organizations and individuals. The most is local authorities (accounting for 66.2% of respondents); grassroots health workers (50.7%); village patriarchs (44.9%); relatives (15.3%) and international organizations (15.3%). The contents of propaganda through various propaganda campaigns

are diverse such as knowledge about personal hygiene, public sanitation, human disease prevention, animal disease prevention, construction and use. sanitary works, garbage collection and treatment. The survey results show that the percentage of households who know about the propaganda on personal hygiene is 65%; sanitation in public places 54.3%; prevention of some diseases occurring in humans (50.8%) and animals (51.6%), construction and use of sanitation facilities is 32.9%, collection and treatment of waste is 23.8%. The percentage of households known about the propaganda is not high, the main reason is due to the specific characteristics of the Mong people in particular, ethnic minorities in general, mainly working on shifting fields during the day, in combination with backward awareness and practices are not familiar with the concept of environmental protection. As for awareness raising activities, households responded that they participated in the training but the frequency of regular participation was low, only 28.5% of the remaining 71.5% were non-regular participants. Thus, through awareness raising activities of specific Mong people in Son La and Dien Bien, in the past two years, the two provinces have been very active in raising people's awareness about sanitation. school.

Secondly, the issue of clean water is still a difficult issue for the Mong people to be considered on both subjective and objective factors. Because the Mong people live mainly in highland, remote and mountainous areas, many hills and mountains are difficult to invest in building clean water works. The national target program on clean water and environmental sanitation only met for Mong people (28.7%). In order to realize the criteria of clean water and environmental sanitation in accordance with the standards of the new countryside, the Mong people really need the State to have specific investment policies and timely support.

Thirdly, the most productive activities, which are animal raising activities of households in Tuan Giao and Bac Yen, have had certain impacts on environmental sanitation. Through surveys and surveys in 2 communes Xím Vang, Lang Chau of Bac Yên district, Son La province and 2 communes Pu Nhung and Tong Tinh in Tuan Giao district, Dien Bien province, these are all highland communes with good conditions. However, it is favorable for livestock development. Cattle raising is the strength of the communes. According to the commune's report, the average number of cattle in each commune is about 2,000 heads per year and about 5,000 heads per year in poultry. Especially in Phu Nhung commune of Tuan Giao district, Dien Bien province is one of the four surveyed and researched communes with the strongest conditions for animal husbandry development, the herd of 2510 heads, the number of pigs is 2,345 heads, the poultry above 10,000 fish, the area of fish breeding pond is 20 ha.

Thus, the number of livestock and poultry development in each commune is relatively large, producing solid waste from 10 -15 tons of manure/day and liquid waste of about 5m<sup>3</sup>/day. Without professional knowledge about animal husbandry, environmental sanitation, good water and waste management in animal husbandry, it will be one of the potential factors that adversely affect the environment. Breeding facilities are still temporary, with up to 40.1% of the households surveyed saying that the breeding facilities are temporary, 27.6% answered that they have corrugated iron roofs or proximang roofs but the

ground is; 10.2% is having corrugated iron roof and cement floor. Most of the breeding facilities are not hygienic, therefore, most of the breeding facilities do not have compost pits, but cattle dung is often piled into heaps, not treated. Up to 78.8% of the households interviewed said that there is no compost pit, only 20.2% has a compost pit. In addition, the construction of animal husbandry facilities is not really guaranteed to be far from the family's domestic water source, 42.5% of the respondents answered that the breeding facilities were 10m away from the water sources for domestic use. ; only 38.6% built breeding facilities more than 10m away from domestic water sources; 35.7% build breeding facilities more than 10m away from houses. Treatment of livestock wastes of households through investigation and research has also not been paid attention and attention. Most of the households do not have compost pits, so the faeces of cattle are often piled up and untreated, which has greatly affected the sanitation of households and communities. copper. The proportion of households collecting and not treating 39.4%; using probiotics to treat 4.5%; composting as a fertilizer 19.9%.

Fourthly, most of surveyed households in Tuan Giao and Bac Yen do not have essential toilets for living, such as bathrooms, water tanks, hygienic latrines, etc. characteristics of natural conditions and low economic starting point and awareness of the people are low compared to other regions in the district and the province. Although there have been many programs and projects supporting and investing in environmental sanitation in the past years, the rate of Mong households with hygienic latrines is still very low: Tuan Giao is about 15%, Bac Yen is under 10. % of households have hygienic toilets, but mostly concentrated in households who have fallen in Son Son, live near commune cultural centers, along provincial roads and have convenient transportation. According to the survey, only 19% of the interviewed households have a latrine (7.9% with two composters on site and 11.1% with a septic tank) the rest are latrines. temporary or without latrines (81%). Other constructions such as bathrooms, septic tanks are also very few. According to the newspapers of Tuan Giao and Bac Yen districts, the percentage of households with bathrooms in the district is very low, about 30%, for the Mong people as low as 4 - 7%. According to results from surveys and researches in Tuan Giao and Bac Yen, the percentage of households with bathrooms is only 17%, with septic tanks 14%. The treatment of common domestic waste of the people in Tuan Giao (Dien Bien) and Bac Yen (Son La) has not been paid enough attention. For liquid wastes caused by human and cattle activities; Most of the villages do not have a plan for drainage in canals, mainly flowing and permeable, thus affecting surrounding households, especially the Mong people living at different heights. adversely affect lower dwelling households.

Fifth, personal hygiene and a number of diseases related to environmental sanitation at the research sites have also been an issue of concern. Personal hygiene has not been paid much attention, in addition to the unsanitary husbandry, the lack of essential sanitation facilities for people has been one of the causes leading to a number of diseases related to environmental sanitation such as cholera, diarrhea, intestinal infections, eye diseases, skin diseases...Some digestive related diseases such as cholera, diarrhea, dysentery. According to the survey, 5.2% of the respondents in the family had cholera, 39.6% of the respondents had

diarrhea and 2.4% answered in the family. There are people with dysentery. The causes of digestive diseases are caused by unhygienic writing and drinking (34.5%); due to poor management of fertilizer, water, and waste sources (24.6%); due to personal hygiene (2.2%); due to the quality of food sources (0.4%). Knowledge of how to prevent digestive diseases for people is limited, in which the proportion of households who responded to the disease prevention and control by eating and drinking boiled and boiled 86.7%; wash hands with soap before and after eating 46.3%; wash hands with soap before and after preparing food 40%; good management of fertilizer, water, waste 40%; keep clean and hygienic 42.1%. Some other mosquito-borne diseases such as dengue fever, malaria, encephalitis...have also been happening to people through surveys and surveys in Tuan Giao and Bac Yen. The proportion of households with people suffering from dengue fever is 8.5%; malaria cases were 20.7%; Encephalitis is 3%. The prevention of mosquito-borne diseases is not well understood by people; through surveys, survey results show that the proportion of people needing to kill larvae 20.7%; house cleaning, clearing bush 43.7%; due to spraying, burning incense to kill mosquitoes 28.5%; bed netting 62.7%. Most of the time when cattle and poultry get sick, people buy drugs for themselves 52.1%; notify veterinary medicine staff how to solve 32.1%; meat making 2.8%; sold to others 1.8%; 9.6% on the ground; thrown off the road 1.9%.

Sixthly, there were some models of improving environmental sanitation in the study area but the reality still did not meet the aspirations of the people. Through surveys and surveys, the number of people who know about models of improving sanitation is low, with 20.1% of the respondents who have awareness raising training models; bathroom construction 11%; construction of water tanks 3.7%; hygienic latrines by 4.8%; build breeding facilities 4%; built a compost pit with 0.3% and the number of respondents who did not know was 56%. When judged to see if these models are suitable, up to 50% of the respondents are inappropriate and 50% of the respondents are appropriate. The above table shows that most of the people wish to raise awareness on sanitation (50.4%); 60.7% for bathroom construction support; support to build breeding facilities 57.3%; building hygienic latrines 57.3% ...The aspirations of the people are like that and they are willing to contribute human resources to activities to improve environmental sanitation. As shown by, they proposed that the state support 100% of the funding is 23.1%; 70% of the state support is 50.3%; The state supports 30% is 18.7%.

#### **4. Solutions to improve environmental sanitation in Mong ethnic minority people in the Northwest region**

##### ***4.1. Solution 1: Propagating and campaigning to raise awareness***

This is considered a solution that needs to be one step ahead in every implementation process to improve environmental sanitation for the Mong ethnic community in the Northwest. Awareness raising propaganda here needs to reach out on both subjects, which are for the Mong people and the staff in the most relevant political system, especially grassroots cadres.

Firstly, propaganda and advocacy to raise awareness for the Mong ethnic people.

Secondly, raise awareness for the contingent of officials involved in the political system.

#### ***4.2. Solution 2: Review and orient the development of mechanisms and policies related to environmental sanitation***

Firstly, the effective implementation of relevant policies is effective. This is an important solution in this solution because it is possible to properly implement the relevant current policies to ensure the best improvement of environmental sanitation for the Mong ethnic community.

Secondly, studying, promulgating, amending and supplementing a number of policies related to clean water and environmental sanitation. In which, attention should be paid to the study, promulgation and revision of implementation policies for the Mong ethnic community to suit the Mong's culture and customs.

Thirdly, it is necessary to renovate the mechanism to build and organize the implementation of ethnic policies. In order to do this, the formulation and organization of implementation of ethnic policies need to stem from the wishes of the people, taking into account the cultural factors and customs.

#### ***4.3. Solution 3: Strengthen the application of science and technology in improving environmental sanitation***

The application of technology and technology to improve environmental sanitation for the Mong ethnic community must ensure the principle of conformity with customs and practices, suitability in terms of living conditions and level of reception. consciousness of the Mong people in the Northwest. Technical solutions such as:

-Building hygienic toilets, latrines and breeding facilities must comply with the standards set by the Ministry of Health and must be consistent with customs and practices.

-Using some probiotics for eliminating odors from animal husbandry facilities, latrines also need to take into account suitability for Mong people.

#### ***4.4. Solution 4: Enhance resources for improving environmental sanitation in Mong people***

- About people: This is a key factor in improving environmental sanitation. The human element plays a key role in the implementation of guidelines, guidelines and policies related to environmental sanitation.

- Financial:

+ Domestic funding: Implementing funding according to policies that have been supported by the State; Mobilizing funding from domestic organizations and individuals to improve environmental sanitation for the Hmong community in the Northwest region.

+ Mobilizing sources of funding from international organizations to improve environmental sanitation for ethnic minority people in general and Mong people in particular.

#### ***4.5. Solution 5: Building a model to improve environmental sanitation in Mong ethnic people in the Northwest region***

Finding models to apply solutions to improve environmental sanitation conditions in the Mong ethnic minority people in the Northwest region is very important with the highest goal of raising awareness about environmental sanitation. as well as an important contribution to improving the health and quality of life for people. The models need to approach based on the culture and customs of the Mong ethnic people in the Northwest. From the practical requirements and the proposed solutions mentioned above, we propose some specific sub-models as follows:

##### *4.5.1. Sub Model 1: Information, Education and Communication*

(1) Provide knowledge and skills for the Mong ethnic people in the Northwest region on environmental sanitation.

(2) Improve awareness and understanding of the Mong people on environmental sanitation and the relationship between sanitation and public health care.

(3) Gradually change the attitude and behavior of the people in the village on preserving environmental sanitation; voluntarily contribute the possible resources to build environmental sanitation facilities.

##### *4.5.2. Sub-Model 2: Science and technology transfer model*

Supporting a number of households in constructing sanitation facilities, contributing to improving environmental sanitation.

(1) Technical training on building latrines, composting pits, bathrooms, breeding facilities ... for villagers and village construction teams.

(2) Based on the needs of the people, partial funding support under the National Program on Clean Water and Environmental Sanitation shall be reciprocal by the people, so that people can build toilets, compost pits, domestic waste pits.

(3) At the same time support people to buy probiotics to reduce the odor in the waste (manure, water, garbage).

#### **5. Implementation results in Kho Bua village, Pu Nhung commune, Tuan Giao district, Dien Bien province (2014)**

Derived from the socio-economic and environmental conditions in Kho Bua village, Pu Nhung commune, Tuan Giao district, Dien Bien province together with the results of the 2013 project implementation. selecting models for implementation of the model in 2014. As a model building project in a village with 100% Mong households, the implementation of the contents was carried out in the village. with different implementation methods.

##### ***5.1. Overview of model implementation contents***

On the basis of funding sources for 2014, based on results of surveys and surveys in 2013; through research and evaluation by experts; derived from aspirations and practical

needs of the people of Kho Bua village, Pu Nhung commune, Tuan Giao district, Dien Bien province. The project management board has implemented the main contents of the model.

#### *5.1.1. Activities of seminars and meetings of people*

Through the workshop, discussions and opinions of departments and organizations as well as opinions of the people about the implementation of the model will be conducted at Kho Bua village, Pu Nhung commune, Tuan Giao district, Dien Bien province. The project supports the entire funding for implementing 02 workshops and 01 community meeting in Kho Bua village to implement the model and 01 workshop on evaluation of model building results.

The workshop focused on the main contents: 1. Overview of environmental sanitation in ethnic minority areas in the Northwest. 2. Environmental sanitation situation in Kho Bua village, Pu Nhung commune. 3. The content and method of implementing the model suitable to the local situation, especially taking the opinions of the households participating in the project. 4. Agree on assigning Commune People Committee to be the focal point for the project model (Commune People Committee signs the Model Implementation Contract after the Decision on Establishing Project Management Board, Project Supervision Team).

Secondly, meeting with the people of Kho Bua village to unify the contents of model deployment. The meeting took place after the model deployment workshop. The project conducts meetings and exchanges with households of Kho Bua village, Pu Nhung commune, Tuan Giao district, Dien Bien province with the following contents:

- + Agreeing the content, funding, plan and implementation time of the model

- + Make a commitment to improve the model of the people in Kho Bua village and the project implementation unit: There are representatives of Tuan Giao District People's Committee, Pu Nhung Commune People's Committee and people in the difficult village.

Thirdly, the workshop on reviewing and evaluating models in Kho Bua village, Pu Nhung commune, Tuan Giao district, Dien Bien province.

Workshop with the participation of many units and departments. The workshop focused on evaluating the contents of the model implementation on two issues: 1. Regarding Information, Education and Communication activities (Training and Compiling materials). 2. Transfer of Science and Technology (Constructing works such as hygienic latrines, hygienic breeding facilities, supporting the purchase of biological products to eliminate odors of animal husbandry and latrines ).

#### *5.1.2. Overall evaluation of model development results*

##### *Advantage*

- This is a project with a high level of support compared to other programs and projects that have been implemented in the locality.

- Getting the attention and guidance of the Committee for Ethnic Minorities, the cooperation and assistance of the Department of Financial Planning, the Department of General Affairs and the Leadership of the Ethnic Minority Committee of Dien Bien

Province, the People's Committee of Tuan Giao District, the Commission People's Committee of Pu Nhung commune and especially Mong people in Khach Bua village.

- Before implementing the project model that was investigated and surveyed (in 2013), the contents of the model came from the assessment of people's needs and aspirations; consulted with scientists and experts, so the deployment of the model is convenient and suitable to local practical conditions.

- Households are trained carefully before and during the process of building the model. Awareness on environmental sanitation of the people has been raised.

- Out of 15 households participating in the project construction, 13 households are located closer to each other, can walk to households together, so taking materials and group meetings in the Village took place smoothly and quickly. There are 2 households far from village center about 2-4km.

- Some households have available materials, contributed labor and support from neighbors, so the construction progress took place quickly and urgently.

### *Hard*

Firstly, the project is implemented in a village where 100% of the households in the village are Mong, the socio-economic life still faces many difficulties. People are shifting from construction to daily agriculture, spending a lot of time to pay attention, and contribute to the construction of accessibility and adaptation issues.

- Transportation is difficult. The road from the district center to Pu Nhung commune (12km) is under construction for roads, some sections cause congestion, places where roads are not yet made of dirt, when it is sunny, and slippery, creating puddles when rain comes. The Kho Bua village is about 4km from the Commune People Committee headquarters.

- The time to deploy the model building took place in the rainy season, so the transportation and gathering of materials faced many difficulties.

- In the process of project implementation, there are also changes and adjustments, so it has somewhat affected the progress of the project.

## **6. Discussion and Conclusion**

The exploration and renewal of thinking in the formulation and implementation of ethnic policies is an ongoing process in the management and implementation of ethnic affairs. The policy on clean water and environmental sanitation is one of the important and fundamental policies to ensure that the lives of ethnic minority people become better and better. Through the environmental sanitation situation of the Mong ethnic community in the Northwest region and the implementation of the model to improve environmental sanitation in Kho Bua village, Pu Nhung commune, Tuan Giao district, Dien Bien province, we can draw a Some conclusions are as follows: (i) Basically the majority of the Mong community in the Northwestern region do not have hygienic sanitation facilities (bathrooms, latrines, breeding facilities) and if any It is only temporary or does not qualify. (ii) Awareness of



people on environmental sanitation is still limited due to topographical conditions, educational level, customs...(iii) Research, development and implementation of models for the Mong ethnic community in the Northwest, it is necessary to study the natural, economic and social conditions, especially the habits and customs of the Mong people in order to have an appropriate and effective model. (iv) The implementation of the model in Kho Bua village, Pu Nhung commune, Tuan Giao district, Dien Bien province has initially been considered appropriate and effective, an important push to change habits and lifestyle of the people. in improving environmental sanitation conditions. The lessons learned from the project during the implementation process in a village where 100% of Mong people are suggestions for the implementation of policies related to sanitation in the coming time of the Mong ethnic community in the Northwest.

## **7. References**

1. Ministry of Health (2011), *National target program report on Water and Sanitation for the period of 2011-2015*
2. Ministry of Health, World Health Organization (2011), *First Assessment Report on Water and Sanitation Sector in Vietnam.*
3. Decision 366/QD-TTg dated 31/3/2012 approving *the National Target Program on rural clean water and environmental sanitation in phase 3 (2012-2015).*
4. Circular No. 27/2011 / TT-BYT dated June 24, 2011 on *Standards of hygienic latrines (Attached to QCVN 01: 2011 / BYT National technical regulation on latrines - Conditions for ensuring conformity toilet)*
5. Local Department I, Committee for Ethnic Minorities (2011), *Report of project results "Project of environmental protection model with the participation of ethnic minority communities in Bac Giang province" by M.Sc Nguyen Lam Thanh and Mr. Bui The Tung are project managers.*
6. The Institute of Ethnic Minority (2013), *Report on the results of the project "Investigating, surveying and assessing the situation of environmental sanitation and building models of environmental sanitation improvement in Mong ethnic group in the Northwest region" (Phase I report) by Assoc. Prof. Dr. Ngo Quang Son is the chairman.*

# THE STUDY ON MYANMAR AND ASEAN ENVIRONMENTAL COOPERATION

*Dr. Ah Mar*

*drmarmar1967@gmail.com*

*Associate professor, History Dept, East Yangon University, Myanmar*

## **Abstract**

*ASEAN has cooperated closely in promoting environmental cooperation among its member countries since 1977. Myanmar became one of the ASEAN members in 1997. Since then, Myanmar has been participating actively in ASEAN programmes and activities including environmental issues. The Government of the Union of Myanmar formed the National Commission for Environmental Affairs (NCEA) in February 1990. This paper is based on literature, information and publications from relevant institutions, various libraries and internet sources using descriptive method of study. ASEAN must address a number of environmental problems and challenges that may emerge as hindrances to the accomplishment of a clean and green ASEAN in ASEAN vision 2020. Climate change is one of the most complex challenges of the twenty-first century. ASEAN region is very vulnerable to environmental issues especially **global warming and climate change** and their consequences: deforestation. The emergence and development of ASEAN is terribly threatened by climate change because most of ASEAN depend on agricultural commodities for their economic growth. ASEAN recognized the benefits of collective action and tries to efforts in achieving sustainable environment through the cooperation and convention of ASEAN Socio-cultural community Blueprint(2009-2015).*

**Key Words:** *ASEAN, Environmental Cooperation, Global warming, Climate Change*

## **1. Introduction**

The ASEAN Region is one of the most ecologically diverse regions in the world. The region while occupying only 3 percent of the world's total land area, is renowned for its rich biological heritage, comprising the three mega biodiversity countries namely Indonesia, Malaysia and the Philippines' which together represent around 60 percent of global biological diversity. The region is home to some 500 million people who depend on these resources for both consumption and production. Moreover, the ASEAN region is vulnerable to climate change effects such as droughts and floods. In the charter of the Association of Southeast Asian Nations (ASEAN), which came into force in December 2008, one of the purposes of ASEAN is stated as *'To promote sustainable development so as to ensure the protection of its cultural heritage and the high quality of life of its peoples.'*

## **2. Methods**

This study user descriptive method based on available secondary date and information from ASEAN countries, various environmental date of ASEAN from libraries and internet.

## **3. Results**

ASEAN in now better prepared to cope with the regional environmental problems sufficient support and resources are needed to contain these problems . Enviromental trends of Myanmar are conditioned to a large extent by the country's demographic, economic and institutional trends. The demands of a growing population and expanding economy can, in future place pressure on the country natural resources and the environment. However, it is firmly believed that through international cooperation Myanmar will continue to be in a good position, in terms of forest cover, species richness and abundance of wildlife species. Myanmar shares the view that achieving sustainable development objectives is an important and formidable challenge for the developing countries. Availability of technical and financial resources is a necessary condition to meet this challenge.

## **4. Dicussion**

### **Environmental Implications of Geographical Conditions**

The ASEAN region has total land area of 4.4 million square kilometers (nearly 447 million hectares). Southeast Asia extends more than 3,300 km from north to south, and 5,600 km from east to west. Of the ten countries, only Lao PDR is land-locked, all others having direct access to the sea.

ASEAN's environment and natural resource endowments are unique and diverse. Three of the 17 mega biodiversity countries are in ASEAN. The aquatic ecosystems and the marine environment in ASEAN are highly productive and species rich. Of the total land area of the region of 447 million hectares, over 45% are covered with forests and Woodlands. While the rate of deforestation at 1.35% in the region is the highest in the world, there was a declining trend as the production and consumption of forest wood products declined. Despite a receding forest cover, the region remained among the most biologically diverse regions in the world as it had 20% of the world's known species while occupying only 3% of the world's total area'.

### **Population and the Environment**

The population of ASEAN member countries in mid 2005 was approximately 558 million people, which comprises about 7.7% of the world's total population. In terms of regional distribution, the ASEAN region has the fourth largest population after South-Central Asia, Eastern Asia, and Sub- Saharan Africa. Six ASEAN countries are among the top 50 most populous countries in the world, namely, Indonesia, Philippines, Vietnam, Thailand, Myanmar and Malaysia. The region's population is expected to grow from 558 million in 2005 to around 650 million in 2020.

## **Land use in ASEAN Countries**

In many ASEAN countries, land resources and terrestrial ecosystems are under increasing stress due to a growing population and the extension of agricultural land into forest and other ecologically sensitive areas. External factors such as the greater incidence of poverty due to the economic crisis, low market prices for commodities, and unfavorable terms of trade have led to over exploitation of these resources.

The deforestation rate in ASEAN for 1990-2000 is estimated at 1.04% compared to the world average of 0.23%. Of greater significance is the extensive damage caused by forest fires and other natural disasters. While these factors have caused significant loss of natural resources, very little sustained support has been provided by the international community to address these problems in the long term. Most of Southeast Asia was once covered with forests, but much of this has been converted to crop lands and pastures.

## **ASEAN Institutional Framework for Environmental Management**

A formally instituted inter-governmental structure exists in ASEAN where environmental issues are considered at various levels up to the ASEAN Heads of State/Government. At these Summit Meetings, the ASEAN Leaders provide the vision and broad thrust for cooperation in various sectors, including cooperation on environment.

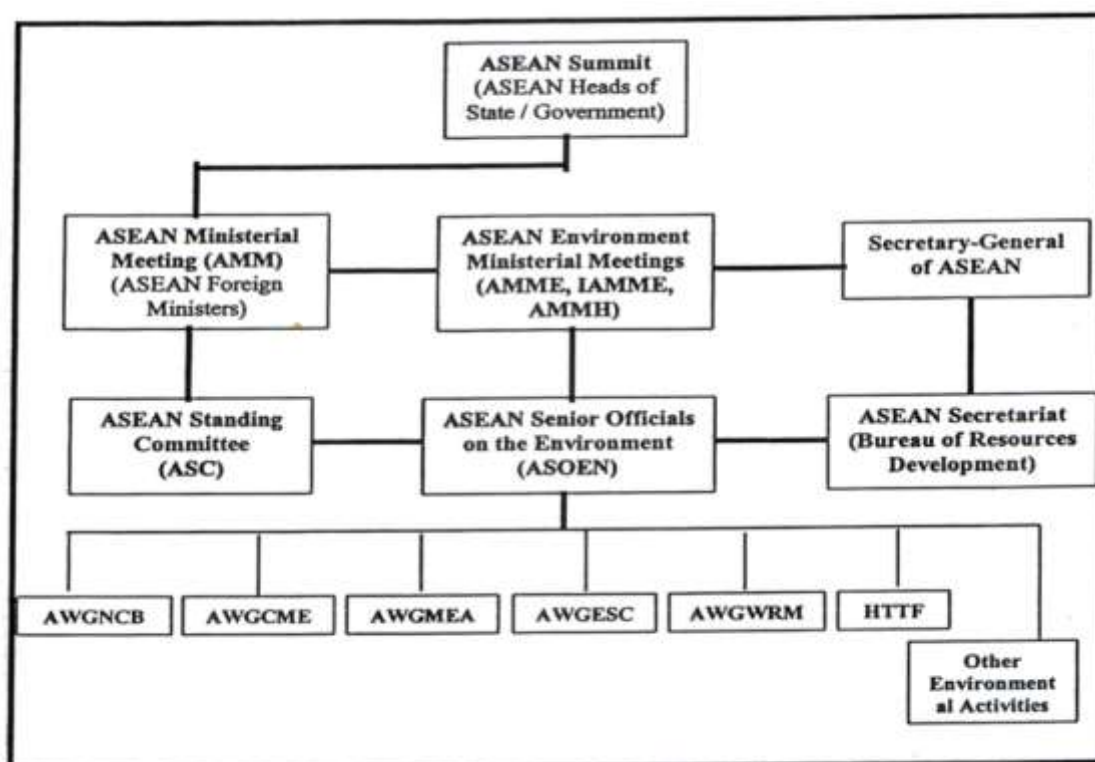
The ASEAN Ministers for Environment are primarily responsible for policy matters related to the environment. The Environment Ministers meet once every three years on a formal basis, and since 1994 have met on an informal basis annually in between these formal meetings. Deliberations of the Environment Ministers are also considered by the Foreign Ministers at the ASEAN Ministerial Meeting (AMM), in particular to enhance coordination and synergy among the various other sectors of cooperation.

The ASEAN Senior Officials on the Environment (ASOEN) meet annually and are responsible for formulation, implementation and monitoring of regional programmes and activities on the environment. ASOEN comprises heads of environmental ministries/departments/agencies who are responsible for environmental matters in their respective countries. ASOEN members also serve as the national ASOEN focal points for promoting ASEAN's activities in their respective countries.

ASOEN is assisted by six subsidiary bodies, namely the Working Group on Coastal and Marine Environment, the Working Group on Environmentally Sustainable Cities, the Working Group on Multilateral Environmental Agreements, the Working Group on Nature Conservation and Biodiversity, the Working Group on Water Resources Management, and the Haze Technical Task Force. The ASEAN Secretariat coordinates and reports to ASOEN on all other activities that do not fall within the purview of the respective working groups. The ASEAN Secretariat provides support for all of these institutional bodies.

AMME	ASEAN Ministerial Meeting on the Environment
LAMME Informal	ASEAN Ministerial Meeting on the Environment
AMMH	ASEAN Ministerial on the Haze
AWGNCB	ASEAN Working Group on Nature Conservation and Biodiversity
AWGCME	ASEAN Working Group on Coastal and Marine Environment
AWGMEA	ASEAN Working Group on Multilateral Environmental Agreements
AWGESC	ASEAN Working Group on Environmentally Sustainable Cities
AWGWRM	ASEAN Working Group on Water Resources Management
HTTF	Haze Technical Task Force
Source: 3 <sup>rd</sup>	ASEAN State of the Environment Report, 2006

**Table 1. ASEAN Institutional Framework for Environmental Cooperation**



In particular, the ASEAN Secretariat acts as a resource base, providing advice and information. The ASEAN Secretariat also coordinates the implementation of regional activities and programmes, in addition to servicing the meetings of the ASEAN bodies. The ASEAN Secretariat ensures proper coordination between activities of various other sectoral areas so as to promote synergy and avoid duplication. Another important role played by the ASEAN Secretariat is the coordination between ASEAN bodies and its programmes with those of dialogue partners and other international organization in terms of resource mobilization, programme implementation and in general enhancing institutional linkage.

## ASEAN's Commitment to Sustainable Development

The global community has generally accepted the concept of 'sustainable development' as the guiding principle to ensure mother earth will continue to sustain life for the foreseeable future.

The global community has generally accepted the concept of "sustainable development" based on the definition of the 1987 Brundtland Report: "Sustainable development" is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within into two key concepts: *(i) the concept of 'needs', in particular the essential needs of the world's poor, to which over riding priority should be given; and (ii) the idea of limitations imposed by the state of technology and social organization in the environment's ability to meet present and future needs*".

The International Institute for Sustainable Development characterizes it as *a "fluid concept that will continue to evolve over time, but common characteristics underlie its many streams of thought. Sustainable development emphasizes the need for: (i) concern for equity and fairness -ensuring the rights of the poor and of future generations; (ii) a long term view -applying the precautionary principle, and (iii) systems thinking-understanding the interconnections between the environment, economy and society."* Accordingly, sustainable development will never be a fixed plan of action agreed to by all parties, for example solutions will differ among different countries based on their capacities and aspirations for the future.

ASEAN shares and believes in the global vision for sustainable development. As ASEAN pursues broader and deeper integration, it must ensure that the end goal of an ASEAN Community is environmentally sustainable. Their commitment to international cooperation for the protection of and enhancement of the environment was embodied in the Singapore Resolution on Environment and Development adopted in February, 1992. At the national level, ASEAN Member Countries have aligned their development goals and plans with Agenda 21, which was adopted by Heads of State/Government during June, 1992 Rio "Earth Summit."

ASEAN member countries have designated or established relevant institutions or inter-agency committees to implement Agenda 21 at the national level, as illustrated in Table (2) Agenda 21 reports (national sustainable development strategies and similar national environmental action plans) have been useful in guiding national thinking on environmental management.

**Table 2. ASEAN Member Countries' Agenda 21 Arrangements**

Country	Responsible Institution	Key Documents
Brunei Darussalam	National Committee on the Environment	National Environment Strategy; 7th National Development Plan, 1996-2000
Cambodia	Ministry of Environment	National Environmental Action Plan, 1996-2000
Indonesia	Ministry of State for Environment	Agenda 21 Indonesia, 1997

Country	Responsible Institution	Key Documents
Lao PDR	Science, Technology and Environment Agency	State of Environment Report, 2001
Malaysia	Economic Planning Unit, Prime Minister's Department	7th Malaysia Plan, 1996-2000 and various reports
Myanmar	National Commission for Environmental Affairs	Myanmar Agenda 21
Philippines	Philippine Council for Sustainable Development (chaired by National Economic and Development Authority; also 21 Local Councils for Sustainable Development)	Philippine Strategy for Sustainable Development, 1989; Philippine Agenda 21, 1997
Singapore	Ministry of Environment	Singapore Green Plan Action Programme
Thailand	Agenda 21 Subcommittee of National Environment Board; (Local Agenda 21, Dept of Environmental Quality Promotion)	Policy and Prospective Plan, 1997-2016 b/
Vietnam	National Environment Agency, Ministry of Science, Technology and Environment	various reports

*Source. Report of ASEAN Workshop on Agenda 21 (ASEAN Secretariat, 2000)*

*Note: 'Being Finalized'; 'full title: Policy and Prospective Plan for the Enhancement and Conservation of National Environmental Quality, 1997-2016*

Since 1977, ASEAN as a collective has nevertheless embarked on regional initiative aimed at tackling such challenges. Several agreements and frameworks have been draw up. They are part of the process of regional cooperation and community building. However, implementing the ASEAN's agenda on environment has been Patchy. The pressures of feeding a large population, coupled with the incessant demands of the market, make any enforcement of Laws and protection, imperfect. Several ASEAN member states have also to grapple with many bureaucratic and anti-social habits, which further complicate the management of natural resources and the promotion of environmental protection. Realizing that collective and cooperative actions are crucial for addressing the environmental problems, ASEAN initiated aflame work for environmental cooperation with the first year of its establishment. ASEAN is fully committed to the goals of sustainable development. The challenges faced in protecting the natural resources and advancing the material well-being of society, are tackled in different members states of ASEAN. ASEAN would have to approach environmental sustainability in a balanced and step-by-step manner.

In ASEAN Vision 2020, the Association's Heads of state and Government called for a clean and green ASEAN with fully established mechanisms for sustainable development to 'ensure the protection of the region's environment the sustainability of its natural resources and the high quality of life of its peoples'. The ASEAN leaders decided that its goals shall be achieved through a series of medium-term action plans. The first action plan is known as the Ha Noi plan of Action which was implemented from 1999-2004. The second action plan known as the Vientiane Action programme (VAP) is currently being implemented covering the period 2004-2010. Therefore, ASEAN cooperation is very crucial for the continued management of the global environment.

Myanmar has become one of the members of ASEAN since 1997. Since then, Myanmar is actively participating in ASEAN programmes and activities including environmental activities. Therefore environmental issues of neighbouring developing countries are also related with Myanmar and understanding the environmental issues and operating with the neighboring ASEAN are the responsibility of all Myanmar citizens. This study hopes to fulfill the needs of Myanmar citizens in global warming, climate change and deforestation.

### **Environmental Cooperation of ASEAN with International Organizations and Civil Society Organizations**

ASEAN has formal dialogue relations with Australia, Canada, China, European Union, India, Japan, Pakistan, Republic of Korea, New Zealand, Russia Federation, United States of America and the United Nations Development Program (UNDP). Various environmental cooperative activities have been developed through this channel which forms a major source of support for ASEAN's environmental cooperative activities.

ASEAN has also promoted cooperation with a number of international organizations which include the United Nations Environment Program (UNEP), the United Nations University (UNU), the United Nations Development Program (UNDP), the United Nations Educational Scientific and Cultural Organization (UNESCO), Asia Development Bank (ADB), and the Hanns Seidel Foundation (HSF).

ASEAN has welcomed and encouraged the participation of CSOs in its regional programmes and activities. In the area of environment and sustainable development, CSOs have been consulted on specific issues of interest, mainly on a project basis. In 1986 ASEAN adopted the Guidelines for ASEAN Relations with Non-Governmental Organizations to draw them into the main stream of ASEAN activities and to ensure meaningful interaction and fruitful relationships with ASEAN bodies. In recognition of the important role of CSOs, their participation has become increasingly institutionalized in ASEAN with a view to making more effective their contribution at the regional and national level. To ensure regular and structured collaboration with CSOs, the ASEAN Senior Officials on the Environment have endorsed a proposal on "ASEAN Civil Society Organizations (CSOs) Consultative Forum on Environmental Protection and Sustainable Development". The CSOs are being consulted to realize this Forum.



## Environmental Situation in Myanmar

In the Indo-Malayan biographical realm, Myanmar is one of the countries half covered with high forest stands. The total land area is approximately 676,577 square kilometers. Myanmar is one of the richest areas of natural resources in the world, its ecosystems are home to numerous fauna and flora species, some of which are endangered. The country, once called the “last frontier of biodiversity in Asia”, has 300 known species of mammals, and 370 reptile, 1,000 bird and 7,000 plant species.

**Table 3. Environmental Condition of Myanmar**

<b>Environment</b>	
Total forest area (% of land area)	52.30
Average annual deforestation (%)	1.4(1990-2000)
Protected area (% of total land area)	4.72
Freshwater resources per capita (m <sup>3</sup> )	28,511
Freshwater withdrawal for agriculture (%)	90(1999)
<b>Rural Environment</b>	
Total population (million)	51.14(2001)
Rural population (% of total)	72.3
Rural population density (persons/km <sup>2</sup> of arable land)	359 (1999)
Arabic land (% of land area)	14.5 (1999)
Permanent cropland (% of land area)	0.9 (1999)
<b>Urban Environment</b>	
Urban population (% of total)	27.7
Population in largest city (% of urban population)	32
Population with access to improved sanitation (% of urban population)	84
Solid waste generation in urban areas (kg/capita/day)	0.45
<b>Energy Efficiency of Emissions</b>	
CO <sub>2</sub> emissions (million metric tons)	8.2 (1998)
CO <sub>2</sub> emissions per capita (total metric tons)	0.18 (1999)
Energy use per capita (kg of oil equivalent)	273 (1999)

*Source: Greater Mekong Subregion: ATLAS of the Environment, Asian Development Bank 2004*

Further, few rural homes have gas or electricity. The people rely heavily on fuelwood, leading to depletion of forest cover in marginal forests outside the reserve forest areas. Fuelwood consumption contributes about 84 % of the total energy consumption of the country. Especially, the Ayeyawaddy mangrove forest has suffered from serious deforestation and environmental degradation due to over-exploitation of mangrove products, including fuelwood and charcoal. The Dry Zone of Central Myanmar is the most problematic region in terms of land degradation because of continued deforestation and its severe climatic

conditions. Obviously, as the population increased, the rate of forest degradation also increased due to over-cutting of fuelwood, posts and poles, encroachment for agricultural expansion and increased fish and prawn ponds.

In Myanmar, the main causes of land degradation are, inter alia, demographic pressure, expansion of agricultural land, over-grazing, shifting cultivation, illicit logging and excessive use of fuelwood, and installation of industrial plants and mining. Due to the nation-wide land degradation, the capacity of natural forests to contribute to the environmental quality has decreased in both tangible and intangible benefits.

The number of both endangered plant and animal species increases, seriously affecting biodiversity. Soils become infertile; water resources become less available; and temperature will be heating up in the Dry Zone. There is an additional negative feedback on energy supply caused by forest destruction in water catchment areas. The latter ones are the basis for existing and future production of electric hydropower. Without forest, there will be no water in the catchment areas, without water, there will be no hydropower. Without hydropower, the population will have to intensify the already existing over-exploitation of natural resources for energy supply, thus entering in a vicious cycle.

Over 70 % of the country's total population are residing in rural areas. Accordingly, the 5-rural development tasks, namely, transport facilitation; potable water supply; education promotion; health care promotion; and economic development have been laid down and are being implemented. The 30-year rural road development plan from 2001-2002 to 2030-2031 is being implemented.

To establish sound environment policies in the utilization of water, land forests, mineral, marine resources and other natural resources in order to conserve the environment and prevent its degradation, the Government of the Union of Myanmar adopts the following policy: *“The wealth of a nation is its people, its cultural heritage, its environment and its natural resources. The objective of Myanmar's environment policy is aimed at achieving harmony and balance between these through the integration of environmental considerations into the development process to enhance the quality of life of all its citizens. Every nation has the sovereign right to utilize its natural resources in accordance with its environmental policies; but great care must be taken not to exceed its jurisdiction or infringe upon the interests of other nations. It is the responsibility of the state and every citizen to preserve its natural resources in the interest of present and future generations. Environmental protection should always be the primary objective in seeking development.”*

The policy was proclaimed through the Gazette in accordance with Notification No. 26/94 dated 5th December 1994, of the Government of the Union of Myanmar. A primary objective of the Myanmar Forest Policy (1994) is to gazette thirty percent of the country's total land area as part of the Reserved Forest System (RFS). The Policy also aims to enlarge the Protected Area System (PAS) to about five percent of the country's total area in short run and up to ten percent in long run. At present, the RFS covers 14.8 percent of the country.

Within the RFS, “Climate Reserves” have also been established. These are established in areas highly prone to land slides and erosion. No activities are permitted in these areas.

To ensure protection of wild life and wild plants and conservation of natural areas, the State has established 13 nature and wildlife sanctuaries with an area of 2.0 million acres and 7 national parks with an area of 1.6 million acres. A PAS action plan has been drawn-up to cover the targeted five percent as soon as possible without delay.

The Ministry of Forestry has launched the Nation-wide Tree Planting Programme since 1977-78 with the objective of raising public awareness of greening non-forested areas. It has distributed various kinds of seedlings and saplings increasing year after year especially in the Dry Zone. About 17 million seedlings and saplings were planted by the public in 2005 under the supervision of the Regional Forest Conservation Committees.

Myanmar has actively participated in formulating the ASEAN Environmental Education Action Plan and had presented project proposals. Six regional proposals were proposed namely:

- (a) Education for Sustainable Development,
- (b) Integration of Environmental Education into Primary Schools, L
- (c) ASEAN Environmental Camp,
- (d) Teacher Training on Environmental Education for Basic Education Schools in the BIMP-EAGA Countries (Brunei Darussalam, Indonesia, Malaysia, the Philippines- 9 East ASEAN Growth Area),
- (e) Environmental Education Training for University Teachers, and
- (f) Establishment of an ASEAN Environmental Education Centre and Fund.

National and regional efforts to improve air quality such as efficient public transportation, increasing use of cleaner fuels especially natural gas and bio-fuels, implementation of the ASEAN Agreement on Transboundary Haze Pollution, and the ASEAN Sustainable Cities Initiative are being pursued to continuously improve the overall air quality of the region. Myanmar had already signed the ASEAN Transboundary Haze Agreement.

In ASEAN Initiative on Environmentally Sustainable Cities, Yangon and Mandalay Cities are being participated. Compared with other major cities in ASEAN, Yangon and Mandalay have fewer environmental problems. But, the trade boom has brought urban pollution. Water pollution and public health problems are increasing because of limited availability of industrial waste treatment plants, incinerators and landfills for household waste. Emissions from industries have added to the air pollution from vehicles. Air pollution is one of the main challenges affecting urban areas and the installation of measuring devices will be useful, partly because of the need to gather data to assist control measures.

As Yangon’s population continued to expand beyond its current figure of more than five million, it would be necessary to install equipment to monitor air quality. The NCEA was hoping to establish an air pollution monitoring station in Yangon but had so far been

unable to do so because the high cost of the necessary equipment. In 2005, the NCEA was holding discussions with the United Nations Environment Program on a plan to measure air quality in Yangon in the coming years.

As the number of vehicles and factories in Yangon increased, it is inevitable that there will be an impact on the environment. The Road Transport Administration, under the Ministry of Rail Transportation, has been using the equipment checks on vehicle exhaust emissions at its YwaThar Gyi branch since October 1, 2005 as part of roadworthiness checks on buses and commercial vehicles. The department launched a vehicle exhaust emission control project in 1999-2000, which involved visual checks’.

The pollution control laws, as well as environmental standards for the industrial sector, will need to be introduced. The awareness and participation of all sectors of society are important to help keep air pollution as low as possible. More public education programs about the negative effects of pollution, as well as penalties for breaching environmental standards, will be needed in the future.

The ASEAN Strategic Plan of Action on Water Resources Management, the ASEAN Marine Water Quality Criteria and the ASEAN Criteria for National Marine Protected Areas and Marine Heritage Areas are some of the regional responses that complement and support actions at the national level including Myanmar.

An important component of environmental education and awareness raising is the regular publication by the ASEAN Secretariat of various reports, books and other information materials for dissemination to numerous institutions and individuals in the region. Many of these publications are outputs of environmental programmes and projects implemented by member countries and coordinated by the ASEAN Secretariat. These publications serve as valuable reference materials for government officials, researchers, civil society organizations and the general public.

## **5. Conclusion**

ASEAN has been involved in international negotiations on climate change and the Heads of its members states have expressed their commitment to playing an active role in addressing climate change on various occasions. This commitment was expressed in their declarations at the UN climate change conferences in Bali, in 2007 and in Copenhagen, in 2009. ASEAN’s “vision 2020” calls for “ a clean and green ASEAN which ensures the protection of the environment, sustainable use of natural resources and high quality of life for its people.

## **6. References**

1. ADB and LJNEP (2004), *Greater Mekong Subregion: A TLAS of the Environment*.
2. ASEAN Secretariat (2000), *Second ASEAN State of the Environment Report*.
3. ASEAN Secretariat (2006), *Third ASEAN State of the Environment Report*.
4. Forest Department (2005), *Forest Resource Assessment, Myanmar*.

5. Forest Department (2005), *Planning and Statistics Division, Myanmar*.
6. Hla Aye, U, Assistant Director (Hlawaga Park Warden), *Nature and Wildlife Conservation Division, Situation of Environmental Policy, Legislation and Biological Diversity Conservation in Myanmar, Forest Department, Myanmar*
7. Ministry of Forestry, *Third National Report to the UNCCD (United Nations Convention to Combating Desertification) (DRAFT), Myanmar, 2006*
8. Tan Alan K. J., Faculty of Law, *Preliminary Assessment Of Myanmar's Environmental Law, National University of Singapore (<http://llsunsite.nus.edu.sg/fapcel/dbase/myanmar/reportmy.html>)*
9. Thailand (1999), *Annual Environmental Report*.
10. Yin Yin Lay, Daw (2003), "Myanmar-ASEAN Environmental Cooperation", *The New light of Myanmar, March 10, 2003*
11. UN-ESCAP (2008), *Statistical Year Book for the Asia and the Pacific*.
12. UN-ESCAP (2011) *Statistical Year Book for the Asia and the Pacific*.
13. The Burma Environmental Working Group (2011), *Burma 's Environment: People, Problems and Policies, Wanida Press, Chiang Mai, Thailand*.

#### **Internet Websites**

1. <http://www.aseansec.org>
2. <http://www.calacademy.org/research/herpetology/myanmar/urgency.html>
3. <http://www.mewashingtondc.com/environment.html>
4. <http://www.unep.net/profile/index.cfiu?countrycode=MM>
5. <http://www.wmo.int/wcc3> (Accepted Date 22.6.2012)
6. <http://www.6-major-environmental-problems-of-asia.htm> I (Accepted Date 26.6.2012)
7. <http://www.what-is-global-warming.com/what-are-greenhouse-gases.php>
8. <http://www.Sustainableforestmanagement.htm> (Accepted Date 28.7.2012)
9. <http://www.environmentaldeforestationofasean/html> (Accepted Date 2.8.2012)

# ENVIRONMENTAL ISSUES AND SOCIO-ECONOMIC DEVELOPMENT FROM MARBLE EXTRACTION IN MANDALAY REGION: A CASE STUDY OF SAGYIN VILLAGE, MADAYA TOWNSHIP/ MYANMAR

*Prof. Dr. Khin Khin Soe*

*khinkhingeog.97@gmail.com / khinkhin@uy.edu.mm*

*Department of Geography, Sittway University, Myanmar*

## **Abstract**

*Sagyin village, Madaya township ranks among the least developed and accessible village of Mandalay region. Marble hills area, low population density, infrastructural deficits and mostly crafts and handicraft supported subsistence economy, partly community-based tourism, limit the current socio-economic development. There are 6000 population of 1600 households, one-thirds of the population depend on agriculture in Sagyin village. About 80% of the population makes their major livelihood as a stone carving business. This paper presents the findings of a study that explored the socio-economic and environmental issues associated with marble extraction. Although stone carving work has no positive impacts on environments, the local communities are enjoying some benefits of positive social impacts including creating job opportunity, attracting tourists, maintaining traditional cultures, spending more time for families. The research investigates processes of recent local socio-economic characteristics. The research is based on the analysis of (inter)national literature and empirical (quantitative and qualitative) data, collected in three research fieldwork campaigns in 2019. Geographic Information System (GIS) analysis, thematic mapping, transcripts of 45 expert and household interviews and information from field observation is combined in a mixed method approach. The results documents myriad of environmental issues including: landslides and soil erosion, natural resource degradation, ecosystem damages, water, noise and visual pollutions, vibration and resource depletion by overexploitation with modern technology. This informs the need to develop effective monitoring systems that guarantees environmental and social management plan compliance by this business. The findings are explained and discussed and recommendations for improved local's socio-economic conditions and systematic management for environment and natural resources.*

**Keywords:** *environmental issues, landslides and soil erosion, health problems, natural resource degradation, ecosystem damages*

## **1. Introduction**

Marble is called Sagyin in Myanmar Name. Which derives from Sagyin hill and the marble stones produced are called Sagyin stones. The hills are most well-known for their marble which varies in color ranging from pure white to bluish gray. White Marble is mainly

composed of calcium carbonate, white fine marble with hard texture. It is a superior building and carving material. At the same time, it is also an important building material. It is basically insoluble in water. White Marble is a kind of precious building material. It is white and flawless, solid and delicate in texture. It is very easy to carve. It has been widely used as raw material in ancient and modern precious buildings.

Among the stones, marble is rated the best in texture, hardness and beauty. Carved marble was introduced in Myanmar 235 years ago, during the reign of Thalumintraygi, the manufacturer of Kaunghmudaw Pagoda in Sagaing, and the industry has developed in the dynasty of King Alaungpaya Konebaung. However, during these days several statues are exported to China and Thailand. The design of statute depends on the customer's choice and normally provided the designed by customers.

High quality marble stones obtained from Sagyin hill serve as the source of religious images, inscriptions and sculptors. Sagyin village is a place dating back to nearly a thousand years. The village has a high school, six monasteries and four wards, with estimate 1600 households and 6000 residents. Around one third of people engage in agriculture whereas the huge majority of residents primarily engage in sculpting for their main source of income. Sculpting is a traditional work cascaded down to younger generations and the marble hills serves as the source of raw materials for the locality.

Mandalay Region where livelihoods of local people are stone sculpting business (Pantamo). Pantamo is their traditional practiced business inherited from ancestors. Almost all households have done the same business; Pantamo. The villagers receive their resources from hills namely Kama, Yathae' and Shwe San Taw of white alabasters around the villages. The main products in which they have been manufacturing are Buddha Status and its related images and home decorated flatted stones from alabasters. Kyauktawgyi Pagoda, also known as the Pagoda of the Great Marble Image, stands at the foot of the Mandalay Hill. It was built by King Mindon in 1865 and houses a large image of Buddha sculpted from a single block of beautiful Sagyin marble. One of the largest festivals of Myanmar, Kyauktawgyi Paya, is conducted at this place in October which attracts tourists from all over the world.

## **2. Methods**

The research follows a mixed-method approach (Brewer/Hunter 2006) in which empirical data from Geographic Information System (GIS) analysis and thematic mapping, quantitative and qualitative social research were combined. Secondary data was collected from the General Administration Departments (GAD) and its different offices. The empirical data collection took place during three research fieldwork campaigns in 2019 in which 45 intensive, semi-structured expert and partly semi-structured, partly open household interviews were collected, transcribed and analysed. Additionally, systematic literature search (in international libraries and research publication data banks) and participatory field observation was undertaken.

Against this background, this illustrates the dealing with the personal/household level and tries to analyse in more detail the socio- economic conditions and environmental

issue of local people. The main aim of the research is to understand the challenges of local workers and impact of environment by marble extraction in study area in order to achieve the main aim of this paper following objectives have been set up:

- (1) To observe existing social and environmental situations and its impacts.
- (2) To explore about the environmental issue related with marble extractions
- (3) To study the livelihoods of local people that how they depend on the natural resources.

According to these objectives following guiding research questions have been raised and the paper will try to give answers:

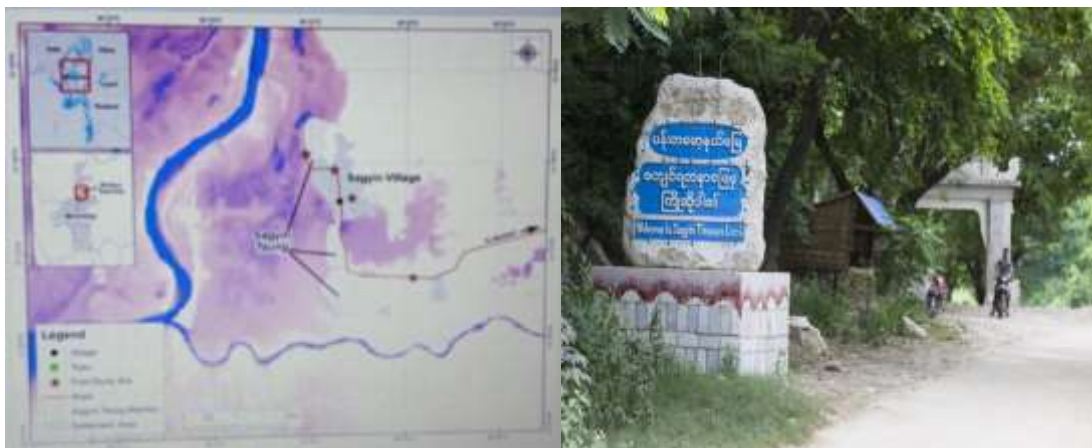
- (a) How do natural resources affect the economy?
- (b) What are the environmental issues with marble extraction?
- (c) How can we solve the environmental problems?

### 3. Results

#### 3.1. Study Area

Sagyin village is located within Madaya Township, which is about 32 miles North of Mandalay Region. There are 7 hills of Sagyin- four to the north and three to the south of the village. The village has a high school, six monasteries and four wards, with estimate 1600 households and 6000 residents.

The marble quarry in Sagyin village, on the banks of the Ayeyerwady River in Madaya Township, in Mandalay is one of the largest marble production sites in Myanmar where all men, women, and young people work in the business from extracting till **producing** final products in the market (Figure 1).



**Figure 1. Location of Marble extraction area, Sagyin Township**

#### 3.2. Findings

About 80% of people engaged in marble extraction and makes their main livelihood as a stone carving business. Most villagers have concerns on domestic scale excavating prohibited by the government so they always answered positive feedbacks and there is no serious health problem and no conflict with big companies and everything is going well. Some competition can happen between native cottage industries and outside dominant companies.



Raw marble stones are excavated by using explosive materials so pollution is taking place. Surface water pollution is evident in ponds in front of the village. On the side of the working site, Electronic devices are used to smooth the sculptures so noise pollution and air pollution happened. Although stone carving work has no positive impacts on environments, the local communities are enjoying some benefits of positive social impacts including creating job opportunity, attracting tourists, maintaining traditional cultures, spending more time for families.

However enjoying positive social impacts, some negatives are found clearly. They are imposing some health problems because of inhaling fine stone particles daily causing respiratory disease (Plate 1).



**Figure 2. Impact of raw marble stones excavation on human**

Because of the extractive industry type, no positive environmental impact is seen in Sagyin extraction. No program is seen to compensate for environmental degradation and enhance the social welfare of the local community. Some erosion is taking place and it is a potential area where landslide to occur.

### *3.2.1. Social perspective*

All the sculptors do not wear personal protective equipment like mask, glasses, and gloves while working. Regarding objective (1) ***To observe existing social and environmental situations and its impacts.***

*They said that they suffered frequent accidental injuries and trauma even though they still do not change their behaviour of wearing PPEs. When they faced with illness, some owners provide medical allowance but they have no insurance for life and security. The marble dust particles can impact on health especially respiratory tract disease like Occupational Lung Diseases (E.g. Silicosis), Eye and Skin irritation due to marble dust, impair hearing due to prolong exposure of noise from stone grinding machine, in long period exposure to contaminated water that can be precipitated factor for urinary stone. Meanwhile, almost all of villagers denied that they have no impact on their health due to these dusts. They misbelieved that if the dust were danger, their parents should be affected but they had never seen like that (interviewed, 2019).*

### 3.2.2. Environmental perspective

The landscape of mountain and its topography were significantly changed by mismanagement of extraction. Highly exploiting the marble hill was visually unpleasant that can impact on aesthetic value of the environment. There are multiple stone extraction sites from small to large one. Regarding objective (2) *To explore about the environmental issue related with marble extractions*

*They said that all sites are permitted by authorities. The waste materials from production (pieces of stones) are haphazardly kept along the side of the road that could lead to change in land use pattern. Fine marble dust (white dust) scatters in the surrounding air and all the surrounding substances are covered with these dusts. Noise pollution from quarrying and marble carving was not deniable. Some issues would be happen in the area like landslide at unsystematic quarry site, habitat loss (both flora and fauna) and water quality degradation due to heavy dust contamination.*



**Figure 3. Natural resources related economic activities, 2019**

### 3.2.3. Economic perspective

The two third of the village population depends on marble production and carving business. Regarding objective (3) *To study the livelihoods of local people that how they depend on the natural resources:*

Daily wages differ depending on their skill: 5,000 MMKs for a general worker but for a sculpture specialist, they earn by piece and amount is depending on complexity of the statue design. China, Vietnam, Thailand are major customers for them. Mostly, they purchase via third party agents from border townships or from Mandalay. There are few private and public textile companies near the village, but according to the local villagers, the companies do not hire the local people (interviewed).

### 3.2.4. Economic Activities

According to the interviewed on marble stone carving is being made on 19.7.2019 at the stone carving site of U Taw Taw and sons' Co., Ltd work site. It is one of the big sites carried out in this village. They bought raw marble stones from the companies who have a license to excavate from the government. Some sculptures are being carried out by local workers including female workers (Plate 3). All of the workers in this site do not use on masks not to be entered fine stone particles through nose and mouth.

At U Taw Taw & Sons Co., Ltd the second visited. Where was the place where a huge marble stone is a dugout. The stone is 4200 tons in raw weight and it will be 1800 tons in final finished carving. The huge stone is intended to make the biggest Buddha image of Bhumisparsha mudra, translated as the earth touching gesture (Triumph Gesture) in Myanmar.

The third-place is a small-scale stone carving work site. All the labor in this site is not workers on daily wages but they work piece-work depending on size and work in detail of the order. All of the workers in the stone curving site do not wear any mask on their face. The workers are in this village and of other villages else. As increased in a number of visitors and labors, there are some retail shops and small restaurants in this village.

Two-thirds of its roughly 5,000 families survive on making statues, and the craftsmen for which the village is known are practically born with the skill, chiseling rock for as long as they can remember. *“If one doesn’t have a degree, it is not easy to get a good job. I am not well-educated — and I’ve been doing this job my whole life,”* (1<sup>st</sup> interviewee said)

1<sup>st</sup> interviewee has been carving statues for four decades and has passed on the craft to his son, daughters and grandchildren.

2<sup>nd</sup> interviewee, his son, now runs the workshop, which specializes in 1 foot (0.348 meter) tall Buddha statues that are sold to Mandalay souvenir shops. This was one of their inherit. The whole family is involved in this job. The men hammer and chisel the stone, while the women polish the finished statues. Men earn a daily wage of 2,000 kyat (\$2.25), while women are paid 1,500 kyat (\$1.70). *“This is our family’s business. It’s a legacy,”* (2<sup>nd</sup> interviewee said thad).

According to interviewed: they don’t like farmers, who are at the mercy of each harvest season’s ups and downs, marble collectors and craftsmen say that as long as there is stone and demand for Buddha statues, their livelihood will remain profitable.



**Figure 4. Job opportunity for local people from natural resource, 2019**

3.2.5. Potential Impact on Marble Area

**Table 1. The impacts on Marble extraction**

Environmental Impact		Social Impact	
Positive Impact	Negative Impact	Positive Impact	Negative Impact
<p>-Efficient use of natural resource</p> <p>-Maintain some areas as recognized by Religious Affair</p>	<p>-Air pollution, Landslides and soil erosion, Resource degradation, Ecosystem damages, Water pollution, Pollution of noise and vibration, Resource depletion by overexploitation with modern technology, Visual pollution and loss of aesthetic view (Plate 4)</p> <p><b>- Biodiversity Loss</b></p> <p>-In the past, the area around Sagyin mountain range was inhabited by some wild animals but such animals have disappeared for a long time owing to the use of mining machineries by large scale marble manufacturing companies incrementally causing damage to the ecosystem of the surrounding area.</p>	<p>- Unique products, Tourist attraction, Landmark business, Job opportunities (consistent), High living standards, Preserve Traditional Culture (art of stone sculpture), Increase foreign income and introduction of new sculpture designs, Easy availability of raw material resource, Value their region and job, Production of value-added products, Development of transportation route and infrastructure, Improving Specific Skills to innovate images, Able to create value added products</p>	<p>- Health related Issues (respiratory problems), Conflicts between local communities and large-scale manufacturers, Less attention in education because of easy access of job opportunity, Dominated by large-scale manufacturing companies, Limited alternatives of livelihoods sources, No awareness for environmental conservation, No women expert, Land pricing is becomes higher than higher and No encouragement for education</p>

Source: interviewed, 2019



**Figure 5. Environmental issue: Air pollution at residential area, Sagyin village 2019**

#### **4. Conclusion and Recommendations**

Mable hills area is situated in Sagyin village, Madaya township, Mandalay Region. Where is low population density, infrastructural deficits and mostly crafts and handicraft supported subsistence economy, partly community-based tourism, limit the current socio-economic development. There are 6000 population of 1600 households, one-thirds of the population depend on agriculture in Sagyin village. About 80% of the population makes their major livelihood as a stone carving business. The paper investigated the environmental and social impacts for Marble area. There should be proper safety and precaution measures for local workers and people working in factories. Although the area serves as the main source of marble for the whole country, the abundance of marble resources is exhaustive and hence, limited. Therefore, manufacturing processes should be performed with caution to prevent exploitation and depletion of marble resources.

The local authorities members should consider for small and medium scale enterprises or private own works in marble mining to develop their lifestyle of local people and maintenance for their traditional culture of stone carving art in Sagyin village. Occupational Health Safety system still needs to promote the safety design for in touch workers who are daily working without any mask or eye protection goggles on their face. Many researches should only be intended to promote their job opportunities working in a safe environment and the production should be sustainable but ceasing the operation of their work would be a great challenge for them to make their own livings. (Further research works should do to solve the sustainable development programs on marble production for local people livelihood and their future generation because of it will be a great challenge.) Soil and Water Conservation plantation should be made by companies that are excavating marble as polluter pay policy.

The following conclusion and recommendations are considered from the group discussing for the marble production;

- To improve permission and approval process in transparency of resource extracting
- To establish a local committee for marble stone trading that is to protect local small and medium scale business owners
- To promote sustainable extraction plan to prevent habitat loss
- To improve in providing and wearing PPE for further reduction in occupational health impact to workers - To raise awareness on potential health impacts related with marble dusts
- To provide linkage with insurance company for compensation of accidental injuries
- Proper research should be implemented to explore health impact on local communities

The following conclusion and recommendations are considered from the group discussing for the marble carving;

- Controlled disposal of solid waste and do not allow entering drains, sewers or watercourses.
- Marble dust can be used either to produce new products or as an admixture so that the natural sources are used more efficiently and the environment is saved from dumpsites of marble waste.
- The village should consider developing professional training courses.
- Educational awareness programs for workers should be instituted about hazard of exposure to marble dust and the use and maintenance of personal protective equipment.
- Use of personal protective equipment may be vital, but it should nevertheless be the last resort of protection.
- The further studies including risk assessment should be carried out in the marble workshops.

## 5. References

1. Best, A., Blobel, D., Cavalieri, S., Giljum, S., Hammer, M., Lutter, S., Simmons, C. & Lewis, K. (2008), *Potential of the Ecological Footprint for monitoring environmental impacts from natural resource use: Analysis of the potential of the Ecological Footprint and related assessment tools for use in the EU's Thematic Strategy on the Sustainable Use of Natural Resources*, Report to the European commission, DG Environment
2. De Groot, R. S., 1994. *Environmental Functions and the Economic Value of Natural Ecosystems*. In: A. Jansson, M. Hammer, C. Folke and R. Costanza (eds), *Investing in Natural Capital: The Ecological Economics Approach to Sustainability*, Island Press, Washington DC, pp. 151-167.

3. <http://www.worldsrichestcountries.com/top-marble-exporters.html>  
[https://danangfantasticity.com/en/attractions/trade-village/non-nuoc-stonevillage.html?fbclid=IwAR1uSAT3Kvz6X6zM8Rzq8J7yjWJ2sPPQWIDKAdluOqWk7dNiM9Iym\\_MI48](https://danangfantasticity.com/en/attractions/trade-village/non-nuoc-stonevillage.html?fbclid=IwAR1uSAT3Kvz6X6zM8Rzq8J7yjWJ2sPPQWIDKAdluOqWk7dNiM9Iym_MI48)
4. Keizire BB, Mugenyi O (2006), *Mainstreaming environment and natural resource issues in selected government sectors status, considerations and recommendations*. ACODE, Kampala, Uganda

# ENERGY SECURITY ENERGY ELECTRICITY OF VIETNAM OIL AND GAS GROUP FOR SUSTAINABLE ECONOMIC AND SOCIAL DEVELOPMENT AND ENVIRONMENTAL PROTECTION

*Dr. Nguyen Thi Truc Phuong*

*tuyenicbhc@gmail.com*

*Finance And Accounting Department, University Of Food Industry,  
HoChiMinh City, Vietnam*

## **Abstract**

*In recent years, the Vietnam National Oil and Gas Group has not only played a role of supplying oil and gas for the energy of the economy but also has been expanding into the field of electricity production, making an important contribution to ensuring security of electrical energy. The paper focuses on clarifying this role of the Vietnam National Oil and Gas Group for socio-economic sustainable development, protecting the ecological environment and combating climate change.*

**Key words:** *electrical power, oil and gas corporation, sustainable development, environmental protection*

## **1. Introduction**

The national energy security of Vietnam currently needs to be guaranteed in both main areas, namely petroleum security and electrical energy security. Currently, Vietnamese petroleum is still imported from abroad. Similarly, the annual electricity consumption shortage in Vietnam still has to be imported from China with increasing levels. For petroleum, it is directly related to Vietnam Oil and Gas Group (PVN), while for electricity energy is directly related to Vietnam Electricity (EVN). However, the electricity energy itself, Vietnam Oil and Gas Group also plays a very large role, directly ensuring the supply of gas to thermal power plants, operating and implementing thermal power projects of PVN, projects EVN's other power projects. The development of EVN's power projects contributes to the gradual reduction of coal power projects that are causing environmental pollution. At the same time, EVN's on-going power projects must also use advanced technology and environmental protection. These requirements for EVN also contribute to the country's socio-economic sustainable development.

## **2. Method**

Research articles on practice, without conditions to use quantitative methods, to survey and calculate the impact level of factors, the author uses qualitative research methods, analysis, synthesis and comparison based on secondary data sources, documents of the authorities that formulate, operate and implement policies, such as: international financial



information agencies, Ministry of Industry and Trade, and Vietnam Oil and Gas Group in Vietnam, the State Bank of Vietnam, a number of commercial banks, a number of other credit institutions, The General Department of Statistics and a number of other agencies involved in the formulation and administration of credit policies, exchanging with oil and gas experts and business officials to make comments and assessments according to research objectives. help of the post.

### **3. Results**

#### ***3.1. The role of the Vietnam Oil and Gas Group in ensuring electricity energy security contributes to sustainable socio-economic development and environmental protection.***

In recent years, investing in the construction of power plants is also investing in building energy infrastructure, meeting the increasing power demand for economic development, this is also the second largest activity. of Vietnam Oil and Gas Group (PVN). Currently, PVN has been promoting investment in the field of electricity production and quickly becoming the second largest electricity producer in Vietnam.

In 2007, the Group established PetroVietnam Power Corporation (PV Power) and Project Management Boards (Project Management Units) to manage construction investment and operation of power projects according to the Government's mission. delivered. Up to now, PVN's units have mastered the operation, maintenance and maintenance of gas and hydropower plants and gradually prepared for the operation of coal power plants. [3]

Up to now, the Vietnam Oil and Gas Group has put into safe and efficient operation 4 gas-fired thermal power plants, 3 hydropower plants, 1 coal-fired power plant with a capacity of 4,208.2 MW; including: Ca Mau 1 & 2: 1500 MW; Nhon Trach 1: 450 MW; Nhon Trach 2: 750 MW; Hua Na Hydroelectricity 180 MW, Dakrinh Hydroelectric Plant 125 MW; Nam Cut 3.2 Hydroelectric Plant and Vung Ang 1 Thermal Power Plant: 1,200 MW). The power output of these plants of PVN is contributing to the national energy security, especially in the dry months. [3]

Vietnam Electricity is also focusing on speeding up and implementing effectively, ensuring quality, progress 4 Coal Thermal Power Project has been assigned by the Government, which is Thai Binh 2 (1,200 MW), Long Phu 1 (1,200 MW), Song Hau 1 (1,200 MW), Quang Trach 1 (1,200 MW) ... to be able to increase the total installed capacity to over 10,000 MW in the near future, striving to bring these power plants put into operation in 2020. However, Quang Trach Thermal Power Project has been transferred to Vietnam Electricity. [3]

At the same time, in order to ensure the demand for power source development according to the set strategy, Vietnam Oil and Gas Group is also speeding up research and development of gas power projects from gas fuel sources, such as Kien Giang gas power project using Block B gas, Gas power project using Gas from Blue Whale field and LNG gas power projects: Nhon Trach 3, Son My 2. [3]

It is known that PVN's power development goal is to operate stably, safely and effectively existing power plants, in order to contribute to ensuring national energy security

and bringing economic efficiency. PVN and PVPower. Focusing on speeding up and implementing effectively, ensuring the quality and progress of 4 Coal-fired thermal power projects assigned by the Government. To efficiently use gas fuel sources for the development of the electricity industry. At the same time, accelerate research and development of gas power projects when permitted by the Prime Minister, develop a variety of other power sources. According to PVN's Electricity Sector Development Strategy to 2025, vision to 2035 and updated data on Electricity Master Plan of 2025 accounting for about 18%; By 2030, it will account for 16.9% of the total national electricity output. [3]

### ***3.2. The role of ensuring energy security of Vietnam Oil and Gas Group in replacing coal-fired power plants, causing environmental pollution and combating climate change***

Regarding the electrical energy security of Vietnam currently, there are many challenges in the context of coping with climate change (climate change), reducing CO2 emissions causing environmental pollution, as well as costs. , Renewable energy prices, energy demand for socio-economic development in the coming years. But in reality today a certain percentage of Vietnam's economy still depends on coal, while the urgent trend needs to be towards sustainable renewable energy sources and CO2 emissions reduction. [1]

Finding solutions to both ensure electricity demand for the Vietnamese economy in the coming years, but at the same time avoid pollution by coal-fired power plants is a very difficult problem. At present, the problem is that the Government needs to consider how much it can hold on to acceptable coal power and how other types of renewable energies, at the same time, citizens and businesses can How much higher the price of electricity must be accepted, the greater effect is to promote the increase in CPI, because the high price of electricity increases the cost of products and services of a number of sectors in the economy. This is a difficult problem that needs to be solved now as well as in the coming years.

The power projects of Vietnam Oil and Gas Group are mainly thermal power plants, which will contribute to replace coal-fired power plants in the future.

According to calculations by the Ministry of Industry and Trade, in the whole country, there are about 20 coal thermal power plants in operation, providing about 86 billion kWh, contributing 39% of total commercial electricity in 2018, about 220 billion kWh. These plants also contributed 116 billion kWh, accounting for 40% of total electricity output in 2019. The contribution of coal thermal power increased to offset the shortage of hydropower supply as a result of the drought. [1]

However, according to data from the Vietnam Energy Association (VEA), there are currently 21 coal thermal power plants in operation nationwide, with a total installed capacity of about 14,310 MW. It is expected that by 2030 there will be 65 coal thermal power plants. Along with these coal-fired power plants are alarming numbers of quality of life and many environmental problems, CO2 emissions, a large amount of ash and slag discharged into the environment. [5]

According to EVN's calculations, in order to have coal power supplied to Vietnam's economy in 2020, its power plants will burn about 54 million tons of coal. This means that

each day about 150,000 tons of coal will be consumed. To transport a large amount of coal every day to thermal power plants, it also requires a huge amount of gasoline, which is accompanied by emissions to the environment. At the same time, the average thermal power plants burning 10 tons of coal will have 3.3 tons of ash and slag discharged into the environment. The treatment of this waste volume is a difficult problem. Presently, the whole country has about 15 million tons of ash and slag after untreated coal burning. The amount of ash and ash continues to increase every year. With the advantages, the price of coal thermal power production is low, only about 0.7 USD / KWh; The investment capital is not too high with about 1,500 USD / KWh, lower than hydroelectricity, solar power, wind power, nuclear power, but in return is an ecological environment issue. [2]

Currently coal power is proving to be directly related to the health status of many areas in Vietnam. Documents published in January 2017 relate to the number of premature deaths in Vietnam due to coal thermal pollution. Accordingly, in 2011, there were 4,300 cases in the country, the number of deaths due to coal thermal pollution increased to 15,700 cases, tripling. [2]

The construction of coal-fired power plants has the advantage of being cheap, but the environmental costs will be huge in the future. These environmental costs can lead to unpredictable social security impacts and people's health and safety issues. Evidence for this, it is the coal-fired thermal power plants in the area of Vinh Tan, Binh Thuan province that indirectly caused violent protests that burned the headquarters of the provincial People's Committee and the police agency in the province. This is June 10, 2018. The reason is that people have been frustrated for a long time because of their living environment, the air and the sea, so polluted by the dust, coal slag of these factories, but the authorities and agencies Slow resolution function. [2]

Coal power plant projects, especially 14 plants in the Mekong Delta region will continue to be implemented. The Vietnamese government has granted licenses to 31 wind power projects in the Mekong Delta. It is known that by the end of 2018, the Chinese Government has closed about 600 coal-fired power plants causing environmental pollution. Meanwhile, Vietnam is having a series of center construction projects, thermal power plants in full bloom... Among 14 coal thermal power plants being exploited in the Mekong Delta, there are 10 plants operated by Trung. Quoc investment. [2]

The report of the Vietnam Green Creative Development Center (GreenID) said that the total investment in coal thermal power in Vietnam as of the beginning of 2017 was nearly 40 billion USD, of which 17% of loans came from banks. domestic commercial banks, 52% came from foreign banks and 31% could not identify the sources. For foreign-origin loans, up to 50% of Chinese loans equals to USD 8 billion. Japan ranked second with 23% and South Korea right behind with 18%. [6]

At present, some view that coal-fired power plants should not be built, especially in sensitive areas such as the Mekong Delta. However, in very urgent cases, the Government of Vietnam may have to accept certain factories with certain technical conditions, strengthen supervision, as well as the use of advanced technologies. progress to reduce emissions of CO2 and ash. [6]

The government also needs to consider carefully the location of the factory with surrounding agricultural production areas. It is necessary to have the inspection and evaluation of different independent experts.

Currently in the Mekong Delta, Vietnam Oil and Gas Group is effectively operating Ca Mau 1 & 2 power plants with a total capacity of 1500 MW, and is speeding up the gas power projects: Long Phu 1 (1,200 MW), Song Hau 1 (1,200 MW). The early introduction of these two projects of PVN into commercial activities will contribute to ensuring electricity security for the Mekong Delta in particular and the whole country in general. [3]

### ***3.3. Forecast for the coming time and the role of ensuring energy security of Vietnam Oil and Gas Group, contributing to socio-economic sustainable development***

The population growth rate and the economic development in the world lead to the increasing demand for energy. In particular, Vietnam has become one of the fastest growing economies in the world, leading to increasing energy demand. Some forecasts say that Vietnam is expected to need more than 265 TWh in 2020 and can double by 2030, to about 572 TWh. Some other predictions make that Vietnam has used electricity to increase by more than 100% in the past 10 years, it is expected that in 2020 Vietnam needs more than 500 TWh, and can double by 2030. However, many of Vietnam's economic forecasts are not close to reality, often lower than demand. One of the urgent electrical energy security issues currently posing is to meet energy demand, Vietnam now has to import 2.4% of total energy consumption ...; in which, there is a very important role of Vietnam Oil and Gas Group with the 2nd position in supplying electricity to the economy. [4]

According to the data of the Ministry of Industry and Trade, in the report on the implementation of electricity projects in the adjusted VII electricity plan, the forecast of commercial electricity output in 2020 according to the base plans is 235 billion kWh and the plan High is 245 billion kWh. In 2019-2020, about 6,900 MW is expected to be put into operation, of which coal plants will be 2,488 MW, hydroelectricity will reach 592 MW, the remaining renewable energy projects will be about 3,800 MW. In fact, oil-fired thermal power must still be mobilized with an output of 1.7 billion kWh in 2019 and 5.2 billion kWh in 2020. In case the generating sets do not meet the reliability requirements operating or failing to ensure adequate coal and gas for electricity generation, may face the risk of electricity shortage in 2020. [1]

Therefore, the role of Vietnam Oil and Gas Group is very large in ensuring gas demand for thermal power plants, as well as the completion schedule, putting into operation, ensuring commercial electricity on time. PVN project is under construction, ensuring the electricity demand for some immediate years 2020-2021.

According to calculations by the Ministry of Industry and Trade, in the years 2021 - 2025, although it will have to mobilize the maximum of oil-powered power sources, the electricity system cannot meet the load demand and power shortage occurs in the South. with the deficit increasing from 3.7 billion kWh in 2021, to nearly 10 billion kWh in 2022, the highest gap in 2023 with about 12 billion kWh, then falling to 3.5 billion kWh in 2025. [1]

Many power projects in the period of 2018 - 2022, the total capacity of 17,000 MW is delayed to the period of 2026 - 2030. Most are thermal power projects in the South. Therefore, leading to the situation of the electromagnetic system having a backup of 20-30% to 2019, there is no redundancy and in the period of 2021 - 2025, there is a shortage of power supply. It is expected that the total capacity of power sources that can be put into operation in the period of 2021 - 2030 is about 64,200 MW, lower than 10,000 MW compared to the adjusted VII electricity plan (72,202 MW). [1]

The main reason for the lack of electricity in the South is higher than previously calculated because the progress of Block B and Blue Whale projects is behind schedule from 9 months to 1 year. This delay clearly has the role and responsibility of Vietnam Oil and Gas Group. Kien Giang 1 and 2 thermal power projects do not meet the progress of completion in the period of 2021 - 2025, even after 2030; O Mon 3 project is behind schedule to 2025. In case Long Phu 1 thermal power plant fails to meet the completion schedule in 2023, the power shortage in the South in the years 2024 - 2025 will be more serious. It is clear that the Vietnam Oil and Gas Group has a role in slowing this progress. [1]

According to the revised PDP VII, the total capacity of power sources expected to be operational in the period of 2016 - 2020 in the whole system is 21,650 MW, of which the power sources invested by the Vietnam Electricity Corporation are 7,185. MW (accounting for 33.2%), the power sources invested by other enterprises is 14,465 MW (accounting for 66.8%). [1]

Currently, power projects are implemented in three forms of investment, including projects invested by EVN, Petro Vietnam and TKV; BOT investment projects; Investment projects in the form of IPP.

Summing up the progress of 63 projects with a large capacity of over 200 MW, 15 projects have reached the schedule, 47 projects are behind schedule or the schedule has not been determined yet. Specifically, EVN implemented 23 projects with a total capacity of 14,809 MW, of which 10 projects were on schedule, 13 projects were delayed or delayed. Vietnam Oil and Gas Group is assigned to be the investor of 8 key power source projects, with a capacity of 11,400 MW. Up to now, all 8 projects have encountered difficulties, problems and difficulties to complete as scheduled in the adjusted Electricity Planning 7. Vinacomin has carried out 4 projects with a total capacity of 2,950 MW so far, all 4 projects are behind schedule for 2 years or more. For BOT projects, currently there are 15 projects, 3 projects have reached the progress of progress, 12 projects are behind schedule or cannot determine the progress due to difficulties in negotiation. [1]

Currently, there are 8 investment projects in the form of IPP, with a total capacity of 7,390 MW, one project has been energized on schedule, two projects are capable of reaching progress, the remaining are delayed, even impossible. determination of completion time (thermoelectricity Dong Phat Hai Ha, Quynh Lap 2). There are 5 projects in the period of 2021 - 2030, there are currently no investors, of which one

project has been excluded from the VII Master Plan, Bac Lieu Thermal Power, the remaining 4 projects are unknown progress. [2]

Ensuring the fuel source for electricity generation still has potential risks. Specifically, TKV has now reported to stop the coal transit port project in the Mekong Delta because the location cannot be agreed and there is currently no solution to continue the project. Therefore, the factories Long Phu 1, Song Hau 1, Long phu 2, Song Hau 2 ... are significantly affected. [3]

Gas supply in the Southeast region is likely to decline after 2020, with a shortage of about 2-3 billion m<sup>3</sup> / year after 2023 and expected to reach 10 billion m<sup>3</sup> in 2030. At present, Vietnam Oil and Gas Group is negotiate with Malaysia to buy additional gas to this source. [2]

In addition, the 500 KV transmission line through Vung Ang - Quang Trach - Doc Soi - Pleiku2 to enhance the North - South transmission has been delayed by 1 year, if it is unable to complete this line in early 2020, there is a risk of shortage. Southern power. The electricity system is almost no redundancy in the years 2021 - 2025 also affects the power supply.[2]

The arrangement of capital of domestic corporations and investors is very difficult because the Government temporarily suspended the policy of loan guarantee. ODA sources of foreign concessional loans for investment in power projects are very limited, even some loans have been committed by international banks and financial institutions but not accepted by regulatory agencies. pros.

Arranging domestic capital is difficult, at present most domestic commercial banks have exceeded the credit limit for investors and related units.

Some local leaders do not support investing in thermal power construction in the province even though the project is included in the revised PDP VII, which makes it impossible for projects to comply with the plan.

#### **4. Discussion and Conclusion**

Urgent issues posed to the Vietnam Oil and Gas Group in ensuring national energy security in general and electricity energy security in particular, contributing to sustainable socio-economic development and combating gas change. After that, PVN needs to ensure strict construction progress of power projects and gas projects. PVN needs to focus on removing obstacles and difficulties in settlement of work items, acceptance with contractors; proactive working effectively with the capital suppliers as well as the relevant regulatory agencies; It is necessary to proactively build and submit to the competent authorities for approval new projects on oil and gas and electricity for the next periods.

For the Ministry of Industry and Trade, the Capital Management Committee at SOEs and functional agencies should review the electricity planning, take measures with PVN to

remove obstacles in ensuring the progress of current projects; proactively propose to the Government urgent measures to ensure electricity energy security, supply and demand in the immediate and long-term years.

For the State Bank and commercial banks, it is necessary to expand the credit limit, remove the credit limit, bring power projects into the field of loans at preferential interest rates, adjust the repayment period. for power projects which have been extended to put into operation.

## **5. References**

1. Report of Ministry of Industry and Trade, visit <http://www.moit.gov.vn/>
2. Report of Electricity Corporation of Vietnam; visit <https://www.evn.com.vn/>
3. Vietnam Oil and Gas Group, visit <http://www.pvn.vn/Pages>
4. Report of Monthly socio-economic information - General Statistics Office, visit <http://www.gso.gov.vn>
5. Report of Vietnam Energy Association
6. Report of the Vietnam Green Creative Development Center

# SURVEY ON THE USAGE OF SINGLE - USE/ DISPOSABLE PLASTICS IN VIETNAMESE STUDENTS

*Le Thu Hoa*

*hoalethu@neu.edu.vn*

*Tran Thi My Loc*

*tranmyloc266@gmail.com*

*Tran Thi Thu Trang*

*trantrang2805.neu@gmail.com*

*Vu Huy Huan*

*huanvu3009@gmail.com*

*Faculty of Environmental, Climate Change and Urban Studies,  
National Economics University, Hanoi, Vietnam*

## **Abstract**

*Disposable/ Single-use plastic has become more prevalent in production and consumption than other materials due to the advantages it may bring. However, wastes from SUP, especially plastic packages, account for nearly half of the global plastic wastes, causing potential environmental problems. Students are not only a big group but also an influential group in the process of reducing SUP in Vietnam. Research on the state of students' usage of SUP aiming at recommendations to raising awareness, changing attitudes and behavior of consuming SUP products among Vietnamese university students will contribute to spread the positive impacts on the society. The survey carried out in a sample of 362 university students to explore the state of usage and the factors affecting the usage of SUP among Vietnamese students. SUP products that often used by students include nylon bags, water bottles, cups, straws, food containers, spoons, plates, knives, etc. Frequency of using plastic bags is from 6 to 10 or more than 10 time a week. 87.6% of students are partly aware, but only 45% understood the full impact of SUP products on the environment. Up to 95.6% of students are willing to participate in environmental programs or join the program if the program be organized with appropriate content. Therefore, universities need to promote the organization of communication programs, implement effective environmental events to attract the participation of students. Other recommendations were figured out based on survey's results on students' intention to reduce using SUP products and students' point of view of the Government role in SUP products reducing programs.*

**Key words:** *Disposable/ single-use plastic (SUP), Vietnamese students, students' intention and point of view.*

## **1. Introduction**

Disposable plastic (also called as Single-use plastic, SUP), has become more prevalent in production and consumption than other materials due to the advantages it may



bring. However, wastes from SUP, especially plastic packages, account for nearly half of the global plastic wastes, causing potential environmental problems. According to the UN Environment Program (UNEP)'s report on "Plastic Recycling: an Underperforming Sector Ripe for a Remake" (02 January 2019), until then, only 9% of the nine billion tons of produced plastics has been recycled, most of the remaining ended up in landfills or the environment. Studies showed that disposable plastics, such as bags and plastic containers made from expanded polystyrene, could take thousands of years to decompose, causing land and water pollution. If the current usage and waste management systems remain unchanged, there will be approximately 12 billion tons of plastic wastes in landfills and the environment in 2050. The negative impacts of disposable plastics on economics, health, and the environment are undeniable. According to the report "Reducing Plastic Waste in Vietnam" (26 March 2020) from National Centre for Socio-Economic Information and Forecast (NCIF), the amount of plastic wastes in the Asia-Pacific Region has caused \$1.3 billion losses in tourism, fishery, and transportation industry.

In Vietnam, according to the report by Ministry of Natural Resources & Environment's (September 2019), plastic waste pollution, especially SUP waste, has become an alarming issue. It is estimated that Vietnam disposed of more than 1.8 million tons of plastic waste per year. However, only 27% of them have been recycled. Vietnam is also facing the risk of becoming a global landfill, with the amount of plastic waste increasing 200% last year. The plastic annual usage in Vietnam has been increased significantly from 3.8 kilograms to 41.3 kilograms per person during the period of 1990 to 2019.

In the view of Vietnamese students, the usage of SUP have become more widespread due to their features such as cheap, convenient, easy to use and carry. Those SUP, including plastic cups, plastic straws, plastic food containers, plastic bottles, and nylon bags, seem to be prevalent among students' daily life.

Besides to the number of more than 2 million students from universities and colleges across the nation, there exist concerns about the issue of the amount of SUP used and SUP waste released by students. The usage of SUP have raised as an alarming issue, especially for big universities in Hanoi, Ho Chi Minh City, Da Nang, Hai Phong, Can Tho.

Due to the limited financial resources, students, especially male ones, tend to buying food instead of cooking, since cooking causes them more difficulties compared to female students. Accompanied by food soft-containers are nylon bags and single-use spoons. The amount of disposable plastic wastes may even be vaster in the case of students living in dormitories as they are not allowed to cook their food.

The amount of disposable plastic cups is also remarkably large. Sidewalk cafes are one of the students' ideal destinations, and they have numerous customers daily. As a result, thousands of SUP cups have been littered to the environment.

Bubble tea consumed by students is also a large SUP disposing source since this is a popular product among the young generation. This customer sector has the bubble tea drinking frequency 60% higher than other groups. The bubble tea market research stated that

24% of the age of 15-21 were consuming this drink twice or three times a week, the highest compared to other groups; and students are the potential target customers for bubble tea stores. Averagely, a cup of bubble tea disposes of about 3 to 4 single-use plastic products.

Contributing in the effort of raising awareness about protecting the environment among students, many universities have launched the campaign named “Avoiding plastic wastes” with particular and efficient activities, including not using SUP products at conferences. Some universities such as Hung Vuong University, University of Economics Ho Chi Minh City decided not to use SUP cups and bottles in all their events/ activities.

In Hanoi, many universities have launched the campaign of ‘saying no’ to plastic waste. Dai Nam University has decided to end using disposable plastic water bottles, straws, and other products in the universities’ activities since 30 October 2019, in which students are the main forces and play a meaningful role. Accordingly, other universities such as Hanoi University of Natural Resources and Environment, Academy of Journalism and Communication, Hanoi Law University, etc. have also responded and implemented the campaign. The propaganda activities aiming at reducing single-use plastic usage have been promoted on several media channels.

In addition, there have been competitions for students to seek creative solutions to limit SUP products at universities. For example, in the academic year of 2019 – 2020, Viet Nam National University, Ho Chi Minh City organized the “No plastic” competition. The participants were divided into groups of three to five students. Each group was required to make plans and creative ideas to solve different social issues, including Pollution, Food safety, Sustainable tourism, and present their works with the Judges.

Students are in the age group that is the best to receive new information, control their behavior, create exclusive ideas as well as readily develop themselves. Moreover, this student group will become business managers, policymakers, and will make decisions on several issues in the future. Students are not only a big group but also an influential group in the process of reducing SUP in Vietnam.

Therefore, research on the state of students’ disposable plastic usage aiming at recommendations to raising awareness, changing attitudes and behavior of consuming SUP products among Vietnamese university students will contribute to spread the positive impacts on the society.

## **2. Method**

- *Secondary data using method:* Secondary data were collected from published reports, scientific magazines and published databases.

- *Method for collecting primary data:* Primary data were collected via a survey carried out offline and online, in order to access students from different areas across the nation. The survey questionnaires included questions about personal information, the state of SUP usage, and the factors affecting the usage of SUP. Totally 362 responses were sent back to the research

team, in which 340 were valid (contain sufficient information), including 256 online and 84 direct collections.

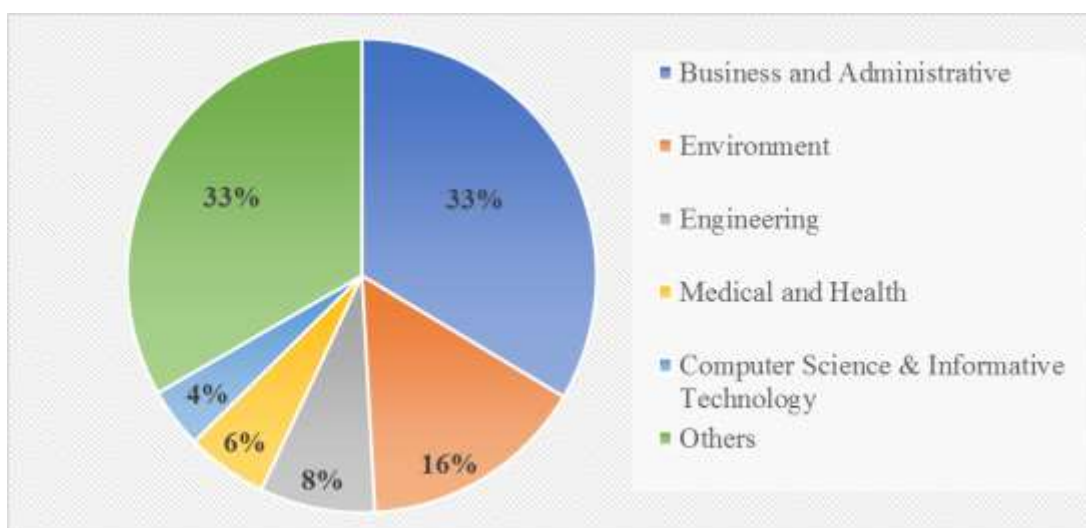
### 3. Results

#### 3.1. Characteristic of the Survey's Respondents

The survey was participated by 362 students from several Vietnamese universities. After removing invalid responses, 340 answers were used for the research analysis, including 98 male participants (account for 28.8%), and 242 female participants (account for 71.2%).

Students responded to the survey were mainly in the second and third academic year, which are 64.2% of the total. This group is believed to have enough time in the university environment and be able to improve the problems that schools may face in the future.

Among 340 students with valid answers, there were 114 respondents (33.5%) studying for Business and Administrative major, 53 people (15.6%) studying Environment major, while the Engineering major accounted for 7.9% with 27 respondents. 19 people (5.6%) were students from Medical and Health majors, 14 students from Computer Science and Informative Technology major; the remaining 113 respondents (33.2%) were studying other majors.



**Figure 1: Student Respondents by Majors**

*Source: Survey conducted by the research team*

#### 3.2. Types of Plastic Products often Consumed By Students

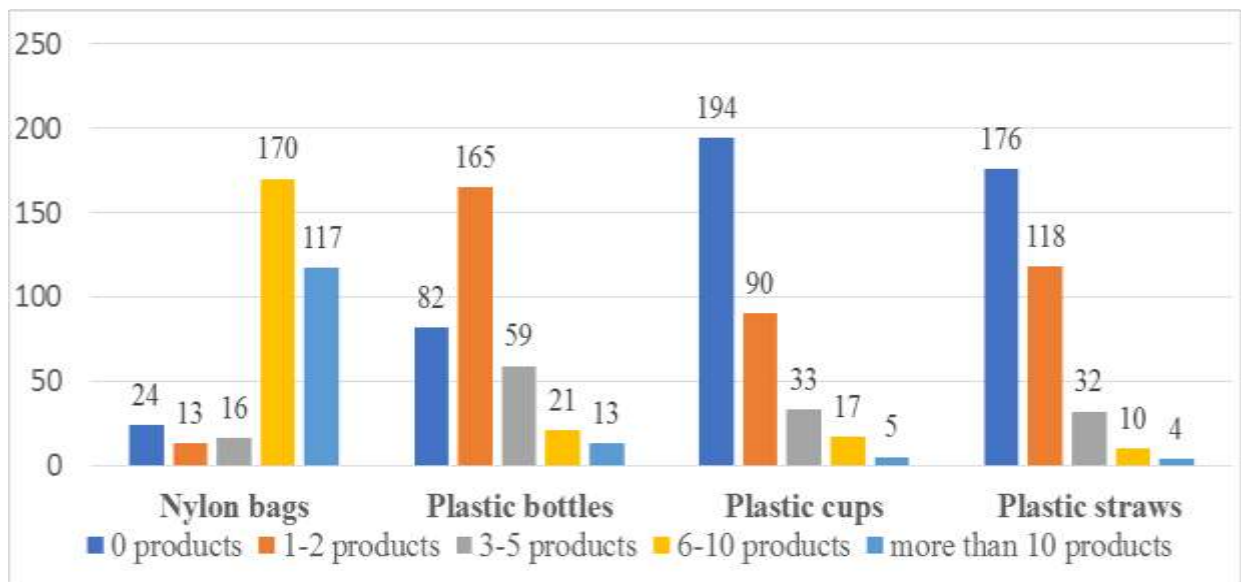
Plastic products that often used by students include nylon bags, water bottles, plastic cups, straws, food containers, and other products (such as plastic spoons, plates, knives, etc.) There were 83 respondents (24.4%) having used 2 plastic product types, 94 people (27.6%) responded having used 3 types, 16 people (4.7%) have used 4 types and 75 people (22%) responded having used more than 4 product types.

For each type of product, there are 316 students participating in the survey responded that they used nylon bags, account for 92.9%; 258 people (76%) have used plastic bottles; plastic

cups and straws have been used by 146 (43%) and 164 (48%), respectively. 122 participants responded using plastic containers, which account for 35.9%, and there were 9 responses using other products. This can be referred that nylon bags are the most popular disposable plastic, followed by plastic bottles, straws, cups, food containers, and other products.

### 3.3. Frequency of Students' SUP Consumption

Research findings showed that: up to 84.6% of responding students used from 6 to 10 nylon bags or more than 10 bags a week. Nylon bags are often used when shopping at the market, buying takeaway food or drinks. The main reason for using such a large amount of nylon bags is the irreplaceable features of convenience and lightweight. The frequency of using plastic bottles mostly ranged between 1-2 products/week and 3-5 products/week, accounting for 65.8% of the respondents. 26.6% of participants used plastic cups about 1-2 cups/week, 57% of students responded never using single-use plastic cups. 34.8% used plastic straws at the level of 1-2 straws/week.

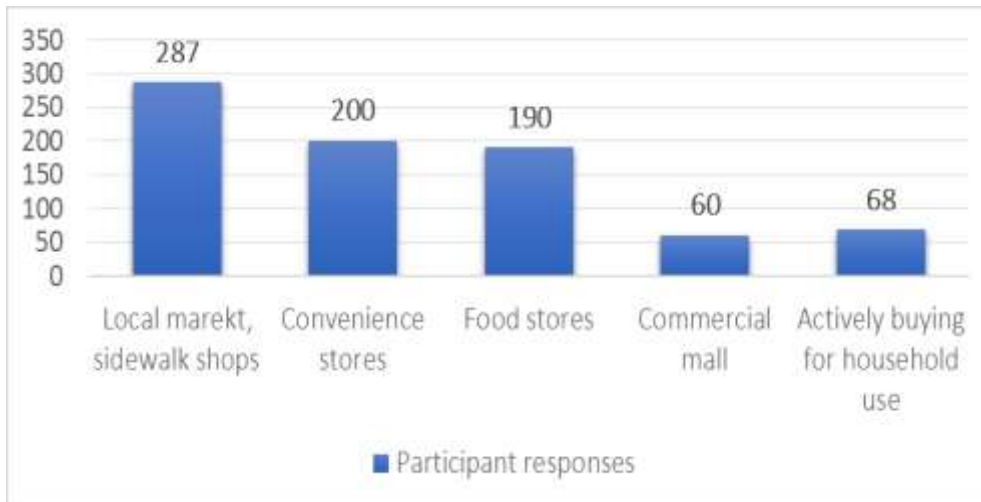


**Figure 2: Frequency of Students' SUP Consumption (per week)**

*Source: Survey conducted by the research team*

### 3.4. Places Where Students Using SUP

Answered to the question “Where do you usually use SUP products?”, there were 287 student respondents (84.4%) said that they use SUP products at local markets and sidewalk vendor shops; 290 people (55.9%) used SUP products at food stores; 60 respondents (17.6%) used SUP products when shopping at commercial malls; 68 students (20%) responded that they bought SUP products for household purposes. These data showed that the plastic usage level at local markets and convenience stores is relatively high, while the amount of actively buying for household use is much less. This can suggest that the SUP usage level of students depends largely on the amount they receive from sellers.

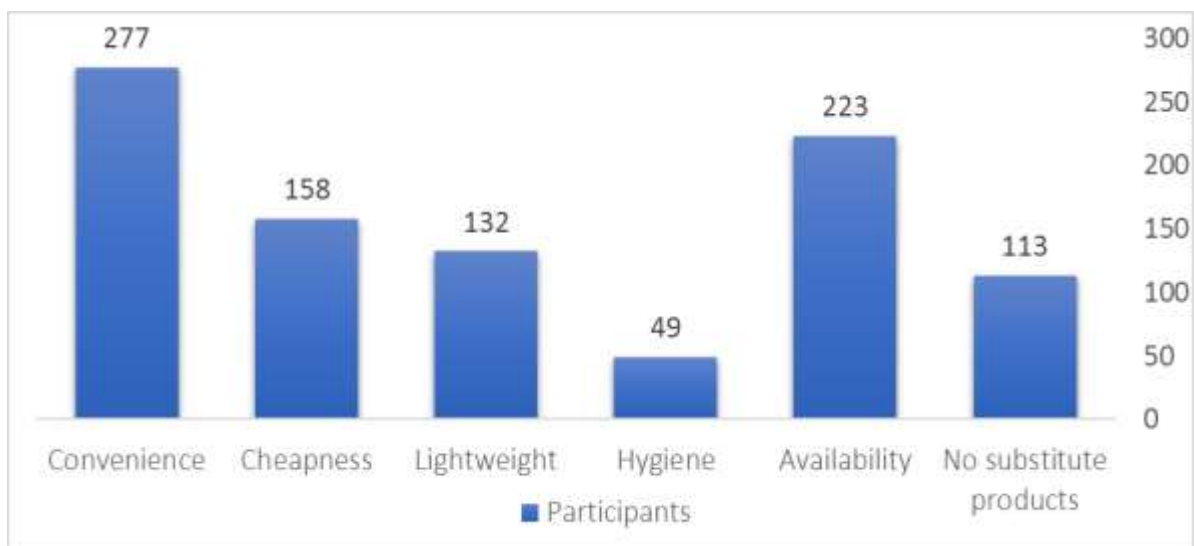


**Figure 3: SUP Using Locations**

*Source: Survey conducted by research team*

### 3.5. Reasons for Using SUP Products

Reasons given for consuming SUP products include: Products are at low price; Products are convenient to use; Products are lightweight; Products are clean; Products are available and there are almost no substitute products. The most popular option was "The SUP products are convenient to use" which selected by 81.5% of respondents (277 people). 113 people (32.2%) used SUP products because of the lack of substitute products. Most of the respondents selected more than one options.



**Figure 4: Reasons for Using SUP Products**

*Source: Survey conducted by the research team*

### 3.6. Students' Awareness of the Harmful Effect of Using SUP Products

Having researched about the impact of SUP, the survey figured out 6 popular impacts: (1) Products and their wastes are harmful to the environment; (2) Products and their

wastes are harmful to human health; (3) Products and their wastes destroy the ocean and lake ecological system; (4) Products and their wastes deplete the soil nutrition; (5) Products and their wastes cause air pollution if being burned; (6) Products and their wastes cause flooding in urban areas. In which, the first impact received the highest agreement with 287 responses, accounting for 84.4 %; other impacts also got relatively high responses, ranging from 67, 3% to 83.8% of the total 340 students participating in the survey.

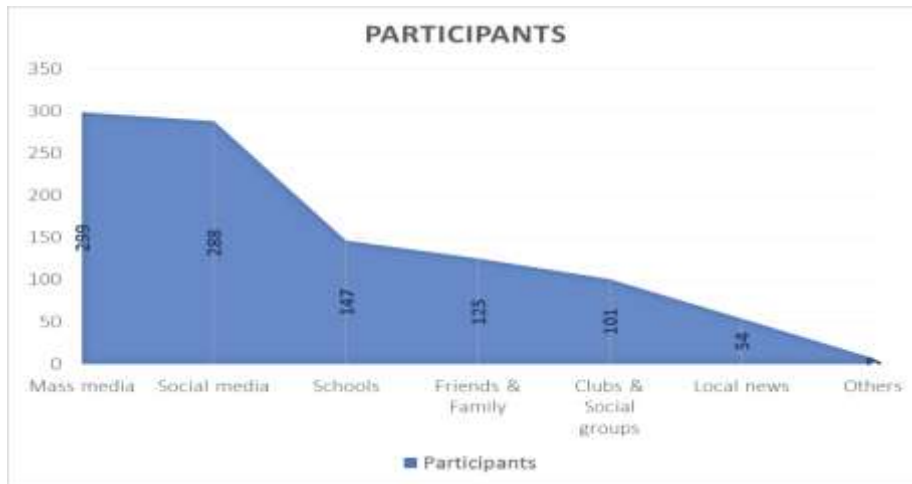
**Table 1: Awareness about the Negative Impacts of SUP Products**

	Issues	Proportion of respondents (%)				
		Totally agree	Agree	Neutral	Disagree	Totally disagree
Impact 1	Consuming SUP products harms the environment	47,1	37,3	6,5	6,5	2,6
Impact 2	Consuming SUP products harms human health	27,9	39,4	22,1	7,4	3,2
Impact 3	Consuming SUP products destroys the ocean and lake ecology	54,8	28,8	7,9	5	3,5
Impact 4	Consuming SUP products depletes soil nutrition	35,8	39,1	16,2	6,5	2,4
Impact 5	Burning SUP products pollutes the atmosphere	47,9	35,9	9,7	3,8	2,7
Impact 6	Consuming SUP products causes flooding in urban areas	33,3	40	17,8	6,8	2,1

*Source: Survey conducted by the research team*

### ***3.7. Channels to Access Information about the Uses, Features and Negative Impacts of SUP Products***

Being asked about the channels to access information about the uses, features, and negative impacts of SUP products, most of the respondents selected more than one channel among the given options. Specifically, there were 299 people (87.9%) answered that they received information through mass media; 288 people (84.7%) accessed on the social media; 147 people (43.2%) were informed from training courses at universities; clubs and social groups were information channels for 101 people (29.7%); 54 people (15.9%) got the information from local news; 125 people (36.8%) accessed the knowledge from friends and family; 7 people (2%) answered that they received information through other channels.

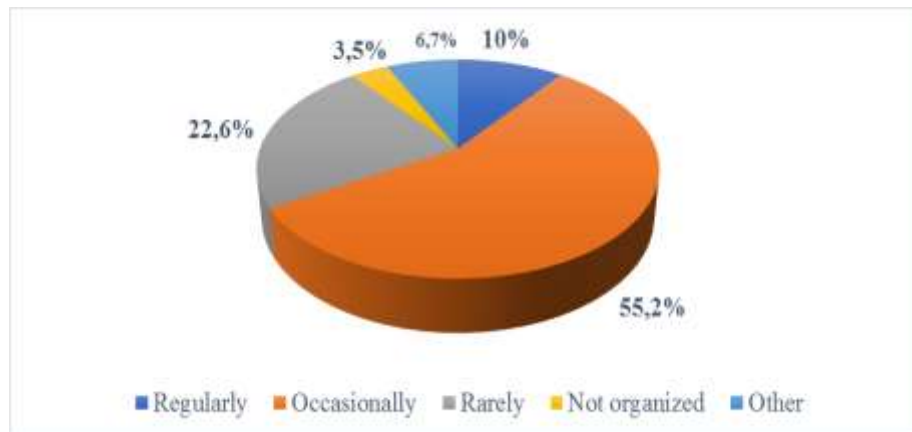


**Figure 5: Information Channels to SUP Products**

*Source: Survey conducted by the research team*

### **3.8. Programs and Activities at the University Related to Reduce, Reuse and Recycle (3R) of SUP Waste**

Being asked about the prevalence or frequency of communication programs related to reduce, reuse and recycle of plastic waste (3R) at the university, out of 340 surveyed samples, 34 people (10%) evaluated that the programs are organized "regularly"; 188 people (55.2%) answered "occasionally", 77 people (22.6%) answered "rarely", 12 people (3.5%) answered they were not organized. Thus, it can be seen that the organization of communication programs and activities related to 3R at universities are still at a negligible level.



**Figure 6: 3R Related Programs and Activities at Universities**

*Source: Survey conducted by the research team*

### **3.9. Students' Concern and Intention to Programs and Activities Related to 3R of SUP Waste**

Being asked about the concern and intention to participate in programs and activities related to 3R of SUP waste at the universities, 99 students (29.1%) responded that they would surely participate; 226 students (66.5%) would decide depending on the program contents; 11 students (3.2%) answered that they were not interested. Thus, if 3R activities are well organized with diversified and realistic contents, most of the students (95.6%) would be attracted.

**Table 2: Students' Intention to Participate in Programs Related to 3R of SUP Waste**

	Intention to participate in related programs	Respondents	Proportion (%)
1	Surely participate	99	29,1
2	Depend on programs' contents	226	66,5
3	Not interested	11	3,2
4	Others	4	1,2
	Total	340	100

Source: Survey conducted by the research team

### 3.10. Intention to Reduce SUP Products among Students

Having researched on the students' intention to reduce the usage of SUP products, the survey figured out 7 ways of changing attitudes and behaviour towards the use of SUP products: (1) Intend to reduce using SUP products; (2) Intend to refuse SUP products from buying locations; (3) Intend to bring and use personal stuffs as substitutions to SUP products; (4) Willing to persuade family members to reduce using SUP products; (5) Willing to persuade friends at universities to reduce using SUP products; (6) Willing to persuade local people to reduce using SUP products; and (7) Attempt to be an example for reducing of using SUP products.

The results showed that the majority of students intend to reduce their use of SUP products, with 278 people agreed, accounting for 81.8%. In general, people are aware of using SUP products, but the number of students willing to persuade their family, friends, and the community is only at the average level, 58-67%.

**Table 3: Students' Intention to Reduce Using SUP Products**

Intention	Issues	Proportion of respondents (%)				
		Totally agree	Agree	Neutral	Disagree	Totally disagree
1	I intend to reduce using SUP products	39,4	42,4	15,3	2,1	0,8
2	I intend to refuse SUP products from buying locations	20	35,9	35	7,4	1,7
3	I intend to bring and use personal stuffs as substitutions to SUP products	25,9	43,2	24,7	4,5	1,7
4	I am willing to persuade family members to reduce using SUP products	23,5	43,8	28,5	2,4	1,7
5	I am willing to persuade friends at universities to reduce using SUP products	23,2	40,6	31,2	3,8	1,2
6	I am willing to persuade local people to reduce using SUP products	19,7	38,5	36,5	4,1	1,2
7	I will make an effort of being an example in reducing of using SUP products	28,8	49,1	17,4	2,6	2,1

Source: Survey conducted by the research team



### 3.11. Students' Opinions about the Government's Role in SUP Products Reducing Programs

Having researched about students' point of view on Government's role in SUP products reducing programs, the survey has given 4 common options: (1) Government needs to promulgate policy on compulsorily limit and gradually stop using SUP products; (2) Government needs to introduce higher taxes to discourage using SUP products; (3) Government needs to motivate environment-friendly products production and consumption as substitutions to SUP products; and (4) Government needs to introduce new economic incentives (fees, fine, subsidies, etc.) to promote the production and consumption of green products in lieu of SUP products. Thus, it can be seen that students tend to support the government in intervention and policy making to support this issue, this view is similar to some other countries in the world such as the US, Thailand, etc.

**Table 4: Students' Points of Views on Government's Role in SUP Reducing Programs**

	Issues	Proportion of respondents (%)				
		Totally agree	Agree	Neutral	Disagree	Totally disagree
1	Government needs to promulgate policy on compulsorily limit and gradually stop using SUP products	21,2	47,6	24,1	6,2	0,9
2	Government needs to introduce higher taxes to discourage using SUP products	19,4	48,2	25	6,5	0,9
3	Government need to motivate environment-friendly products production and consumption as substitutions to SUP products	31,8	53,5	12,9	1,2	0,6
4	Government needs introduce new economic incentives to promote the production and consumption of green products in lieu of SUP products	32,9	51,5	6,5	8,8	0,3

*Source: Survey conducted by research team*

## 4. Discussion and Conclusion

The communication promotion for students about the environment and the consequences of using SUP products on the environment is extremely necessary, directly affecting the thinking, thereby changing students' attitude and behavior. However, this has not yet been firmly implemented as well as not received inadequate attention. Survey findings showed that 87.6% of students are partly aware of the impact of SUP waste on the environment, but only 45% of them understood the full impact of SUP products on the environment.

In addition, 26.1% of the total respondents said that the universities did not organize environmental awareness-raising programs, or organized but have not disseminated widely, only 10% stated that such programs are held regularly. A good news is that, up to 95.6% of

students are willing to participate in environmental programs or join the program if the program be organized with appropriate content. Therefore, universities need to promote the organization of communication programs or create favorable conditions for organizations to implement effective environmental events, improving both the quality and quantity of events to attract the participation of a large number of students.

For students, spending time to learn and research about environmental issues, especially the environmental pollution caused by SUP waste, is essential and practically meaningful to daily life in general and to the target of reduce/ stop using SUP products among students in particular. In addition to receiving passive information from universities and society, students should be conscious of actively finding and researching solutions to overcome this problem.

Participation in environmental protection programs is a necessary activity and has a highly positive impact on the environment and students' perceptions. Students need to access information about environmental protection programs through several channels such as the Ho Chi Minh Communist Youth Union, the University/ City's Student Association, volunteer student groups or social clubs, etc., as well as exploit and effectively use social networking platforms such as Zalo, Facebook, etc.

The survey result showed that 81.8% of students used SUP products due to their convenience, more than 65% of students used SUP because of their availability, and 46.5% concerned about the low price. Nowadays, there are SUP substitute products such as paper bags, eco-bags to substitute plastic bags on the market; bamboo straws, grass straws to substitute plastic straws; paper cups to substitute plastic cups; paper bottle shells to substitute plastic bottles. If being properly used and reused, these products' costs will not be higher than disposable/ SUP plastic products. These substitutions need the attention and response of consumers, including students, to develop and be widely used.

Besides, the Government may/ need to apply a ban or taxes on disposable/ SUP products. The survey result showed that more than 68% of respondents supported the government to enforce restrictions and proceed to ban the use of SUP products, nearly 68% supported the government's high taxation to reduce the use of SUP. In fact, the application of taxes and the ban on using SUP products implemented in many countries around the world and having achieved positive results.

In addition, the Government needs to introduce new policy employing economic instrument such as subsidies, incentives etc. for eco-friendly products and green products. This proposal has received 85% support from 340 survey samples. Currently, the prices of substitute products are largely higher than SUP products. Therefore, it is desirable to offer a reasonable subsidy to create the price competitive advantages of eco-friendly and green products in the market. This proposal could receive a wide range of support from consumers and producers.

## 5. Reference

1. Vietnam Environment Administration, Department of Waste Management, (2019), *“Plastic Wastes and Nylon Bags Management in Vietnam”*.
2. Vietnam Plastics Associations (2019), *“Import Market of Plastic Materials in the First 6 Months of 2019”*
3. UNEP (2018), *“Single-use Plastics: A Roadmap for Sustainability”*.
4. National Center for Socio-Economic Information and Forecast (2020), Report on *“Reducing Plastic Waste in Vietnam”*.
5. Huong Thom (2019), *“Waste from Milk Tea Brands And Corporate Responsibility”*, Environment and Urban newspaper on 30 September 2019.

# **PAYMENT FOR ECOSYSTEM SERVICES IN LAO PDR: A CASE STUDY OF IMPACTS AT HOUSEHOLD LEVEL**

**Ms. Bounkham Vorachit**

*bounkham\_v@yahoo.com*

*Ministry of Natural Resource and Environmental of Lao PDR*

**Prof. Dr. Tran Tho Dat**

*tranthodat@neu.edu.vn*

**Associate Prof. Dr Dinh Duc Truong**

*truongdd@neu.edu.vn*

*National Economics University, Hanoi, Vietnam*

## **Abstract**

*Payments for ecosystem services (PES), also known as payments for environmental services (or benefits), are incentives offered to farmers or landowners in exchange for managing their land to provide some sort of ecological service. They have been defined as a transparent system for the additional provision of environmental services through conditional payments to voluntary providers. These programmes promote the conservation of natural resources in the marketplace. This paper studies the impacts of PES scheme for local people at villages in Bolikhamxay Province, Lao PDR. It first gives an overall picture of PES at provincial level before going to details of local awareness of forest values and protection as well as the impacts of PES implementation to dimensions of local people livelihood and forest protection behaviors.*

**Keyword:** *payment for ecological services, deforestation, community livelihood, governance*

## **1. Introduction**

Formerly known as the Land of Million Elephants, Lao PDR is blessed with abundant natural resources. It is endowed with valuable, productive and ecologically unique forests. These forests provide a habitat for the nation's rich natural biodiversity and protect its soils, watershed and water resources<sup>1</sup>. The proportion of forest cover in 2015 was 46.7% of the total land area<sup>2</sup>. Because of the richness of its water resources, Laos has been called as the 'Château d'Eau de l'Asie'. Recognizing the crucial role of the country's natural resources, the Lao Government has opted for their wise, sustainable use and extraction with the effort

---

<sup>1</sup> Ministry of Agriculture and Forestry, *Forestry Strategy to the Year 2020 of the Lao PDR*, Vientiane, 2005

<sup>2</sup> Japan's Programme Grant Aid for Environment and Climate Change FPPTA6, Ministry of Agriculture and Forestry, Vientiane, Lao PDR

to effectively safeguard its natural capital, the Government of the Lao PDR has done its utmost to mix the use of the regulatory and economic incentives. Several relevant pieces of regulation have been promulgated in the end of the 19s and mid-20s, namely the Environment Protection Law, the Forestry, Water and Land laws, while several pilot programs and projects in key sectors, e.g. the water, forest, fishery, agriculture and land sectors, have encouraged the local rural people to keep being actively involved in this capital's effective conservation and wise use, while increasing their household daily income. In addition, the private sector has been also encouraged to actively engage in this national aim realization.

Nevertheless, this will be facing to tremendous challenges, namely the increased demand of the foreign market, the selfishness of human being, mostly in some private sectors, and the low awareness of the Lao people on the importance of natural resources into their daily livelihood. As a matter of facts, these natural resources have been gradually declined and deteriorated at an alarming scale. Most of the Lao Government institutions, population and private sectors still have the perception that environmental or ecological services are granted and endless.

At the global level, there has been attempts to use the economic tool to stimulate and encourage people being actively involved in natural and environment resources management. Payment for ecosystem services (PES) are payments to farmers or landowners who have agreed to take certain actions to manage their land of watersheds to provide an ecological service<sup>3</sup>. PES occur when a beneficiary or user of an ecosystem service makes a direct or indirect payment to the provider that service. The idea is that whoever preserves or maintains an ecosystem service should be paid for doing so<sup>4</sup>. These programs promote the conservation of natural resources in the marketplace.

This paper studies the impacts of PES scheme for local people at villages in Bolikhamxay Province. It first gives an overall picture of PES at provincial level before going to details of local awareness of forest values and protection as well as the impacts of PES implementation to dimensions of local people livelihood and forest protection behaviors.

## **2. PES At Study Area - Bolikhamxay Province**

### ***2.1. Social - economic characteristics of study area***

Bolikhamxay Province, situated in the central of the Lao PDR, is characterized by the Annamite Mountain Range stretching east to Vietnam, and the Mekong River and Thailand to the west. The Annamite Mountains in the east are blanketed by semi and wet evergreen forests and are home to a high number of endemic species. Western part of the province is largely covered by drier semi-evergreen forests of a type that is more widely

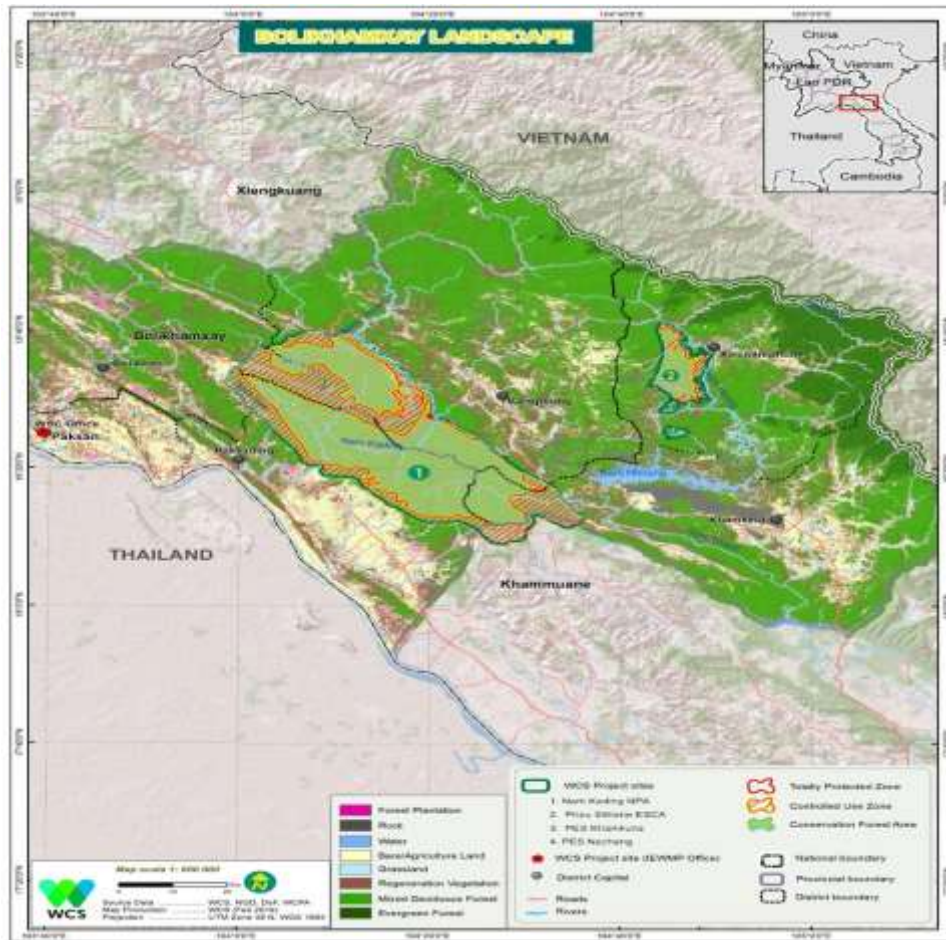
---

<sup>3</sup> International Institute for Environment and Development - IIED, *Markets and Payments for Environmental Services*,

<sup>4</sup> UNDP, *50 Years, Financing Solutions for Sustainable Development: Payments for Ecosystem Services*,

distributed in Indochina and contains varied habitat including grasslands, wetlands, and limestone karst.

Bolikhambxay province is primarily covered with forest (57.9%) composed primarily of mixed deciduous forest and evergreen forests. The evergreen forest occurs primarily in the east of the province close to the Annamite range along the Vietnamese border. Plantation forest, mainly rubber and acacia, are found in the flatter areas and represent nearly 1% of the total forest cover. The Regenerating Vegetation describes fallow lands, both young and old, that can also be non-mature forest plantation areas or stable bamboo forest.



**Figure 2.1. Location of the Study**

There are Protected Forest Areas such as; The Nam Kading NPA, Phou Sithone ESCA, Nhot Nam Mouand PPF and Nacheng PES are mostly covered by mixed deciduous forest in similar proportions (Figure 2.1). The Phou Chom Voy PPA has the highest forest cover of any of the protected areas; half of the protected area is covered in evergreen forest while an additional third is covered by mixed deciduous forest. The Nam Gnuang South Protection Forest Area is a combination of the THXP reservoir, agricultural land, perennial grassland and mixed deciduous forest on its west side. The Khamkhuna PES area has nearly 37% of its area covered by regenerating vegetation suggesting it may be the most disturbed of all the protected areas.

The human population of Bolikhamxay is highly diverse, with several tribes from 3 major ethnic groups: Tai-kadai group, Khmuic group that encompasses Khamu and Pong, and Hmong group, totalling over 200,000 people. Population densities are, however, incredibly low with only 18 people/km<sup>2</sup>. Around the protected areas where WCS is involved (Nam Kading and Phou sithone), community livelihoods rely on upland farming systems that are based on paddies, swidden agriculture, natural ecosystems and the services they offer, such as the provision of food, medicines, fuel, and non-timber forest products (NTFPs) that are both consumed and sold to help generate rural incomes.

## ***2.2. Introduction to ecological services in the study area***

Nam Kading NPA was created in 1993. With little villages located inside the NPA and given the difficult access to the core area, the forests remained in good state of conservation. In 2005, began support to the Nam Kading NPA Management Unit, providing technical assistance, intensive biodiversity monitoring, outreach to communities, ecotourism training and law enforcement. Nam Kading NPA is currently witnessing the development of the Nam theun 1 hydropower project, increasing pressure over land for agriculture, and significant hunting related threats. Although large fauna was present, it has disappeared or became scarce (Gaur, big cats, elephants and primates).

Since 2019, Provincial Authorities are engaged in the management of the NPA through integrated management of the Protected Area, that includes revision of the management plan, Spatial planning and land management, Law Enforcement and patrolling, capacity building of the personnel assigned, awareness campaign and Biodiversity monitoring. Approach adopted is to support rural communities in and around Nam Kading NPA to develop their livelihoods through ecotourism, non-timber forest products and village incentive funds. Finally, WCS is facilitating the Public Private Partnership between the Hydropower Company and the Government in order to sustain long term financing mechanism to the NPA.

## **2. Methods**

### ***2.1. Approach and analytical framework***

The conceptual map guiding our analysis and approach throughout the research is depicted in the figure below. The success or failure of PES schemes and benefit-sharing mechanisms depends largely on the institutional framework and setting (Archer et al. 2008; Clements et al. 2010; Vatn 2010). Institutional frameworks influence actor relationships, funding flows and financial distribution, motivational factors such as the level of interest and involvement of beneficiaries, and the overall outcomes (Kosoy et al. 2008; Corbera et al. 2009). Therefore, the first step in our research was to review Laos's laws and regulations on PES to identify both enabling factors and constraints for PES implementation. We assess the PES schemes in terms of their ability to deliver 3E outcomes (effectiveness, efficiency

and equity). Effectiveness refers to whether environmental services are in fact maintained and improved as a result of the PES scheme (environmental performance). Efficiency considers whether PES schemes are set up, implemented and monitored at minimum cost (financial performance). Equity refers to both distributive equity (the fair distribution of PES payments) and procedural equity (the inclusiveness of PES processes) (social performance).

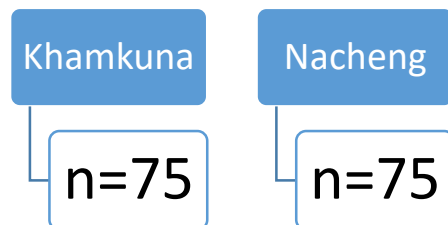
## 2.2. Data collection

According to the General Statistics Office (2016), the population in the 2 villages in the study area is about 1,180 people (on average, each village has about 590 people). With an average population of 5 people / household, the total number of families is about 236 households. The study uses the following Moore formula (2003) to estimate the number of survey samples:

$$n = \frac{N}{1+N \times e^2}$$

In which: n is the sample size, N is the total number of households in the population, e is the accepted tolerance.

With  $e = 0.05$  (the estimated error is 5%) and for a total of 236 households, the estimated number of samples to ensure reliability is  $n > 148$ . In this study,  $n = 150$  households were chosen. To ensure the representation of each villages in the province, stratified samples were selected, in which the cluster was selected according to administrative units. N-There are 2 villages with relatively equal population so in each village, researchers will select 75 households for interview. The total number of research samples is therefore allocated as follows:



**Figure 3.2: Distribution of survey sample by village**

The questionnaire is a key tool in collecting information and data for evaluation. In this study, the questionnaire was also built according to the standard procedure of Diamond (2000). The questionnaire focuses on the following aspects:

- The people's opinion on forest management, conservation and preservation
- Understanding of degradation of forest environment with livelihoods, life and health, people's psychology
- Resources for forest management and protection
- The status of Payment for Forest Environmental Service (PES) in Nam Kading protected area



- Impact of implemented PES to household
- Difficulties when participating in forest management and protection

### 3. Results

#### *Awareness on forest values and protection*

The study first evaluates people's awareness of the values of forest resources and environment and awareness of forest protection through questions about identifying these value groups. There are 5 groups of forest ecological values that are disseminated to the survey sample:

- 1) Forests provide disaster protection values
- 2) The forest absorbs CO<sub>2</sub> and provides O<sub>2</sub>
- 3) Forests provide landscape value and conserve biodiversity
- 4) Forests protect water sources and prevent soil erosion
- 5) Forests have a heritage for future generations

The results show that:

A quite special result is that 100% of the respondents know the value of assets for their future descendants, no one is unaware. 10% of respondents (equivalent to 15 people) said that they were well aware that forests were valuable assets to their descendants, and that up to 90% (equivalent to 135 people) answered that they know to some extent that they need to protect forest land for their future offsprings. Interview with both villages shows that most of the people and business households want to pass on the profession to future generations, they want to preserve the value of natural resources and environment so that their children and grandchildren can enjoy these values.

Regarding the value of forests that protect water sources and prevent soil erosion, up to 64% of people know this value very clear, 36% of people know a little (know to some extent), nobody answered that they don't know (0%). This perception may be due to households in the area experiencing water problems or having been affected by soil erosion, who also live along the forest, so have experience and knowledge about prices this kind of forest value.

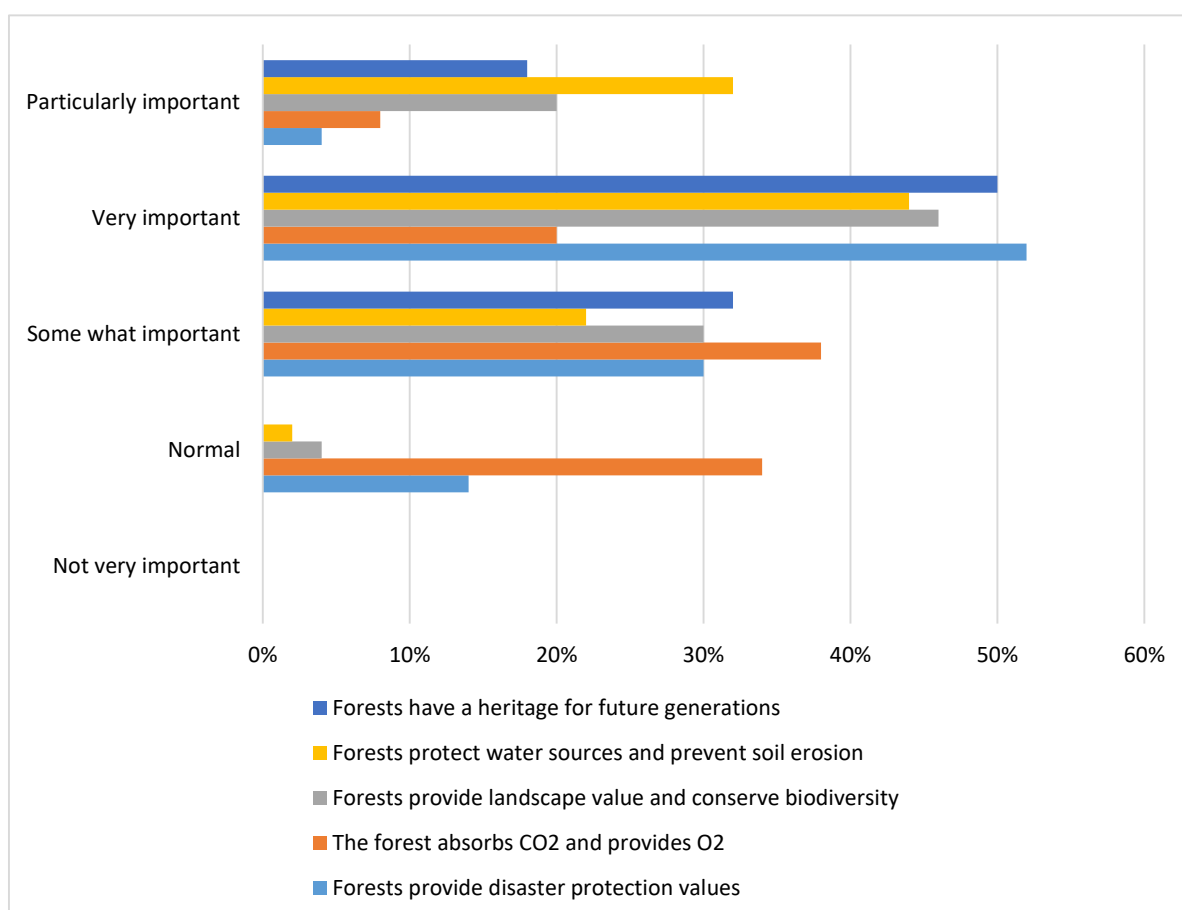
**Table 4.1: Awareness on ecological values of the forest in the locality**

	Clearly know		Know to some extent		Don't know	
	Amount	%	Amount	%	Amount	%
A1.1. Forests provide disaster protection values	60	40%	81	54%	9	6%
A1.2. The forest absorbs CO <sub>2</sub> and provides O <sub>2</sub>	12	8%	36	24%	102	68%

	Clearly know		Know to some extent		Don't know	
	Count	Percentage	Count	Percentage	Count	Percentage
A1.3. Forests provide landscape value and conserve biodiversity	54	36%	90	60%	6	4%
A1.4. Forests protect water sources and prevent soil erosion	96	64%	54	36%	0	0%
A1.5. Forests have a heritage for future generations	15	10%	135	90%	0	0%

Source: Processing from survey sample (2020)

After that, the expert group conducted a survey on the importance of natural resources and forest environment to households with scores of 1,2,3,4. Where 1 is the most important and 4 is the least important value to them and their family. Villagers would say what values 1 -> 4 corresponding to which forest values those are important for their lives and their families. The results for number of grader and average point of each value as below:

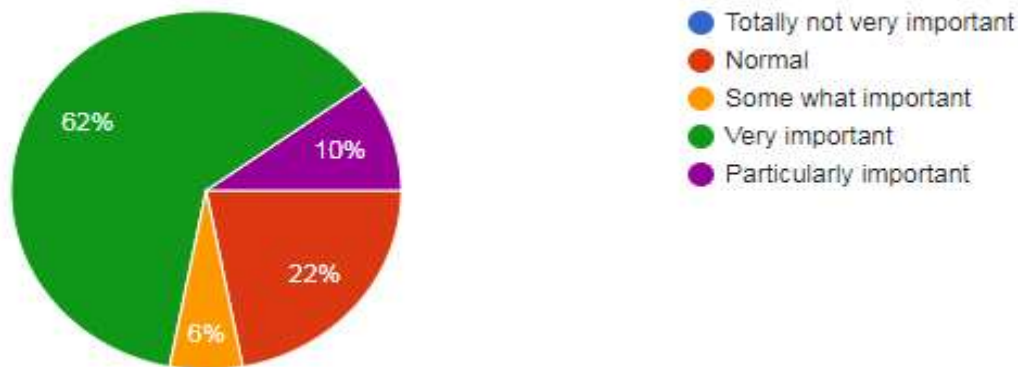


**Figure 4.1: The percentage of people rating the importance for preserving forest resources (%)**

Source: Processing from survey sample (2020)

### ***Roles of forest to household livelihoods and threatens***

Regarding the importance and the values of forest resources and environment to family livelihoods, 62% of people said that forest is very important for livelihoods, 10% of villagers said that they are particularly important for livelihood. 22% of people think it is normal and 6% of them think it is some what important. There are no villagers who think that forest environment is totally not important for their livelihood.



**Figure 4.2: The percentage of people rating the importance of forest to the family livelihood (%)**

*Source: Processing from survey sample (2020)*

More specifically, income from forest activities accounts for a small proportion of the income of interviewed households. 34% of household heads report that forest activities only bring about 0-10% of their total income. 44% of heads said that income from the forest only accounted for 10-30% of the total family income. Only 20% of them think that 30-50% of total income of the whole family comes from forest-related activities and only 2% think that forests provide 50-80% of total income of their family. No household said that forests products or forest activities bring over 80% of total income. So for the people in these locality, the forest has not really played an important role in household total income.

Next, the expert group consulted with local people on the most important causes of forest degradation in Bolikhamxay. Similar to the previous section, people rated 1, 2, 3, 4,5 for corresponding reasons. 1 means the most important reason and 5 means the least important reason. So the smaller the average point, the more important it is to the family life. The calculation of the average point takes into account the weight, similar to the previous section:

For example, there were  $x_1$  respondents rated reason A by point 1, there were  $x_2$  respondents rated reason A by point 2, there were  $x_3$  respondents rated reason A by point 3, there were  $x_4$  respondents rated reason A by point 4, there were  $x_5$  respondents rated reason A by point 5. Then:

$$\text{Average point of reason A} = \frac{x_1 \times 1 + x_2 \times 2 + x_3 \times 3 + x_4 \times 4 + x_5 \times 5}{x_1 + x_2 + x_3 + x_4 + x_5}$$

The results are shown in the following table:

**Table 4.2: Comparing the importance reasons of forest degradation**

	1	2	3	4	5	Average point
1. Expanding agricultural area	93,0	27,0	9,0	15,0	0,0	1,63
2. Deforestation for non-agricultural purposes	47,0	18,0	6,0	0,0	0,0	1,42
3. Tourism activities	0,0	0,0	0,0	0,0	0,0	0,00
4. Incidents of forest fire and forest burning	15,0	51,0	9,0	12,0	0,0	2,21
5. Mining	0,0	0,0	0,0	0,0	0,0	0,00
6. Exploit non-timber products indiscriminately	0,0	12,0	15,0	30,0	3,0	3,40

*Source: Processing from survey sample (2020)*

Thus, it can be seen that people mainly choose reasons 1, 2, 4 and 6 as the most important reasons leading to the deterioration of forest environment quality. Reason 2 "deforestation for non-agricultural purposes" has the lowest average point, at 1.42, most of surveyed people think that this is the most important cause of forest environmental degradation. These purposes are usually to build houses, to open warehouses, or to make yards.

Reason 1 "expanding agricultural area" has the second average score, at 1.63, which is also an important cause of local forest degradation. There are 47 people who think that this is the number 1 cause and 18 people think that this is the number 2 cause (they think reason 1 is more important). This is entirely consistent with the above results. In general, the development of agriculture makes people tend to exploit forests to convert into agricultural land.

### ***Impacts of PES to households***

In this section, the author evaluated the impact of PES policy on households.

#### ***PES participation***

100% of survey household heads in Nacheng and Khamkuna village participated in forest protection and management at the level of community. And, 100% of them heard about PES before this interview. Most of them heard about PES from PES staff or heads of villages or commune officers. 100% of survey respondents said they all received money from the PES program and actively participated in meetings where the village leaders/ officers inform the program and also the meetings that vote on PES implementation. 100% of the subject matter investigated said that they or at least their family member has been or are involved in implementing PES in their village.

The results are shown in the following table:

**Table 4.3: Options households involved in the PES implementation**

	Khamkhuna		Nacheng		Total	
	Amount	%	Amount	%	Amount	%
Participate in a meeting organized by officials to inform the project implementation	75	100	75	100,0%	150	100,0%
Attend a meeting organized by officials to ask people how the project should be done	62	82,7%	73	97,3%	135	90,0%
Participate in training on PES	71	94,7%	69	92,0%	140	93,3%
Participate in the clarification of forest boundaries	47	62,7%	40	53,3%	87	58,0%
Participate in measurement of plants and biomass	21	28,0%	30	40,0%	51	34,0%
Engage with officers/rangers in protecting forests or detecting forest violations	34	45,3%	32	42,7%	66	44,0%
Not involving	0	0%	0	0%	0	0%

*Source: Processing from survey sample (2020)*

100% of people involved in the decision-making process to use and spend money earned from PES and they do know how PES payment is managed, also the persons pay for the PES money, mostly PES staffs. 100% of the household heads said that PES payment has been made 3 times per year and on time.

#### *Benefit of PES*

When asked about the impact of the PES scheme, the survey team focused on benefits in three groups: people's awareness, the forest and the income, and the life. The result is shown below:

**Table 4.4: Impacts of PES**

Local people know and comply better with forest protection and development policies	68%
The forest is getting better	92%
The forest is getting worse	6%
The income is getting better	70%
The income is getting worse	0.6%
The life is getting better (more jobs, roads, public facilities)	78%
The life is not getting better	0.6%

*Source: Processing from survey sample (2020)*

### *PES, income and livelihoods*

Results show that 92% of people recognize PES created better forests, and 70% of people saying that income has changed more positively and they get the better lives (have more jobs, better infrastructure...). Regarding negative impacts, only 0-6% of people agreed that these impacts occur.

**Table 4.5: PES affects household income**

	Khamkuna		Nacheng		Total	
	Amount	%	Amount	%	Amount	%
0%	0	0%	0	0%	0	0%
1-5%	43	57%	50	67%	93	62%
6-10%	32	43%	25	33%	57	38%
11-20%	0	0%	0	0%	0	0%
>20%	0	0%	0	0%	0	0%

*Source: Processing from survey sample (2020)*

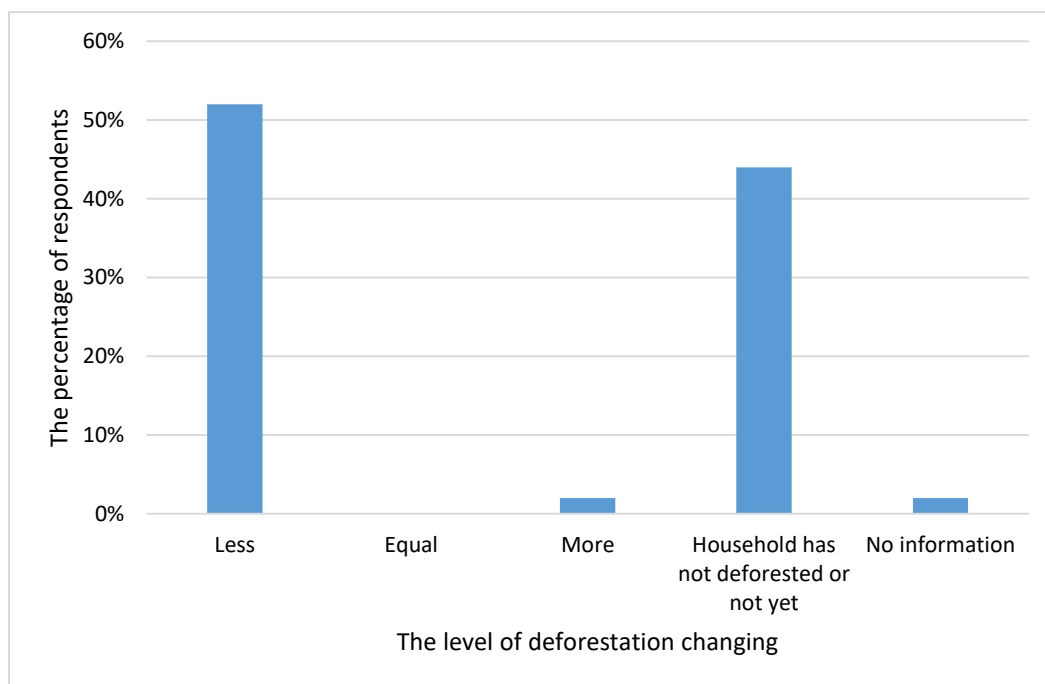
According to the table above, up to 62% of the interviewees, equivalent to 93, said that the impact of PES on household income is very little (1-5%), including 50 Nacheng villagers and 43 Khamkuna villagers. At the level of some what little influence, at 6-10%, the results are almost similar when 43% of Khamkuna people and 33% of Nacheng people chose. No one answered that they did not see any impact of PES on household income (0%). At the level of fairly high and very high, the survey also showed that no people rated these.

Regarding negative impact on household (for example, no more timber or forest products), 4% of the residents responded that they found negative impacts from the PES scheme, corresponding to 6 people. The negative impacts were explained by the local people that PES no longer allows them to consume free forest products as before, nor can they exploit the free forest products, leading to a significant decrease in forest products, affecting their households. The remaining 96%, saying that PES scheme has no negative impact on their households.

When asking people about the changes that PES program should implement for better impacts on local life, 100% of people are enthusiastically contributing ideas about the changes that PES should implement. 87% of the people answered that PES should take actions to help promote agriculture in the area because this is the main livelihood of the villagers, whether through providing clean water and spring water, or helping them to broaden agricultural land to increase agricultural production, or through the provision of locally appropriate crop varieties and training or consultation to promote agriculture in their locality, or PES needs to creat funds for agriculture. Therefore, people will be more active doing their livelihoods without deforestation indiscriminately. 13% of households said that they needed support in terms of changing their livelihoods or proving jobs related to forests, or expanding the forest products market to enable them to sell, increase sales and have a better life.

### *PES and deforestation*

The PES program has been implemented in localities since 2018. 98% of households said that since PES implementation, they were completely stopped deforested. 2% said that they were still deforest because of their family's life and livelihood.



**Figure 4.3: The percentage of respondent rating the deforestation changing level**

*Source: Processing from survey sample (2020)*

52% said that compared with the years before PES was implemented, these households had less deforestation, 44% answered that household has not deforested or not yet. The remaining 2% refused to provide information and 2% deforested more. When asked about the reasons and motivations for reducing deforestation, households answered that is because before PES implementation, there is no strict forest management policy, no project to support them in their lives and livelihoods. Households report more deforestation because they need to expand farmland to grow upland rice to maintain their lives and livelihoods.

44% of households, equivalent to 66, said it was difficult to tell the change in forest product consumption by households because it depends very much on what kind of forest product, and the needs of the household in each time and circumstance. Household heads said that the local grass called Khem in the locality has increased over the years but many of the other local grass species have declined and people cannot afford to handle this.

#### 4. Conclusion

This report aims to review PES implementation in Lao PDR and to draw lessons from the case studies. PES cases in Lao PDR are also at the design stage; however, the mining and hydro-power projects of private sectors in Lao PDR have developed their own incentive or benefit-sharing mechanisms, which depend on the outcome of negotiations for concession agreements. This study shows the performance and impacts of a specific scheme of PES for local people in Laos. The Government of Lao PDR has shown strong interest in the PES mechanism. The main constraint in Lao PDR is not the legal issue itself, but rather the lack of human and financial capacity to implement PES. The way forward for PES in Laos may be to work within the existing reality, and focus on innovative, smaller-scale PES schemes, which are not tied to changes in land use, and are not dependent on novel approaches by the GoL. Examples are NGO-managed conservation projects that pay villagers for sightings of wildlife by eco-tourists. While the impact and benefits of such acutely local projects may be comparatively small, some impact is preferable to no impact at all, and in particular to no impact that comes at a high cost of betting against reality.

#### References

1. Ministry of Agriculture and Forestry, *Forestry Strategy to the Year 2020 of the Lao PDR*, Vientiane, 2005.
2. Japan's Programme Grant Aid for Environment and Climate Change FPPTA6, Ministry of Agriculture and Forestry, Vientiane, Lao PDR.
3. Bernard Gay, *La République Démocratique Populaire Lao*, Ministry of Information and Culture, Vientiane, 1985.
4. Water Resources and Environment Agency, *National Water Policy*, Vientiane, Lao PDR, 2012.
5. Ministry of Natural Resources and Environment, MONRE *National Biodiversity Strategy and Action Plan for Lao PDR 2016-205*, Vientiane, Lao PDR, 2015.
6. International Institute for Environment and Development - IIED, *Markets and Payments for Environmental Services, 2014*
7. UNDP, *50 Years, Financing Solutions for Sustainable Development: Payments for Ecosystem Services, 2016*.
8. Michael Esbach, Mike Hedemark, *Payments for Ecosystem Services (PES): An Introduction and Case Study on Lao PDR*, Center for Biodiversity and Conservation of the American Museum of Natural History, Washington DC. USA, 2012.



9. Minister of Natural Resources and Environment Resolution, Vientiane, Laos PDR, 2018.
10. Sharachchandra Lel, Oliver Springnate-Baginski, Roan Lakerveld, Déballer Deb, Prada Dash, *Ecosystem Services: Origins, Contribution, Pitfalls, and Alternatives*, Conservat Soc 2013; 11:343-58.
11. Erik Gomez-Baggethun, Rudolf de Groot, Pedro L. Lima's, Carlos Montes, *The History of Ecosystem Services in Economic Theory and Practice: From Early Notions to Markets and Payment Schemes*, Elsevier B.V, 2009.
12. Sharachchandra Lel, Oliver Springnate-Baginski, Roan Lakerveld, Déballer Deb, Prada Dash, *Ecosystem Services: Origins, Contribution, Pitfalls, and Alternatives*, Conservat Soc 2013; 11:343-58.

### **Acknowledgment**

This research is implemented in the framework of the Project “Valuation of economic losses caused by extreme hydro-meteorological phenomena in the context of climate change and proposed risk management solutions for coastal provinces of Central Vietnam” (Code BDKH 22/16-20) funded by the National Program on Science and Technology to Respond to Climate Change, Management of Natural Resources and Environment during 2016-2020 for the National Economics University.

# FACTORS AFFECTING THE INTENTION TO DEVELOP GREEN SUPPLY CHAIN IN COFFEE PRODUCTION IN TAY NGUYEN, VIETNAM

*Pham Van Chinh*

*phamvanchinh090389.hust@gmail.com*

*National Economics University, Hanoi, Vietnam*

## Abstract

*This study explores the factors that influence the intention of developing green supply chains in Central Highlands coffee production. The author surveyed 392 households in which: 131 households have participated in the green supply chain in coffee production, 261 households have not participated in the green supply chain. Using quantitative research methods, using software supporting SPSS 22.0 to analyze and verify the reliability of the Cronbach's Alpha scale, Factor analysis (EFA), correlation analysis, regression analysis. The results show that there are 5 factors that influence the intention of developing green supply chains in coffee production. Based on the research results of the author also implies that the ability to develop the green supply chain in coffee production is joined by many households, to reduce greenhouse gas emissions and increase coffee production.*

**Keywords:** *Green, supplychain, cofee, Central Highlands*

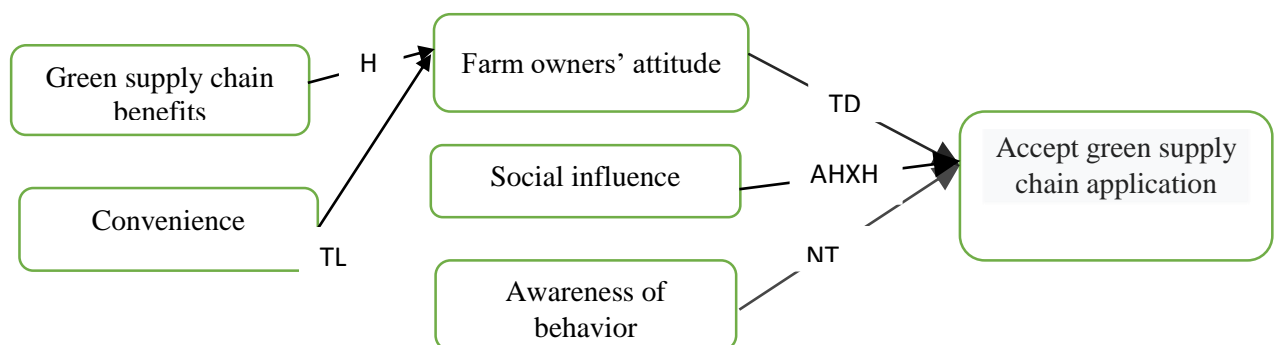
## 1. Introduction

Coffee is the main export item in Vietnam in general and the Central Highlands provinces in particular, contributing 3% of the national GDP in 2018, also resolving to more than 2.9 million people in the locality and neighboring provinces ( *Vietnam Customs, 2015* ). Coffee is the second largest export commodity in the world after Brazil since 2000, and the achievements show that the coffee industry develops in the future.

The Central Highlands is one of the key regions for growing typical industrial crops of coffee trees. Due to many different reasons, together with the Central Highlands, only 22% of coffee farmers only participate in the supply chain in coffee production. Households spend too much labor and have a large amount of untreated waste, discharging waste directly into the water and soil environment, increasing greenhouse gas emissions increasingly when producing coffee.

## 2. Method

### 2.1. Research model



## 2.2. Theory of research

LI: Calculating the benefits of a green supply chain has a positive effect on the attitude of coffee farmers.

TL : Convenience of green supply chain has a positive effect on green supply chain attitude in coffee production.

TD: Coffee farm owners' attitude has a positive influence on the intention of developing green supply chains for coffee production.

AHXH: Social influence has a positive influence on the intention of developing green supply chains in coffee production.

NT: Awareness of farm owner behavior has a positive influence on the intention of developing green supply chains in coffee production.

## 2.3. Data and research methods

The author's research used quantitative research method through two main stages: Preliminary research and official research. The sample size depends on the expectation of reliability, the method of data analysis, the parameters to be estimated and the distribution rules of the selected sets. According to Hai et al. (2006), if the study uses EFA (Explorator Factor Analysis), the sample size must be at least 100 (or larger). According to Tabachnick and Fidell, for the regression calculation, the sample size calculated using the formula  $50 + 8 * m$  (m number of independent variables) must be at least 5 times higher than the measurement variables. It means that for each measurement variable, there must be at least 5 observed variables. Inheriting the research of *Hoang Trong and Chu Nguyen Mong Ngoc* (2008) also shows that EFA factors usually have at least 4 or 5 times the number of observed variables in factor analysis. In the study of the thesis there are 21 observed variables so the minimum sample size is  $50 + 8 * 21 = 218$  observed variables.

## 3. Result

### 3.1. Characteristics of research sample

**Table 1: Deciding to develop a green supply chain**

		Deciding to develop a green supply chain			
		Green supply chain has not yet been applied		Green supply chain has been applied	
		Amount ( People)	Ratio (%)	Amount (People)	Ratio (%)
SEX	Male	136	52,1	104	79,4
	Female	125	47,9	27	20,6
Nation	Kinh	185	70,9	108	82,4
	Other	76	29,1	23	17,6

Jobs	Farmer	261	100	94	71,8
	Employee	0	0	21	16
	Public servants	0	0	16	12,2
Education	Unlettered	55	21,1	0	0
	Level I	118	45,2	0	0
	Level II	88	33,7	11	8,4
	Level III	0	0	97	74,0
	Secondary	0	0	23	17,6
	University	0	0	0	0

+ **Sex:** For those who have not yet participated in the green supply chain: The author surveyed 261 people (accounting for 52,1%) of those who had not participated in the green supply chain, including 136 male sexes (accounting for 52,1%), women have 125 people (accounting for 47,9%). Green supply chain has been applied with 131 people, including 104 men (79.4%) and 27 people (20.6%). This disparity is not large, which indicates that women can afford to be in work instead of men doing hard work.

+ **Jobs:** For those who have not yet participated in the green supply chain: The author surveyed 261 (accounting for 52.1%), who had not participated in the green supply chain, of which 261 were farmers (accounting for 100%). and has applied a green supply chain of 131 people, of which 94 farmers (71.8%), 21 employees (16%), 16 civil servants (12.2%).

+ **Nation:** For those who have not participated in the green supply chain: Survey author 261 (52.1%), who has not participated in the green supply chain, of which 185 people are ethnic Kinh (accounting for 70.9%), the rest 76 ethnic minorities (accounting for 29.1%). Regarding participating in the green supply chain, the author surveyed 131 people, including 108 Kinh ethnic people (accounting for 82.4%), 23 ethnic minority people (accounting for 17.6%).

+ **Education:** For those who have not yet participated in the green supply chain: The author surveyed 261 (accounting for 52.1%), there were 55 illiterate people (21.1%), 118 people with primary education level ( 45.2%), 88 people with secondary education (accounting for 33.7%). Regarding the households participating in the green supply chain, the author surveyed 131 people including, there are no literate and educated people, there are 11 people with secondary education (accounting for 8.4%). ), 97 people with high school education (74%), 23 people with professional secondary education (accounting for 17.6%).

### 3.2. Testing the scale

#### - Preliminary quantitative research

Inspection results preliminary analysis of the reliability of the factors affecting the development of green supply chain consists there: favorability, attitude ranchers, social influence, perceived behavioral control of all pages, farmers in the two groups were taking part and not taking in the show: turn the section “reduction in the space” of human factors beneficial

interests have us some relatively important variables into part – variable total by 0.240 to see turned into part of this do not being put to work to save on the message reliability. Because so, the variable is not being put to work to save on the amount of the formula. The turn into part of the human factor was to have with us the same opinion turning into part – turn the total are greater than 0.3 and generation of Cronbach's Alpha greater than 0.6 should all make sure the information reliable and be put into research examined in the amount of the formula.

*- Official quantitative research*

To measure the factors affecting the development of green supply chains in coffee production in the Central Highlands, the author uses 5 factors with 21 component variables. These factors before being used for analysis will be evaluated by Cronbach's Alpha coefficient to measure reliability. Accordingly, the factors are considered to be reliable when the Cronbach's Alpha coefficient is greater than or equal to 0.6 and the correlation coefficient of each component variable with the total variable is greater than 0.3 .

**+ Benefit variable, LI: Benefits of participating in the green supply chain in coffee production.**

This factor has 7 component variables, after type 1 turns into component LI7 because there are total variables <0.3, the remaining 6 component variables. The analytical results show that the Cronbach's Alpha coefficient of LI factor is 0.826; The correlation coefficient of each component variable with this factor is more than 0.3. Therefore, these component variables are statistically significant.

**Favorable factors**

This factor has 3 component variables. The analytical results show that the Cronbach's Alpha coefficient of TL factor is 0.787; The correlation coefficient of each component variable with this factor is more than 0.3. Therefore, these component variables are statistically significant.

**Attitude factor .**

This factor has 3 component variables. The analytical results show that, Cronbach's Alpha coefficient of factor TD is 0.848; The correlation coefficient of each component variable with this factor is more than 0.3. Therefore, these component variables are statistically significant.

**Social influence factors**

This factor has 4 component variables. The analytical results show that, Cronbach's Alpha coefficient of AHXH factor is 0.801; The correlation coefficient of each component variable with this factor is more than 0.3. Therefore, these component variables are statistically significant .

### Cognitive behavior control factors

This factor has 4 component variables. The analytical results show that, Cronbach's Alpha coefficient of NT factor is 0.766; The correlation coefficient of each component variable with this factor is more than 0.3. Therefore, these component variables are statistically significant.

#### \* EFA factor analysis

Next, the author uses EFA factor analysis to check the fit between the theoretical model and the actual survey. According to the analysis results, the KMO coefficient is 0.725, the significance level of Bartlett test is less than 0.5, which shows that the factor analysis is appropriate and the linear variables are linearly related.

**Table 2: KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.725
Bartlett's Test of Sphericity	Approx. Chi-Square	2840.632
	df	190
	Sig.	0.000

*Source: author's processing from survey data*

In EFA analysis, component variables are retained to participate in factor analysis when having a factor of load greater than or equal to 0.5, according to analysis results, component variables have a larger factor load factor 0.5, so these component variables are all involved in factor analysis.

The analysis results also showed that the total variance extracted of the factors by 63.32 reflects the factor analysis explained by 63.32% by the component variables.

Thus, these factors are all dependent on the theoretical model.

#### \* Test of research hypotheses

##### • **Already in the green supply chain**

**Hypothesis H1.1:** LI is positively related to the attitude of the farmer / farmer who participates in the green supply chain in coffee production.

According to results distribution area , generation of correlation between benefits with the attitude of ranchers / farmers have joined green supply chain in coffee production by 0.550, with a coefficient of  $VIF = 1.505 < 10$ , not There is a phenomenon of multicollinearity, the significance level = 0.000 is less than 0.005, reflecting the positive relationship and has statistical significance. As such , false doctrine " LI-way relationship with the attitude of ranchers / farmers have participated in the supply chain in the production of green coffee. Accepted this study.

**Table 3: Correlation coefficient between favorable variables and farm owner attitude**

		Farm owner attitude	Benefit
Benefit	Correlation coefficients	1	.550**
	Significance level of 2 -sided testing		.000
	Number of respondents	131	131
Attitude	Correlation coefficients	.550**	1
	Significance level of 2 -sided testing	.000	
	Number of respondents	131	131

\*\* The significance level of the correlation coefficient of the two-sided test is 0.01

**Hypothesis H2.1: Favorability (TL), positively impacting the attitude of farm owners / farmers**

According to the analysis results , the correlation coefficient of convenience with the attitude of the farmer / farmer participating in the green supply chain in coffee production is equal to 0.439, with a coefficient of VIF = 1.505 <10, no. There is a phenomenon of multi-collinearity, the significance level = 0.000 is less than 0.005, reflecting the positive relationship and has statistical significance .

As such , false doctrine " properties favorable relationship in the same direction to the attitude of ranchers / farmers have participated in the supply chain in the production of green coffee. Accepted this study.

**Table 4 : Correlation coefficients between variables intention to join / continue to participate with conveniently favorability**

		Farm owner attitude	Advantage
Farm owner attitude	Correlation coefficients	1	.439**
	Significance level of 2 -sided testing		.000
	Number of respondents	131	131
Advantage	Correlation coefficients	.439**	1
	Significance level of 2 -sided testing	.000	
	Number of respondents	131	131

**Hypothesis H4.1: Social influence affecting green supply chain development**

Social influence has focal agency system in the same direction to the participants intend to green supply chain of the households in family.

According to results distribution are, generation of relatively agencies between profit utility with reviews to take part in the green supply chain of the households in families have participated in an not take part in visits respectively by 0.500 and 0.429, the standard means test for less than 0.05 reflect light focal agency system same way and have the means system statistics.

As such, doctrine “AHXH relationship the same way households intend to participate/ continue to participate in the green supply chain coffee production” were approved to receive the study at this.

**Table 5 : Correlation coefficient between variables continue to participate with social effects**

		Continue to participate in the green coffee supply chain	Social influence
Continue to participate in the green coffee supply chain	Correlation coefficients	1	.500**
	Significance level of 2 -sided testing		.000
	Number of respondents	131	131
Social influence	Correlation coefficients	.500**	1
	Significance level of 2 -sided testing	.000	
	Number of respondents	131	131

\*\* The significance level of the correlation coefficient of the two-sided test is 0.01

**Hypothesis H5.1: Cognitive behavioral control, NT; awareness of behavioral control in green supply chains in coffee production.**

Cognitive behavioral control with focal agency system in the same way to intend to continue Participants green supply chain of the households in family.

According to the analysis, the correlation coefficient of benefits and the intention of participating green supply chains of participating and non-participating households is 0.455 and 0.474, the test significance level is less than 0.05 which shows the positive and statistic relationship.

Thus, the hypothesis “NTK has a positive relationship with continuing to participate in the green supply chains of households” is accepted in this study.



**Table 6: Correlation coefficient between continue to participate in the green coffee supply chain and cognitive behavioral control**

		Continue to participate in the green coffee supply chain	Cognitive behavioral control
Continue to participate in the green coffee supply chain	Correlation coefficients	1	.455**
	Significance level of 2 -sided testing		.000
	Number of respondents	131	131
<b>Cognitive behavioral control</b>	Correlation coefficients	.455**	1
	Significance level of 2 -sided testing	.000	
	Number of respondents	131	131

The significance level of the correlation coefficient of the two-sided test is 0.01

• *Not participate in green supply chain*

**Hypothesis H1.2:** LI has a positive relationship with the attitude of the farm owner/household who has not joined the green supply chain in coffee production.

According to the analysis, the correlation coefficient of benefits and attitude of the farmer / household participating in the green supply chain in coffee production is equal to 0.469, with a VIF = 1,277 <10, no. There is no a phenomenon of multi-collinearity, the significance level is equal to 0.000 is less than 0.005, reflecting the positive relationship and has statistical significance.

Thus, the hypothesis “LI is positively related to the attitude of the owner of the farm owner/household who has not participated in the green supply chain in coffee production is accepted in this study.

**Table 7: Correlation coefficient between benefits and the attitude of the farm owner/household**

		Attitude of the farm owner/household	benefits
Attitude of the farm owner/household	Correlation coefficients	1	.469**
	Significance level of 2 -sided testing		.000
	Number of respondents	261	261
<b>benefits</b>	Correlation coefficients	.469**	1
	Significance level of 2 -sided testing	.000	
	Number of respondents	262	262

\*\* The significance level of the correlation coefficient of the two-sided test is 0.01

**Hypothesis H2.1: Convenience (TL) has a positive impact on the attitude of farm owners/ households**

Benefits has a positive relationship with the attitude of the farm owner / household who has not participated in the green supply chain in coffee production.

According to the analysis, the correlation coefficient of favorability with the attitude of the farmer owner/household who has not participated in the green supply chain in coffee production is equal to 0.326, with a coefficient of VIF = 1,277 <10, no. There is a phenomenon of multi-collinearity, the significance level = 0.000 is less than 0.005, reflecting the positive relationship and has statistical significance.

Thus, the hypothesis “facilitation is positively related to the attitude of the owner of the farm / farmer who has not participated in the green supply chain in coffee production. Accepted this study.

**Table 8: Correlation coefficient between favorable variables and attitudes**

		Attitude of the farm owner / household	Convenience
the attitude of the farm owner / household	Correlation coefficients	1	.326**
	Significance level of 2 - sided testing		.000
	Number of respondents	261	261
Convenience	Correlation coefficients	.326**	1
	Significance level of 2 - sided testing	.000	
	Number of respondents	262	262

\*\* The significance level of the correlation coefficient of the two-sided test is 0.01

**Hypothesis H3.1: Farmer owners' attitude is positively related to the intention of participating in the green supply chain in coffee production**

According to the analysis of the correlation coefficient between attitude and intention to participate of households who have not participated in the green supply chain is 0.510, the test significance level is less than 0.05 which reflects a positive relationship and a statistical significance.

Thus, the hypothesis "Attitude is positively related to the intention to participate in the green supply chain of coffee production" is accepted in this study.

**Table 9: Correlation coefficient between the intention to participate and the owners'/households' attitude**

		The intention to participate in the green supply chain	Attitude
The intention to participate in the green supply chain	Correlation coefficients	1	.510**
	Significance level of 2 -sided testing		.000
	Number of respondents	261	261
Attitude	Correlation coefficients	.510**	1
	Significance level of 2 -sided testing	.000	
	Number of respondents	262	262

\*\* The significance level of the correlation coefficient of the two-sided test is 0.01

**Hypothesis H4.2: Social influence is positively related to the intention to participate in green supply chains in coffee production**

According to the analysis, the correlation coefficient between attitude and intention to participate of households not participating in the green supply chain is equal to 0.429, the test significance level is less than 0.05 which reflects a positive relationship and a statistical significance.

Thus, the hypothesis "Social influence is positively related to the intention of participating in green coffee supply chain" is accepted in this study.

**Table 10: Correlation coefficient between the intention to participate and social influence**

		intention to participate in green supply chains	Social influence
intention to participate in green supply chains	Correlation coefficients	1	.429**
	Significance level of 2 -sided testing		.000
	Number of respondents	261	261
Social influence	Correlation coefficients	.429**	1
	Significance level of 2 -sided testing	.000	
	Number of respondents	262	262

The significance level of the correlation coefficient of the two-sided test is 0.01

**Hypothesis H5.2: Farmers' perceptions of behavioral control are positively related to the intention to participate in green supply chains in coffee production.**

According to the analysis of the correlation coefficient between attitude and intention to participate of households not participating in the green supply chain is 0.474, the test significance level is less than 0.05 which reflects a positive relationship and there is statistical significance.

As such, the hypothesis "Perception of behavioral control is positively related to the intention to participate in green coffee production supply chains" is accepted in this study.

**Table 11: Correlation coefficients between intention to participate/continue participation and Cognitive behavioral control**

		Intention to engage households that have not yet joined the green supply chain	Cognitive behavioral control NTKS
Intention to engage households that have not yet joined the green supply chain	Correlation coefficients	1	.474**
	Significance level of 2 -sided testing		.000
	Number of respondents	261	261
Cognitive behavioral control (NTKS)	Correlation coefficients	.474**	1
	Significance level of 2 -sided testing	.000	
	Number of respondents	262	262

\*\* The significance level of the correlation coefficient of the two-sided test is 0.01

**3.4.2.2 Analysis of factors affecting green supply chain development in coffee production in the Central Highlands.**

In order to analyzing the factors affecting the development of green supply chains in coffee production in the Central Highlands, the author uses the Logistic regression model with the method of eliminating the stepwise conditional variable in SPSS.

The households participating in the survey are divided into two groups: households that have participated in the green supply chain and those have not participate in the green supply chain. Therefore, the factors analysing affecting to green supply chain development in coffee production is shown as follows:

- For households that have participated in the green supply chain

**Model 1:** The intention variable of green supply chain development is influenced by LI. The correct prediction rate of this model is 91.6% and the -2 Log likelihood value is 58.557. The test results on the general suitability of the model are statistically significant because of the significance level of the test is less than 0.05 (Sig = 0.000). The significance level of the Wald test is less than 0.05 (Sig = 0.000), reflecting that the regression coefficients in model 1 are statistically significant.

**Table 12: Regression coefficient model 1**

		B	S.E	Wald	Df	Sig.	Exp(B)
Model 1	LI	3.689	.983	14.092	1	.000	39.994
	Constant	-12.221	3.692	10.957	1	.001	.000

a. Model 1: Independent variable LI.

**Model 2:** The Intention of green supply chain development is influenced by LI and AHXH. The correct prediction rate for this model is 97.4% and the -2 Log likelihood value is 42.085. Test results on the model's general suitability. The significance level of the Wald test on regression coefficients for the independent variables in the model is less than 0.05. The significance level of the Wald test is less than 0.05 (Sig = 0.000) which reflects the regression coefficients in model 1 are statistically significant.

**Table 13: Regression coefficient model 2**

		B	S.E	Wald	Df	Sig.	Exp(B)
Model 2	LI	4.599	1.254	13.455	1	.000	99.345
	AHXH	2.803	.784	12.778	1	.000	16.497
	Constant	-27.431	6.715	16.690	1	.000	.000

b. Model 2: independent variable LI, AHXH.

**Model 3:** The intention to develop a green supply chain is influenced by LI, AHXH and TD. The correct prediction rate of this model is 96.2% and the -2 Log likelihood value is 22.135. Test results on the model's general suitability. The significance level of the Wald test for regression coefficients in the model is less than 0.05, reflecting the statistically significant model.

**Table 14: Regression coefficient model 3**

		B	S.E	Wald	Df	Sig.	Exp(B)
Model 3	LI	4.973	1.568	10.057	1	.002	144.494
	AHXH	2.882	1.200	5.767	1	.016	17.846
	TD	8.120	2.701	9.040	1	.003	3361.166
	Constant	-61.280	17.438	12.349	1	.000	.000

c. Model 3: independent variable LI, AHXH, TD

**Model 4:** Intention variable Continuing to participate in the green supply chain is influenced by LI, TL, TD and AHXH. The correct prediction rate for this model is 98.5% and the -2 Log likelihood value is equal to 10,365. Test results on the model's general suitability. The

significance level of the Wald test for regression coefficients for the independent variables in the model is less than 0.05. As such, this regression model is not used to analyze the factors affecting green supply chain development

**Table 15: Regression coefficient of model 4**

		B	S.E	Wald	Df	Sig.	Exp(B)
Model 4	LI	5.887	2.001	8.652	1	.003	360.311
	TL	3.167	1.447	4.791	1	.029	23.732
	TD	3.884	1.844	4.436	1	.035	48.637
	AHXH	11.569	4.641	6.213	1	.013	105718.178
	Constant	-94.478	31.707	8.879	1	.003	.000

d. Model 4: independent variables LI, AHXH, TD, AHXH

Thus, these 4 models are used to analyze factors affecting green supply chain development in coffee production. To select an appropriate analytical model, the author uses -2 Log likelihood coefficient. Accordingly, the model chosen is the one with the least -2 Log likelihood value. In the above models, model 4 is the model chosen to analyze the factors affecting the development of green chain in coffee production due to the coefficient of -2 Log likelihood smallest and equal to 10,365. Thus, factors affecting the development of green supply chains in coffee production of households participating in the green supply chain include: LI, TL, TD, AHXH. Based on the coefficient of recovery to determine the influence of the factors. Among these factors, AHXH is the most influential factor due to the regression coefficient equal to 11,569. The degree of influence of the remaining factors in the order is LI (5,887); TD (3,884) and TL (3,167).

$$\text{Log}_e\left[\frac{P(Y = 1)}{P(Y = 0)}\right] = -94.478 + 11.569 * \text{AHXH} + 5.887 * \text{LI} + 3.884 * \text{TD} + 3.167 * \text{TL}$$

Not participating in green supply chain

Model 1: The intention to participate in the green supply chain is influenced by TL. The correct prediction rate of this model is 95.8%. The test results on the general suitability of the model are statistically significant because the significance level of the test is less than 0.05 (Sig = 0.000). The significance level of the Wald test is less than 0.05 (Sig = 0.000), reflecting that the regression coefficients in model 1 are statistically significant.

**Table 16: Coefficient. regression model 1**

		B	S.E	Wald	Df	Sig.	Exp(B)
Model 1	TL	2.919	.478	37.264	1	.000	18.530
	Constant	-9.025	1.789	25.449	1	.000	.000

a. Model 1: independent variable TL.

Model 2: The Intention of green supply chain participation is influenced by TL and AHXH. The correct prediction rate of this model is 98.3%. The test results on the general suitability of the model are statistically significant because the significance level of the test is less than 0.05 (Sig = 0.000). The significance level of the Wald test is less than 0.05 (Sig = 0.000), reflecting that the regression coefficients in model 1 are statistically significant.

**Table 17: Regression coefficient model 2**

		B	S.E	Wald	Df	Sig.	Exp(B)
Model 2	TL	2.658	.477	31.063	1	.000	14.272
	AHXH	1.516	.377	16.161	1	.000	4.554
	Constant	-14.334	2.399	35.696	1	.000	.000

b. model 2: independent variable TL, AHXH.

Model 3: Variable The intention of developing a green supply chain is influenced by TL, AHXH and NT. The correct prediction rate of this model is 98.3%. Test results on the model's general suitability. The significance level of the Wald test for regression coefficients in the model is less than 0.05, reflecting the statistically significant model.

**Table 18: Regression coefficient model 3**

		B	S.E	Wald	Df	Sig.	Exp(B)
Model 3	TL	2.426	.636	14.544	1	.000	11.318
	AHXH	3.536	.763	21.496	1	.000	34.341
	NT	6.272	1.489	17.748	1	.000	529.400
	Constant	-46.518	9.789	22.582	1	.000	.000

c. Model 3: independent variable TL, AHXH, NT

Model 4: The Intention of green supply chain participation is influenced by LI, TL, AHXH and NT. The correct prediction rate of this model is 90.0%. Test results on the model's general suitability. The significance level of the Wald test for regression coefficients for the independent variables in the model is less than 0.05. The significance level of the Wald test for regression coefficients in the model is less than 0.05, reflecting the statistically significant model.

**Table 19: Regression coefficient model 4**

		B	S.E	Wald	Df	Sig.	Exp(B)
Model 4	LI	2.885	.998	8.359	1	.004	17.899
	TL	2.324	.716	10.520	1	.001	10.213
	AHXH	4.099	1.191	11.836	1	.001	60.270
	NT	6.629	1.831	13.113	1	.000	756.878
	Constant	-60.749	14.233	18.217	1	.000	.000

d. Model 3: independent variables LI, AHXH, TL, NT

Thus, these 4 models are used to analyze factors affecting green supply chain development in coffee production. To select an appropriate analytical model, the author uses -2 Log likelihood coefficient. Accordingly, the model is the one with the least -2 Log likelihood value. In the above models, model 4 is the model chosen to analyze the factors affecting the development of green chain in coffee production due to the coefficient of -2 Log likelihood smallest and equal to 10,365. Thus, factors affecting the development of green supply chains in coffee production of households participating in the green supply chain include: LI, TL, AHXH, NT. Based on the coefficient of recovery to determine the influence of the factors. Among these factors, NT is the most influential factor due to the regression coefficient equal to 6,629. The degree of influence of the remaining factors in the order is AHXH (4,099); LI (2,885) and TL (2,324).

$$\text{Loge}\left[\frac{P(Y = 1)}{P(Y = 0)}\right] = -60.749 + 6.629 * NT + 4.099 * AHXH + 2.885 * LI + TL * 2.324$$

Conclusion: The results of the study show that there are 5 factors that confirm.

#### **4. Discussion and conclusion**

After the study, it can be concluded that the intention to develop a green supply chain in coffee production in the Central Highlands has the opportunity to develop active participation of coffee growers. Purpose of reducing fertilizer, reducing greenhouse gas emissions, increasing coffee production... In addition to many advantages and disadvantages, the government needs to pay attention to the needs of coffee farmers.

The author's research is limited to taking samples only five Central Highlands Provinces. The reliability will be higher if the expansion of the study area, in addition to selecting a representative sample has a higher, can more accurate results.

#### **References**

1. Ministry of Agriculture and Rural Development (2009), Vietnam Coffee Quality Enhancement Conference, Buon Ma Thuot.
2. Ministry of Agriculture and Rural Development (2010), Vietnam coffee industry development planning to 2020 and vision to 2030, Hanoi.
3. Tran Quynh Chi et al. (2005), Research report: Impact assessment of input use practices for coffee production in Dak Lak province, Center for Agricultural Policy
4. Nguyen The Chinh (2003), Textbook of Economics and environmental management, Statistical Publishing House, Hanoi.
5. Nguyen Thi Quynh Trang (2015), Research on "Supply chain management of cashew nut processing for export at Long An Export Processing Joint Stock Company", master's thesis in economics, Nha Trang University Page.
6. Le Thi Thuy Lien, 2000, Study on "Solutions to improve the efficiency of the agricultural product supply chain in Vietnam". Master thesis. National Economics University.



7. Le Doan, 2013. "Solutions to improve supply chain operations at Mitsuba M-tech Vietnam Co., Ltd.". Master thesis. Ho Chi Minh City National University.
8. Huynh Thi Thu Suong, 2012. "Researching factors affecting cooperation in furniture supply chain, case study: Southeast region". PhD thesis. Ho Chi Minh City University of Economics.
9. Tran Thi Vinh Phuc, 2010. "Building a sustainable supply chain for coffee beans for export in Vietnam". Master thesis. University of Economics Ho Chi Minh City.
10. Nguyen Minh Thu, 2014, "Researching the supply chain of MC filter coffee products at Me Trang Joint Stock Company." Master thesis. Nha Trang University
11. Nong Thi Dung, 2018, "Enhancing the connectivity of tea supply chain in Thai Nguyen province". Journal of Science, Industry and Trade Journal.
12. Ngo Huong Giang, 2014. "Thai Nguyen Tea Supply Chain - Shortcomings and Recommendations". Journal of Science, Journal of Science and Technology
13. Nguyen Anh Dung, 2015. logistic infrastructure with the implementation of enterprises' green supply chains "Economic Research, No. 7, 9m, 2015
14. Le Quang Chut, 1993. "The layout of coffee production in the Central Highlands". PhD thesis. National Economics University.
15. Nguyen The Phan, 1992. "Major economic issues - organization of coffee production in our country". Doctoral thesis . National Economics University.
16. Nguyen Quang Thu, 2000 "Solutions to improve the economic efficiency of coffee production in Daklak". Doctoral thesis . National Economics University
17. Nguyen Thanh Liem, 2003. "Some economic solutions to sustainable development of coffee in the Central Highlands". Doctoral thesis . National Economics University
18. AEA, 2010. Assessment and Comparison of National Green and Sustainable Public Procurement Criteria and Underlying Schemes Final Report,
19. Bolton, P., 2008. Protecting the environment through public procurement: The case of South Africa. Natural Resources Forum, 32 (1), pp.1–10. Available at: <http://doi.wiley.com/10.1111/j.1477-8947.2008.00171.x>



**PART 6:  
CLIMATE CHANGE AND  
SUSTAINABILITY DEVELOPMENT**



# HANOI TOWARDS SUSTAINABLE TOURISM DEVELOPMENT

*MBA. Do Minh Diep*  
*dominhdiep@gmail.com*

*Faculty of Foreign Languages, National Economics University, Hanoi, Vietnam*

## **Abstract**

*The tourism industry is globally a rapid developing one. Through sustainable tourism, social dislocation, loss of cultural heritage, economic dependence and ecological degradation are reduced. This paper discusses the sustainable tourism in Hanoi. As the capital city of Vietnam, Hanoi is fast growing developed in different aspects, becoming an attractive destination for not only the internal but also the external tourists. Nevertheless, Hanoi has posed a set of problems in sustaining the tourism in terms of economy, environment, culture and society... As a result, a number of recommendations should be considered such as human resources improving, market segmentation and technological application in marketing and communication.*

**Keywords:** Hanoi tourism; sustainability; sustainable tourism

## **1. Introduction**

The idea, the term and perception of sustainability was originated from the concern over views of preservation and resource usage. From the early twentieth century, the concept gained dramatic recognition due to the support and promotion of international organisation such as United Nations (UN), the World Conservation Union (IUCN). As a result, more and more regional organisations such as Europe Union, the Asia-Pacific Economic Cooperation (APEC) have put great emphasis on environment conservation issues through significant publications. These movements make human be not only understood but also aware of the vast environmental results from unmanageable human activities (Miller & Twinning-Ward, 2006).

As more regions and countries develop their tourism industry, it produces significant impacts on natural resources, consumption patterns, pollution and social systems. The need for sustainable/responsible planning and management is imperative for the industry to survive as a whole.

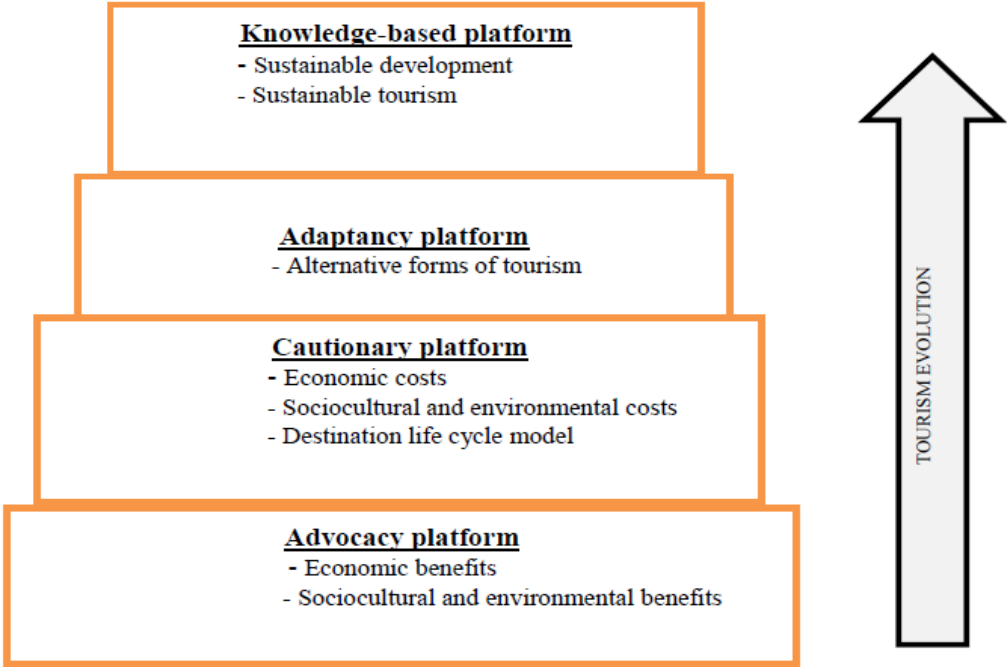
“Sustainable tourism development requires the informed participation of all relevant stakeholders, as well as strong political leadership to ensure wide participation and consensus building. Achieving sustainable tourism is a continuous process and it requires constant monitoring of impacts, introducing the necessary preventive and/or corrective measures whenever necessary. Sustainable tourism should also maintain a high level of tourist satisfaction and ensure a meaningful experience to the tourists, raising their awareness about sustainability issues and promoting sustainable tourism practices amongst them. “. (World Tourism Organization, 2004)

According to Mr. Nguyen Van Tuan - General Director of the Vietnam National Administration of Tourism, during the last two decades, Vietnam tourism has strongly grown; representing an impressive annual growth of 12%; contributing to developing national economy, eradicating hunger and poverty, ensuring social security, preserving and upholding cultural values, protecting environment, maintaining national security. However, the current tourism development still faces many challenges, especially the competitiveness of destinations and sustainability.

After Viet Nam has been a member of the WTO since 2007, along with the expansion of the Vietnamese capital, there are many more tourism attractions in Hanoi to serve a majority of internal and external travellers. As a result, Hanoi tourism industry has implemented and exploited the most potential and advantageous aspects. Yet, coming with rapid development, a set of criteria has not met the sustainability. Based on the current developing state of Hanoi tourism, this paper concentrates on several issues in terms of sustainable development, as well as proposing some suggestion in context of global economics integration.

**2. Theoretical Background**

Since sustainability is one of the most significant concept for tourism (Hall, 2009), Jafari (2001) provides a convenient framework for understanding the emergency and transition of sustainable tourism (Figure 1). Each stage builds on its precursors but it does not mean the earlier stages became less influential. Jafari explains these stages by the sequential presence of the ‘advocacy’, ‘cautionary’, ‘adaptancy’ and ‘knowledge - based’ platforms or perspectives (Jafari, 2001).



**Figure 1: The emergency and development of sustainable tourism: ‘Jafari platform’**

*Adapted from Jafari, (2001)*

### ***2.1. Advocacy platform***

The first platform 'advocacy' emerged in the post- World War II period and being described according to strong support for tourism or pro - tourism perspective (Weaver, 2006). During the 1950s and 1960s, the tourism industry was recognized as an economic booster evidently from foreign exchange earnings, tax receipt and potential multiplier (Poon, 1993). The tourism products were seen as simple and reproducible, the potential for negative consequence was undisputed (Miller & Twinning - Ward, 2006). Additionally, tourism is believed as a tool to preserve destination unique environment, cultural and historical resources on assumption that a portion of revenue earned from the industry can be allocated for maintenance purposed.

### ***2.2. Cautionary platform***

In the late 1960s and early 1970s, it was evident amongst tourism academics that mass tourism was a cause of widening gaps between rich and poor, increasing crime rates and disturbing local life styles (Doxey, 1975). The focus was also on environmental impacts of tourism (Budowski, 1976; Cohen, 1978), the sociocultural costs (Doxey, 1975) and economic costs of tourism (Bryden, 1973). The concept of carrying capacity is introduced in the hope pf addressing the negative impacts of large scale tourism and recommended the limitation of human use over the land and the outdoor recreation activities (Mitchell, 1989). Furthermore, Butler (1980) presents a model of Tourism Area Life Cycle (TALC) which can be regarded as the finale of the cautionary platform that emphasized a high level of public sector intervention to ensure the reduction of negative impacts (Weaver, 2006).

### ***2.3. Adaptancy platform***

The rejection of the previous approach brought about the attempted to promote alternative (to mass) tourism which is a small scale environmentally friendly tourism in the early 1980s (Gossling, Hall, & Weaver, 2009). Alternative tourism tends to benefit the local community, preserve the tourism resources and alleviate poverty (Miller & Twinning - Ward, 2005). Ecotourism is one of the example of alternative nature based tourism that has been promoted worldwide (Weaver, 2006).

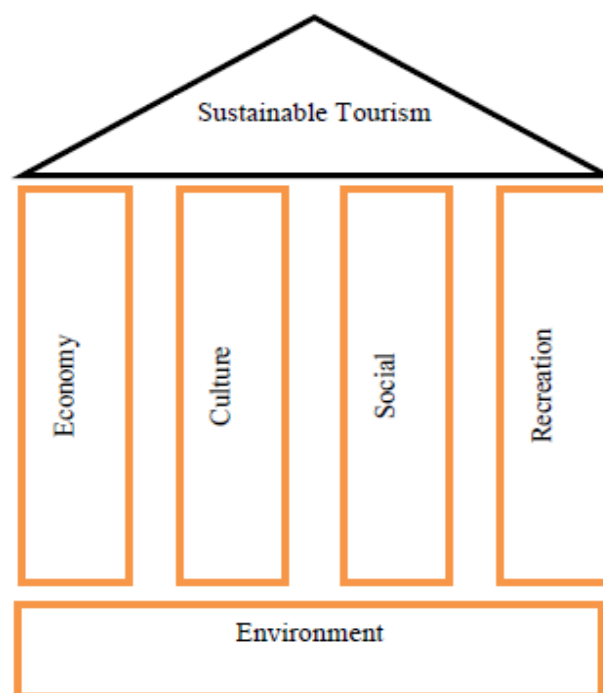
### ***2.4. Knowledge - based platform***

The failure of promoting alternative small scale tourism against the convincing mass tourism that generating revenue and employment brought about the idea of 'sustainable tourism development'. Sustainable tourism development that could applied to both small scale and mass tourism on the assumption that the outcome would be positive economic, sociocultural awareness, and ecological conservation (World Commission on Environment and Development (WCED), 1987).

It can be concluded that the dimensions of sustainability which served as a basis for any development included economy, environment, and social equity concern. Economy dimension focuses on economic structure, public budget, regional aspects, consumption, labor and pricing. Environment dimension concerns are on environmental protection,

biodiversity, resources, energy, air and waste control. Social/ social equity cares fo settlement structure, local structure, income and assets, security, mobility and public health (The Regional Office for Environmental Protection in Baden - Wuerttemberg, 1997).

Therefore, these economy, environment and social dimensions and concerns can be developed to indicators for evaluating outcomes of sustainable tourism implementations. The further application of the three dimensions of sustainability to tourism is constructed by Spindler (2013) to 'Model of Sustainable Tourism' (Figure 2). The Model also includes cultural conservation and recreation activities that are appropriated to tourism destinations.



**Figure 2: Model of Sustainable Tourism**

*Adapted from Spindler, 2013*

### **3. Hanoi sustainable tourism analysis**

As the capital city of Vietnam, Hanoi takes the advantage of being the cultural - political - economic - social center where holds a number of cultural and historical heritages, traditional villages, festivals and culinary... It has become the ideal destination attracting not only internal but also external visitors. One of them is the cultural buildings, the historical monuments of the city. Several core ones have been put into research and investment in order to develop new tourism products: ceramic roads, the central sector of Imperial Citadel of Thang Long - Hanoi, the temple of Literature...

#### *In terms of economy sustainability*

According to statistics of the Department of Culture, Sports and Tourism in Hanoi, there 800 accommodations, in which 213 ranked hotels. Currently, the city has put investment into a number of large scale projects, such as JW Marriot hotel with 450 rooms, Lotte Hotel with 300 rooms, Intercontinental Hanoi Landmark with 350 rooms, Crown Plaza

Hotel, Grand Plaza... According to the consulting organization, the new 5 star hotels in Hanoi are in good operating results, based on the room occupancy rate of about 72%, the average room price at 70 - 80 USD/ night. This has contributed to improve the quality of accommodations, creating the development in local tourism.

However, Hanoi poses the problem in managing the number of visitors. In 2008, Hanoi was visited by 6.67 million travelers, involving 1.3 million external visitors with the dramatic increase of those from China, Thailand, Malaysia, the United States of America, and Australia. In 2009, international visitors are 1.3 million, among which European accounts for 31% and showed the increase stability. In 2010, Hanoi has welcomed 1.2 million international visitors and 10.6 million domestic visitors, accounting for one third of the whole tourism in the country. The number of visitors in Hanoi was fluctuated, partly because of lacking the intensive research in forecasting. Hanoi tourism department only bases on the current trends for prediction, especially external visitors, not participate in deeply studying to ensure the stability.

*In terms of environmental sustainability*

19 golf projects were invested despite the lack of economics, social, environmental sustainability. Hanoi government had to stop 10 golf course projects. Thus, there are 4 operating golf courses, 5 golf courses in building.

Among the 10 golf courses which were suspended, there is the 9 hole golf course project planned near the National Convention Center. In addition, the cancellation was due to the fact that several golf courses occupied too much agriculture land and socially affected surroundings such as Chuong My Temple Lake Golf and Resort, Me Linh urban area, Dong Suong Lake golf course (Korean Booyoung Co. Ltd)...

Other 5 golf courses are kept building such as Soc Son International Golf Course, Long Bien golf course and service. These golf courses meet the set of appropriate standards in balancing the benefits of government, enterprises and local citizens, land savings, environmental reservation.

Among these 19 golf courses mentioned above, 17 projects are confirmed the architecture planning target with 6362 ha land occupancy. Planned golf courses land were 2214 ha, water surface was 950 ha, and the rest was golf course supplement, technical infrastructure, buildings, restaurants, shopping malls...

The investment in golf courses has been proved to lack of efficiency. Only 30% golf courses are put into use in accordance with the violence of agriculture land and natural surroundings, which means the city has to keep supervising, scale adjusting to prevent the financial and environmental loss.

*In terms of social and cultural sustainability*

Hanoi is well known as a cultural and social center of the country. Not only the tangible heritages but also the intangible ones should be invested equally. Situated at the heart of Hanoi, the Central Sector of the Imperial Citadel of Thang Long is an outstanding



place of interest not only for the capital city but also for the country as a whole. The site is one of the ten special national heritage sites proclaimed by the Prime Minister in 2009 and was inscribed on the World Heritage List by UNESCO's World Heritage Committee in 2010. Its Outstanding Universal Values are reflected in its historical longevity, its continuous role as a seat of power, and its multiple cultural layers. Van Mieu Quoc Tu Giam (also known as the Vietnam Temple of Literature in Hanoi) was registered as Monument historique in 1906.. The temple hosts the "Imperial Academy" (Quốc Tử Giám), Vietnam's first national university. The temple was built in 1070 at the time of Emperor Lý Thánh Tông. It is one of several temples in Vietnam which is dedicated to Confucius, sages and scholars. The temple is located to the south of the Imperial Citadel of Thăng Long. The doctors' steles are a valuable historical resource for the study of culture, education and sculpture in Vietnam. 82 stelae remain. They depict the names and birth places of 1307 graduates of 82 triennial royal exams. "Tally Card Songs" (known as hát ả đào or hát ca trù), is an ancient genre of chamber music featuring female vocalists. It is inscribed on the list of Intangible Cultural Heritage in need of Urgent Safeguarding in 2009. However, there has not been any standardized or official document in introducing and explaining those heritages. The potential benefit of intangible heritage has not been fully considered and explored.

#### **4. Discussion and Conclusion**

Tourism is considered as the key and potential industry of the capital city. In the era of climate change, Hanoi has put an emphasis on developing sustainable tourism. Therefore, the implementation of sustainable tourism development are in need not only in short term but also in long and stable strategy.

First and foremost, the tourism industry has to enhance the professional capacity of employees. In the context of integration, the need of foreign languages proficiency and expertise is in urgent. Documents in training for tourism staff need standardizing, which confirms the unity in tourism contents. The working policy and system must be clear and divided suitably to ensure the appropriate responsibility and duties. The human resources management affects the quality of traveling experience not only in short term but also permanently. This could lead to serious impact on exporting tourist service in Hanoi.

To better serve and efficiently invest, Hanoi tourism industry had better analyze deeply the local market and divide it into clear segment. The segmentation enables the tourism to identify the core market and customers. As a consequence, this analysis could be applied to the study of design specific tours to meet visitors' expectations and satisfaction from each segment. Hanoi has the advantage of developing MICE (meetings, incentives, conferences and exhibitions). In addition, new sustainable tourism tours are encouraged to develop and put into reality such as ecotourism, traditional villages tourism. Hanoi with the long history and interesting culture can create the competitive advantage. Putting priority and emphasis on several essential sections are needed to guarantee the best quality of tourist experience.

Since the modern information technology has become popular, it is necessary to apply it in communicating, advertising not only the images but also the tourism product in Hanoi via Internet, social network, ads counters in stations, airports, central areas, sight

spots...Being considered as the key industry, tourism in general and sustainable tourism need being put more investment in communications and public relations. Every attraction in Hanoi should be updated to the foreign and domestic tourists. Moreover, the technological aid should be used to propaganda the capital citizens. Only improving the citizens' awareness, cultural knowledge, civilized lifestyle can lead to the development in the number of visitors because of better images, belief and interest.

## 5. References

1. Bryden, J. (1973). *Tourism and Development: A Case Study of Commonwealth Caribbean*. London: Cambridge University Press.
2. Budowski, G. (1976). Tourism and Conservation: Conflict, Coexistence or Symbiosis? *Environmental Conservation*, 3, 27-31.
3. Butler, R. W. (1980). The concept of Tourist Area Cycle of Evolution: Implication for Management of Resources. *Canadian Geographer*, 24(1), 5-12.
4. Cohen, E. (1978). The Impact of Tourism on the Physical Environment. *Annals of Tourism Research*, 5, 215-237.
5. Doxey, G. V. (1975). *A Causation Theory of Visitor Resident irritants: methodology and research influences*. Paper presented at the Travel Research Association Sixth Annual Conference, San Diego, California.
6. Gossling, S., Hall, C. M., & Weaver, D. B. (2009). *Sustainable Tourism Future: Perceptives on Systems, Restructuring and Innovations*. New York: Routledge.
7. Jafari, J. (2001). The Scientification of Tourism. In V. L. Smith & M. Brent (Eds.), *Hosts and Guests Revisited: Tourism Issues of the 21<sup>st</sup> Century*: Cognizant.
8. Miller, G., & Twinning - Ward, L. (2006). *Monitoring as an Approach to Sustainable Tourism*. In D. Buhalis & C. Costa (Eds.), *Tourism Management Dynamics: Trends, management and Tools*. Amsterdam: Elsevier Butterworth - Heinman.
9. Mitchell, B. (1989). *Geography and Resource Analysis* (2 ed.). Harlow: Longman Scientific and Technical.
10. Poon, A. (1993). *Tourism, Technology and Competitive Strategies*. Wallingford, UK: CAB International.
11. Spindler, E. A. (2013). The History of Sustainability: The Origins and Effects of a Popular Concept. In I. Jenkins & R. Schroder (Eds.), *Sustainability in Tourism*. Wiesbaden, Germany: Sprinder Gabler.
12. The Regional Office for Environment Protection in Baden - Wuerttemberg. (1997). *The Applied Ecological Project* (pp. 71). Baden - Wuerttemberg, Germany: The Regional Office for Environment Protection in Baden - Wuerttemberg.
13. Weaver, D. B. (2006). *Sustainable Tourism: Theory and Practice*. Oxford, UK: Elsevier.
14. World Commission on Environment and Development (WCED). (1987). *Our Common Future (The Brundtland Report)*. London: World Commission on Environment and Development.

# THE PROPOSALS FOR A SUSTAINABLE DEVELOPMENT OF SOCIO-ECONOMIC UNDER CLIMATE CHANGE CONDITIONS IN QUANG BINH PROVINCE

*Dr. Nguyen Tien Thanh*

*thanhnt@tlu.edu.vn*

*Department of Hydro-meteorological Modeling and Forecasting,  
Thuyloi University, Hanoi, Vietnam*

## **Abstract**

*The natural disaster risks like floods or tropical cyclones occurred in Vietnam generally and Quang Binh province particularly have been becoming more complex. It is expected to frequently increase due to changing in climate. These could be cause of negative effects on sustainable development and management of natural resources and socio-economic. Therefore, the goals of this study is to propose the solutions for a sustainable development of socio-economic under climate change conditions in Quang Binh province. In this study, numerical models of regional climate and hydrologic and hydraulic are applied to project the changes in precipitation, temperature and inundated areas in the year 2030s under the scenario of representative concentration pathways RCP8.5. The results reveal that the temperature is expected to increase by 1.5°C in the northern communes of Tuyen Hoa and Minh Hoa districts like Thanh Hoa, Trong Hoa and Thanh Thach. The precipitation is increasingly expected to 2.1% in the communes of central province like Vinh Ninh. Combined with the inundated areas projected for 2030s, non-structural and structural solutions are proposed like (i) construction of drainage pumping stations for low-lying areas of Quang Trach, Bo Trach and Le Thuy districts and (ii) Integration and adjustment of crop structure under a strong projected change in precipitation and temperature for Tuyen Hoa and Minh Hoa districts.*

**Keywords:** *Climate change, flood, Quang Binh, sustainable development, water resources.*

## **1. Introduction**

Changing in climate is one of the world's greatest challenges (IPCC, 2014) but also Vietnam. Its impacts are seen from humans, the economy and environment and others at all levels of local to national or international. According to the report of the Intergovernmental Panel on Climate Change (Kumar et al. 2011) and SREX (SREX 2015), it is illustrated that natural disasters like flood events or extreme weather events (e.g., heavy rainfall) could be vulnerable to humans and sustainable development of socio-economic, especially in the context of climate change. It could be stated that the

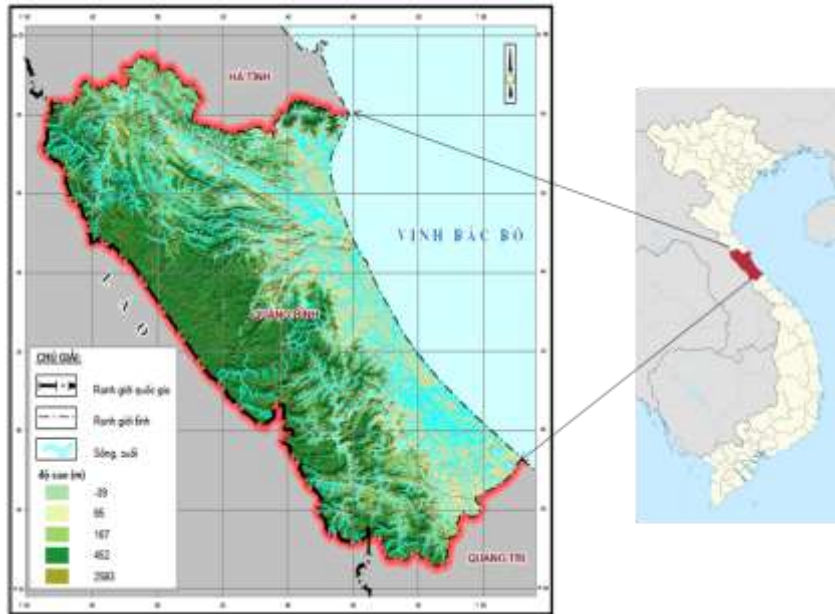
linkages between climate change and sustainable development were documented for more than a decade ago (Beg et al., 2002). However, the scientific evidence and the knowledge about climate change have moved on, as the policy frameworks that address both climate change and sustainable development. In addition, Tol et al. (2000) indicated that some crops are near their maximum temperature tolerance and dryland, non-irrigated agriculture dominates—yields likely to decrease for even small changes in climate for regions of tropical and subtropical.

With a rapid economic development in Quang Binh province has a great impact on the increase in the level of damage caused by natural disasters, floods and tropical cyclone as a special. During the floods from August 30, 2019 to September 5, 2019, for instance, there are great damages to people's live and assets in Quang Binh province (i.e., 04 people deaths, 29 people injury with a total of VNĐ 411 billion). According to the survey data in recent years, flooding and inundation in the downstream of Nhatle and Gianh rivers has become more serious. Combined with the topographic conditions of mountainous and hilly, a high frequency of extreme events is recorded in the whole country. Flood events and prolonged droughts can both often record in the same year and region. This is a big challenge for the socio-economic development in Quang Binh province as it frequently hit by tropical cyclones, resulting in devastating floods, landslides and other natural disasters. Therefore, proposals for a sustainable development of socio-economic relied on the impacts of climate change as well as efficiently flood management and control are urgent missions. As a first step, the study projects the changes in precipitation, temperature and inundated areas in Quang Binh province. Then solutions for sustainable development are proposed to adapt the changes in climate.

## **2. Methods**

### **2.1. Materials**

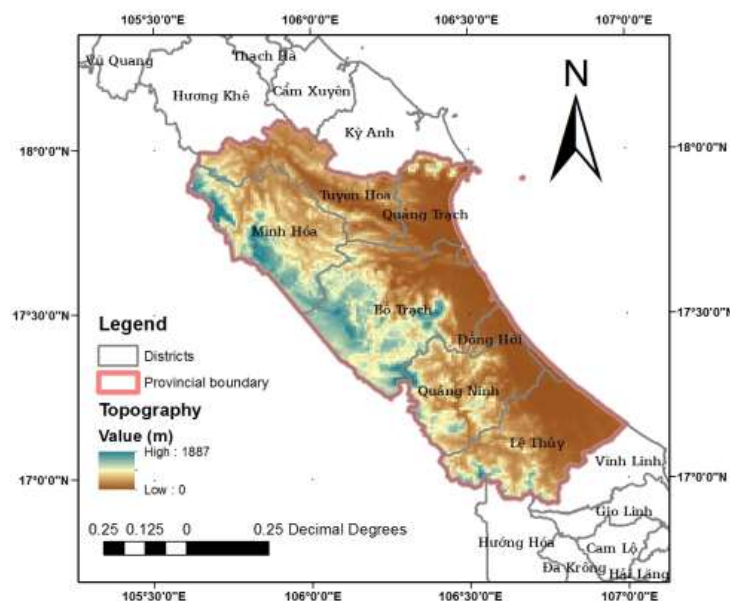
Quang Binh is a province along the north-central coast of Vietnam. The province has an area of more than 8000 square kilometers and population of about 1 million inhabitants. It is bordered by the Laotian Khammouane province belonged to Laos to the west, the North Pacific Ocean to the east, Ha Tinh province to the north and Quang Tri Province to the south. The provincial topography is characterized by a general slope, higher in the west and lower in the east, with hilly and mountainous areas accounting for 85% of the total area. The Annamite Range is the natural border between Quang Binh province and Laos with peaks ranging from 1000 to 1500 m, the summit of which is peak Phi Co Pi with the height of over 2000 m. In the east of the province are lower hills and then several narrow plains and river deltas. Generally, the area is divided into specific geological zones: mountainous, hilly and midland, lowland, coastal sandy area. The seaside stretches approximately 120km with large Gianh and Nhat Le ports.



**Fig. 1. Topography of Quang Binh province**

Quang Binh belongs to the monsoon-tropical zone. The climate is divided into two seasons. Rainy season lasts from September to March next year. The annual average rainfall is 2,000-2,300mm. Heavy rains concentrate in September, October and November. Dry season lasts from April to August. Annual average degree is 24°C-26°C.

In this study, the collection data includes (i) Topographic and land use maps from units in Ministry of Natural Resources and Environment, published in 2010, especially the land use map was updated in 2015. The topographic maps are highly reliable and can be used for establishment of flood model. (ii) Hydro-meteorological data are precipitation, discharge, temperature, evaporation, humidity as shown in Fig. 2. They are collected from the National Hydro-Meteorological Service from 1981 to 2019.



**Fig. 2. Sketch map of rainfall stations in Quang Binh province**

The daily rainfall is collected at 13 stations during 1981 to 2019. Hydrological data is collected at 02 stations (Dongtam and Tanlam) for river basin of Gianh and 02 stations (Kiengiang and Tamlu) for river basin of Nhatle. The data of cross sections of main river network and flood plain are created from filed trips. The information on reservoirs that play a significant role in hydrologic and hydraulic regime is collected from management board of hydropower and irrigation works and Ministry of Industry and Trade of Vietnam (e.g., MOIT 2008a; MOIT 2008b) and Quang Binh province.

To project the changes in temperature and precipitation for future, specially, the regional model of RegCM4.3.v4 (Giorgi et al, 2012), forced by three global climate models of MPI-ESM-MR (Giorgetta et al., 2013) is applied to get the precipitation and temperature products for the period of baseline and future under the scenario of RCP4.5. The MPI-ESM-MR has an ocean horizontal resolution of  $0.4^\circ \times 0.4^\circ$  and an atmospheric horizontal resolution of  $1.9^\circ \times 1.9^\circ$  (Stevens et al., 2013).

## 2.2. Methods

### 2.2.1. Bias correction

In this study, a bias correction is applied to simulation and projection runs. The purpose of this work is to reduce possible uncertainties. Firstly, the distribution of Weibull is fitted to the distribution of the occurrence of wet days. The method of least-square estimation for logarithmic transformation is applied to estimation of Weibull parameters. Secondly, the gamma distribution with two parameters is held in a series of precipitation amount on wet days for past and future. This distribution is carried out separately for each month with the large-scale amount of precipitation above the identified threshold. A threshold value of 0.1 mm/day identified for a wet day is taken into account in the station data time series for the period 1986-2005. A detail in this method could be found in Nguyen (2016).

Climate change signals of precipitation and temperature changes under RCP8.5 scenarios are calculated for Quang Binh province on the basic of the following formulas.

$$\%P_{2030s} = \left( \frac{P_{2016-2035} - P_{1986-2005}}{P_{1986-2005}} \right) 100\% \quad (1)$$

$$\Delta T = T_{2016-2035} - T_{1986-2005} \quad (2)$$

where P and T are precipitation and temperature, respectively; The subscript denotes the considered periods of baseline (1986-2005) and climate change scenario of RCP8.5 (2016-2035)

### 2.2.2. Description of MIKE 11-HD model

The MIKE is an implicit finite difference model for one dimensional unsteady flow computation and can be applied to simulate the surface runoff, flow, sediment transport, estuaries, water quality or floodplains (DHI, 2005). MIKE 11HD package is applied in this

study. A detailed description of this model with the parameters can be found in DHI documents (DHI, 2005). The upstream boundary conditions include river flow discharge computed for 8 tributaries using rainfall-runoff model (i.e., Nedbor - Astromnings - Model (NAM)) (DHI, 2012a) coupled with MIKE 11 (DHI, 2012b). The NAM model indicates as a module of MIKE 11 under the name of MIKE-NAM. The output of NAM (i.e., discharge) is used as upper boundary conditions for MIKE 11HD to compute the hydraulic boundaries. In this study, to compute the inundated areas for Quang Binh province, two river basins of Nhatle and Gianh located within the province are considered. There are 7 and 9 sub-basins created for Nhatle and Gianh, respectively.

### *2.2.3. Description of MIKE 21 model*

The hydraulic 2D model in this study simulate the flood plain along Nhatle and Gianh river basins. It is worthy that the computational grid is constructed. The riverbeds are not included in the computational domain due to available modeled in the MIKE11 HD. Additionally, the traffic network is created in high-density grid for simulating the changes of topography. The computational grid in the whole domain is a triangular but the traffic roads are rectangular. The road elevation is determined by plus ground elevation with 1,5-2,0m. And the culverts under the National road 1A is simulated in the 1D model that mentioned above

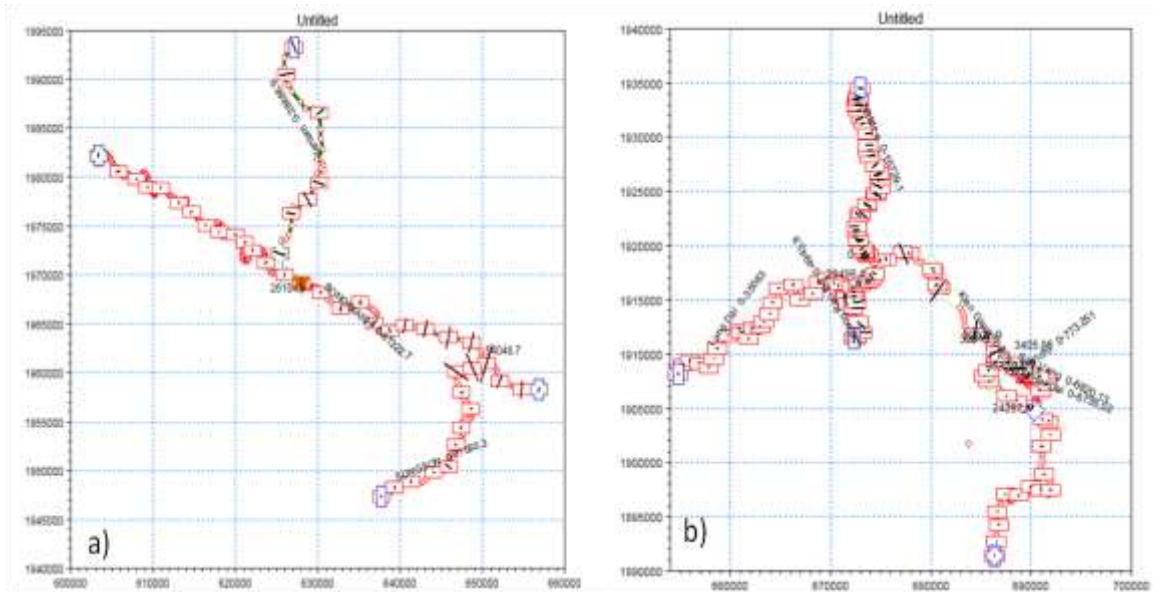
The MIKE21 and MIKE11 models are linked through two types of connections: Lateral links and Standard Links. The Rivers are linked to the floodplains through the lateral links, the culverts are linked to the floodplains through the standard links. The interaction between the rivers and fields through lateral links are modeled as overland flow through dams. Flow from cell to cell and the threshold of the spillway are automatically determined through comparison between DEM in MIKE21 model and the elevation of river banks in MIKE11 model. For culverts, each culvert is simulated like a river branch with a starting point and an end point. The starting point is at upstream of the road and the ending point in the downstream of the road. Connection between the start and end points between 1D and 2D models via standard links. To validate the performance of the model, Nash-Sutcliffe index (Krause et al. 2005) is used.

## **3. Results**

### ***3.1. Pre-processing***

#### *3.1.1. Sub-basins and hydrologic-hydraulic network*

Firstly, rivers in the Quang Binh province are considered to divide into sub-basins using the ArcGIS and digital elevation models. The results are 7 and 9 sub-basins created for Nhatle and Gianh river basins, respectively. On the basic of sub-basins, hydrologic network is produced for these rivers (Figure 3). Table 1 and Table 2 show the detail information on sub-basins of Nhatle and Giang river.



**Fig. 3. Hydraulic network of Gianh (a) and Nhatle (b)**

**Table 1. Detail information on sub-basins of Nhatle river**

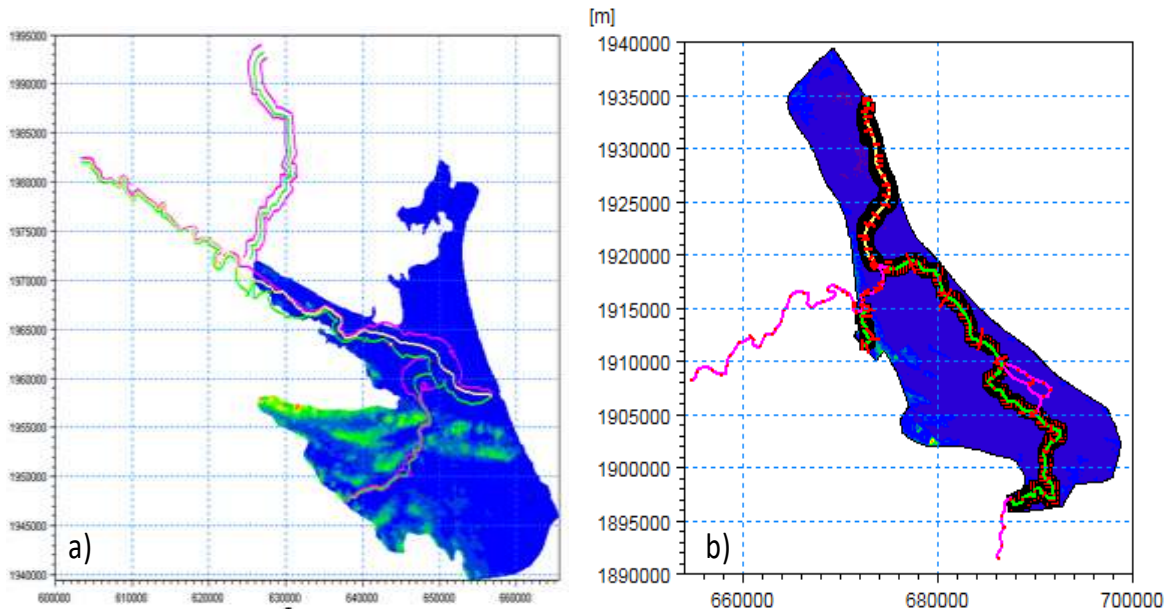
Name	Restricted area	Area (km <sup>2</sup> )
KG 1	Restricted by upstream of Long Dai river to Tamlu station	829.91
KG 6	Restricted by Rao Da	292.03
KG 5	Restricted from Tamlu station to Nhatle river	309.39
KG 2	Restricted by upstream of KienGiang river to Kiengiang station	309.08
KG 3	Restricted from Kiengiang station to Lethuy station	381.15
KG 4	Restricted from Lethuy station to Nhatle river	381.76
KG 7	Restricted from river junction of KienGiang-LongDai-NhatLe to the sea	250.63

**Table 2. Detail information on sub-basins of Gianh river**

Name	Restricted area	Area(km <sup>2</sup> )
GH 1	Restricted by upstream of RaoNay river	569.3
GH 2	Restricted by upstream of RaoNay river to Dongtam station	544.2
GH 3	Restricted by the RaoNan river	800.2
GH 4	Restricted from Dongtam to Maihoa station	266.7
GH 5	Restricted by Trooc river	830.7
GH 6	Restricted from Maihoa station to the sea	349.7
GH 7	Restricted by Ron river	298.9
GH 8	Restricted by RaoTro river	458.1
GH 9	Restricted from Tanlam station to Maihoa station	68.1



The coupled models of 1D and 2D in MIKE Flood for the rivers of Gianh and Nhatle are described in Fig. 4.



**Fig. 4. Coupled 1D and 2D models in Mike flood for Gianh (a) and Nhatle (b) rivers**

### 3.1.2. Calibration and validation of hydraulic models

It is noteworthy that an emphasis of the obtained results dealing flood models is presented in this study. For the flood models, after the constructed hydraulic network, calibration and validation processes are implemented for factors like Manning coefficient, time step and duration of time. Using the measured data at the station of Maihoa is to calibrate and validate the model simulations on the rivers of Gianh. Meanwhile, the measured data at the station of Lethuy is to calibrate and validate the model simulations on the rivers of Nhatle.

For the river of Gianh, the flood event from August 5-14, 2007 is considered to calibrate. Validation of the model simulation is implemented for the river of Gianh using the flood events from September 30, 2010 to October 10, 2010 and from October 12, 2010 to October 18, 2010 (Table 3).

For the Nhatle river, the flood event from October 2-5, 2010 is considered to calibrate. Validation of the model simulation is implemented for the river of Gianh using the flood event from October 14-17, 2010 (Table 4).

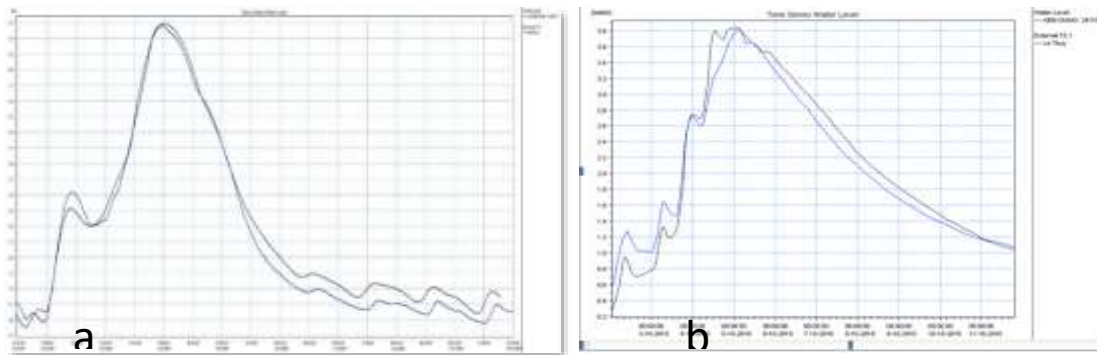
**Table 3. Calibration of 2D model for the Gianh and Nhatle river**

Station	River	Period	Water level (m)		$\Delta H$ (m)
			Measurement	Calculation	
Maihoa	Gianh	5/8/2007 - 14/8/2007	9.45	9.47	0.02
NhatLe	NhatLe	2/10/2010 - 5/10/20010	3.81	3.84	0.03

**Table 4.** Validation of 2D model for the Gianh and Nhatle river

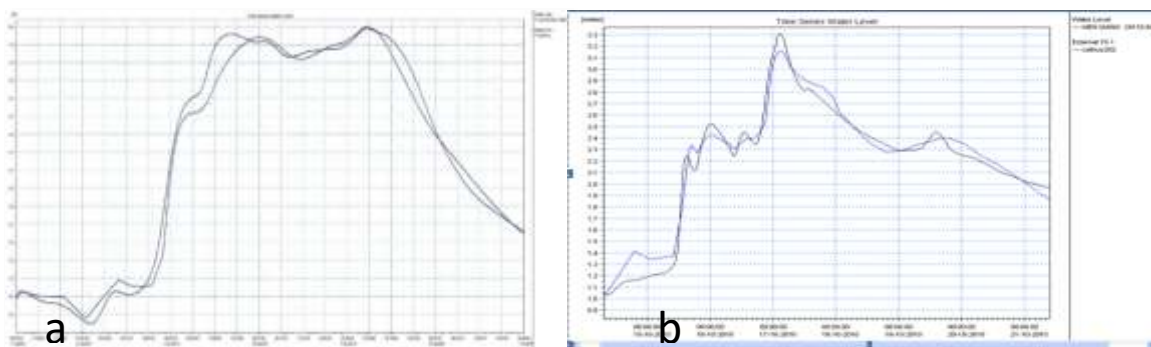
Station	River	Period	Water level (m)		$\Delta H$ (m)
			Measurement	Calculation	
Maihoa	Gianh	30/9/2010 - 10/10/2010	7.98	7.89	0.09
		12/10/2010-18/10/2010	7.61	7.6	0.01
Lethuy	NhatLe	14/10/2010 - 17/10/20010	3.16	3.31	0.15

The obtained results well fit to the measurement data using two flood events for Gianh and Nhatle river. The Nash index could be reached up to closely 0.96 for both calibration and validation (Fig. 6).



**Fig. 5.** Calibration of 2D model between calculated and measured discharge at Maihoa for Gianh river in 2007 (a) and Lethuy station for Nhatle river in 2010 (b)

Fig 6 shows the validation of 2D model between calculated and measured discharge at the stations Maihoa (Fig 6a) and Lethuy (Fig 6b) for Gianh and Nhatle rivers, respectively. It is documented that the performance of model well captures the measured data. It should be noted, however, these values are considered as acceptable values due to uneven distribution of rainfall stations over the whole province. More importantly, rainfall regime is not fully interpreted the discharge regime of the rivers. The reason for this is come from multiple factors affected the discharge regime of the rivers like elevation slope, patterns of weather conditions and vegetation.

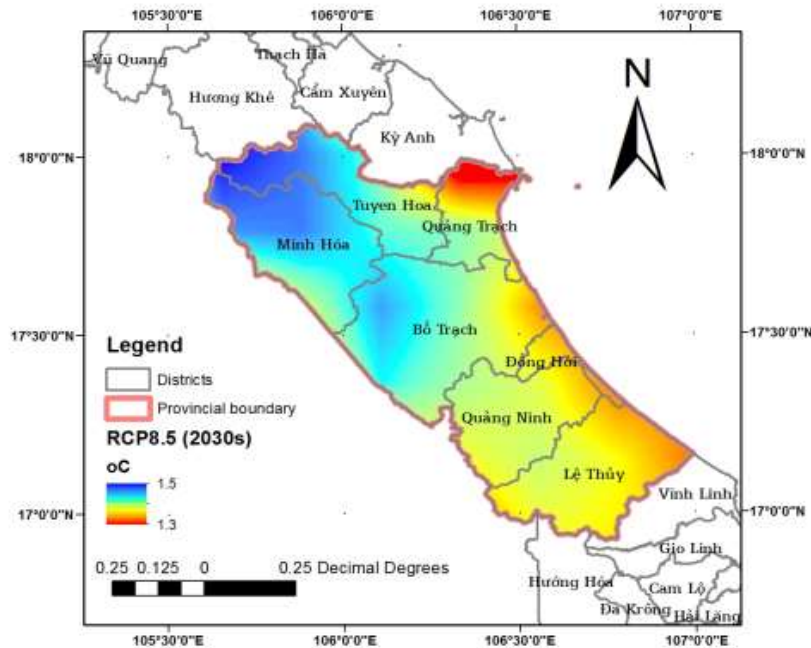


**Fig. 6.** Validation of 2D model between calculated and measured discharge at Maihoa for Gianh river from September 30, 2010 to October 10, 2010 (a) and Lethuy station for Nhatle river October 14-17, 2010 (b)

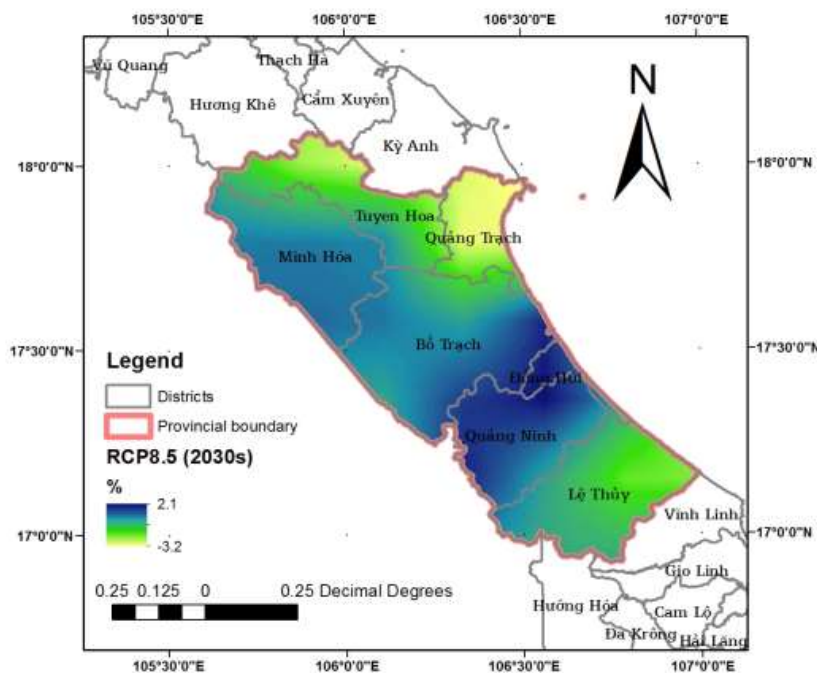
### 3.2. Projected changes in precipitation, temperature and inundated areas

#### 3.2.1. Projected changes in precipitation and temperature

As presented in Fig. 7, it is illustrated that the projected temperature is expected to reach up to 1.5°C in the year 2030s under scenario of RCP8.5 for the northwest districts of Quang Binh province like Minh Hoa and Tuyen Hoa. Meanwhile, the lowest increasing in temperature is projected for the northeast communes of Quang Trach district, Quang Binh province.



**Fig. 7. Projected changes in temperature for Quang Binh province under the RCP8.5 scenario for the year 2030s**



**Fig. 8. Projected changes in precipitation for Quang Binh province under the RCP8.5 scenario for the year 2030s**



#### **4. Discussion and Conclusion**

The study presents the projection of changes in precipitation and temperature for Quang Binh province under the scenario of RCP8.5 in the year 2030s. In addition, the inundated areas of Quang Binh province are identified. Obviously, natural disaster prevention and control is the task of the whole population and the entire society generally and Quang Binh province particularly. So, plans for natural disaster prevention and control should consider three stages: disaster preparedness, response and overcoming the adverse consequences caused by natural disasters. In applying the motto, people work together, while the State plays the leading role; resources of the State, organizations and individuals in Quang Binh province are efficiently used to protect the lives of the people and property of the society; and to create conditions for sustainable socio-economic development, thus contributing to ensuring social stability, national defense and security in the province. The activities must be implemented in a synchronous, phased and focused manner. Natural disaster risk reduction solutions must be prioritized to ensure both urgent and long-term priorities are met and must ensure the reduction of existing risks while not incurring new natural disaster risks. Solutions must be a combination of structural, non-structural and ecological measures implemented in multi-purpose manner; address natural rehabilitation and reconstruction and upgrading after natural disasters to ensure sustainability and build-back-better; and enhance the application of scientific and technological achievements in combination with the inheritance of traditional experiences.

On the basis of available plans from the Provincial People's Committees and obtained results in this study, the author proposes the upgraded solutions including non-structural and structural solutions. Non-structural should mainly (i) Strengthen data collection, management and sharing of data related to all types of natural disasters, and particularly for the priority disaster types of big floods projected in Quang Trach, Bo Trach and Le Thuy districts assigning and supporting clear responsibilities for data collection, data management and data usage, (ii) Integration and adjustment of crop structure for Tuyen Hoa and Minh Hoa districts where are strongly projected in temperature and precipitation, (iii) Organize propaganda and mobilize people to align the socio-economic plans and their implementation and their production activities with the planning and plans for inundated areas like Le Thuy districts in the province. Plus, the author proposes the structural solutions mainly including (i) construction of drainage pumping stations for low-lying areas of Quang Trach, Bo Trach and Le Thuy districts where are projected with a large inundated area in the year 2030s under scenario of RCP8.5, (ii) Renovate and upgrade irrigation and hydropower reservoirs to regulate flow and reduce floods.

## 5. References

1. Banitt. A (2010). *Simulating a century of hydrographs e Mark Twain reservoir*. In Proceedings of the 2nd Joint Federal Interagency Conference. Las Vegas. NV. USA.
2. Beg, N., Morlot, J. C., Davidson, O., Afrane-Okesse, Y., Tyani, L., Denton, F., ... & Parikh, K. (2002). *Linkages between climate change and sustainable development*. Climate policy, 2(2-3), 129-144.
3. Dufresne. J.L.; Foujols. M.A.; Denvil. S.; Caubel. A.; Marti. O.; Aumont. O.; Balkanski. Y.; Bekki. S.; Bellenger. H.; Benshila. R.; et al. *Climate change projections using the IPSL-CM5 Earth System Model: From CMIP3 to CMIP5*. Clim. Dyn. 2013. 40. 2123-2165.
4. Giorgetta. M.A.; Jungclaus. J.; Reick. C.H.; Legutke. S.; Bader. J.; Böttinger. M.; Brovkin. V.; Crueger. T.; Esch. M.; Fieg. K.; et al. *Climate and carbon cycle changes from 1850 to 2100 in MPI-ESM simulations for the Coupled Model Intercomparison Project phase 5*. J. Adv. Model. Earth Syst. 2013. 5. 572-597.
5. Giorgi. F.. Coppola. E.. Solmon. F.. Mariotti. L.. Sylla. M. B.. Bi. X.. ... & Turuncoglu. U. U. (2012). *RegCM4: model description and preliminary tests over multiple CORDEX domains*. Climate Research. 52. 7-29.
6. Halwatura. D. and Najim. M.M.M(2013). *Application of the HEC-HMS model for runoff simulation in a tropical catchment*. Environmental modelling & software. 46. 155-162.
7. Hazeleger. W.; Wang. X.; Severijns. C.; Ştefănescu. S.; Bintanja. R.; Sterl. A.; Wyser. K.; Semmler. T.; Yang. S.; Van den Hurk. B.; et al. *EC-Earth V2. 2: Description and validation of a new seamless earth system prediction model*. Clim. Dyn. 2012. 39. 2611-2629
8. [http://www.vn.undp.org/content/vietnam/en/home/library/environment\\_climate/vietnam\\_special\\_report\\_on\\_managing\\_the\\_risks\\_of\\_extreme\\_events\\_and\\_disasters/](http://www.vn.undp.org/content/vietnam/en/home/library/environment_climate/vietnam_special_report_on_managing_the_risks_of_extreme_events_and_disasters/) (accessed on 7September 2019)
9. IPCC (2014). *Climate change 2014: mitigation of climate change*.
10. Krause. P.. Boyle. D.P.. Bäse. F (2005). *Comparison of different efficiency criteria for hydrological model assessment*. Advances in geosciences. 5. 89-97.
11. Kumar, A. T. S., Ahenkorah, A., Rodriguez, R. C., Devernay, J.-M., Freitas, M., Hall, D., Killingtveit, and Liur, Z. (2011). *IPCC Special Report on Renewable Energy Sources and Climate Change*
12. Kumar. A. T. S.. Ahenkorah. A.. Rodriguez. R. C.. Devernay. J.-M.. Freitas. M.. Hall. D.. Killingtveit. .andLiur. Z. (2011). *IPCC Special Report on Renewable Energy Sources and Climate Change. Chapter 5: Hydropower*. Report.

13. MOIT (2008a). *Decision No. 3960/QĐ-BCT dated July 15.. 2008 on the processes of BinhDien hydropower reservoir operation (in Vietnamese).*
14. MOIT (2008b). *Decision No.5058/QĐ-BCT dated September 16. . 2008 on the processes of HuongDien hydropower reservoir operation (in Vietnamese).*
15. Nguyen. T.T (2016). *Improved downscaling of meteorological data for hydrological modelling in the tropics under climate change (Doctoral dissertation).*
16. SREX (2015). *Viet Nam special report on managing the risks of extreme events and disasters to advance climate change adaptation.*
17. Stevens. B.; Giorgetta. M.; Esch. M.; Mauritsen. T.; Crueger. T.; Rast. S.; Salzmann. M.; Schmidt. H.; Bader. J.; Block. K.; et al. *Atmospheric component of the MPI-M Earth System Model: ECHAM6.* J. Adv. Model. Earth Syst. 2013. 5. 146-172.
18. Tol, R. S., Fankhauser, S., Richels, R. G., & Smith, J. B. (2000). *How much damage will climate change do? Recent estimates.* WORLD ECONOMICS-HENLEY ON THAMES-, 1(4), 179-206.

# ENERGY CONSUMPTION AND CARBON DIOXIDE EMISSION IN SOUTH-EAST ASIA: A PANEL DATA APPROACH

*Assoc. Prof. Dr Nguyen Xuan Thach*

*nguyensexuanthach.aof@gmail.com*

*Training Management Department, Academy of Finance, Hanoi, Vietnam*

## **Abstract**

*To the best of our knowledge, a very few studies have focused on the effects of energy consumption on climate change in developing and developed countries. The purpose of this paper is to study the effects of energy consumption on carbon dioxide emission in the South-east Asian countries, including Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam. Using a panel data analysis in the period over 1971-2014, the study analyzes based on the methods of fixed, random effects, and pooled ordinary least squares. The data were collected from World Development Indicators, Department of Statistics in relevant countries used in the study. Our results demonstrate that energy consumption has negatively affected on CO<sub>2</sub> emission but insignificant. The government in these countries could be confident to continue using energy for manufacturing and citizen life.*

**Keywords:** *Carbon dioxide emission, energy consumption, fixed effect, pooled OLS, random effect.*

## **1. Introduction**

Energy has been considered as a very important factor of production and economic development in each country. It has played a great role in the economic growth, production and trade expansion of any country. As a result, the use of energy that reflects the quality of lives, it is consistent with the level of economic growth, trade expansion. In the aspect of carbon dioxide emission, the amount of carbon dioxide released into the environment is increasing causing climate change phenomena or greenhouse effect for the environment. That has also negatively affected people all over the world. But pure carbon dioxide has also brought many positive aspects to the industry as well as many valuable chemical uses.

Increase of the CO<sub>2</sub> emission is a most important threat of to the environment change which is the most important on-going anxiety of both the emerging countries to developed countries. The developed countries economic growth forces an exhaustive energy use and as a result, additional wastes and residues are throw nature that could lead to degradation of environment. The majority of the CO<sub>2</sub> emission comes from the use of fossil fuels for instance coal, the key power source of the industries of automobiles that is significantly linked with development and economic growth. While, played most important role in the process of economic growth through energy.



The relationship between economic growth, CO<sub>2</sub> emissions and energy use in developed, emerging and MENA countries over 2001 to 2017 examined by Muhammad (2019) and applied seemingly unrelated regression, GMM and System GMM and demonstrated that economic growth has direct significant effect on energy consumption but indirect significant effect on CO<sub>2</sub> emissions in emerging countries while indirect significant effect on energy consumption but direct significant effect on CO<sub>2</sub> emissions in developed and MENA countries but CO<sub>2</sub> emissions has direct significant effect on energy consumption in all developed, emerging and MENA countries while also direct significant effect on economic growth in developed and emerging countries. He also found direct significant effect of energy use on economic growth in developed and emerging countries but showed indirect significant on economic growth in MENA countries while also found direct significant effect of energy use on CO<sub>2</sub> emissions in all developed, emerging and MENA countries. He suggested that policy makers should adopt such policies that should focus to adopt advanced technologies to reduce CO<sub>2</sub> emissions and boost their economy. In developing countries of Asia, the relationship between renewable energy use and CO<sub>2</sub> emissions over 1980 to 2014 investigated by Hasnisah et al. (2019) and used dynamics OLS and OLS estimators and found very important role of economic growth and energy use in CO<sub>2</sub> emissions and indicated that economic growth and energy use decline environmental quality. In global and different regions Carbon dioxide emissions investigated by Dong et al. (2019) and found direct significant effect of economic growth, population, non-renewable energy and energy intensity on Carbon dioxide emissions in regional level and global while found reduction in carbon dioxide emissions due to renewable energy in global and Europe & Eurasia and S. & Cent.

The relationship between energy consumption, CO<sub>2</sub> emissions and economic growth in Gulf Cooperation council countries investigated over the period 1980 to 2012 by Salahuddin and Gow (2014), and used panel co integration test, Panel unit root test and PMG estimator and empirical results found direct significant relationship between CO<sub>2</sub> emissions and energy consumption and also direct significant relationship between energy consumption and economic growth both in the long run and short run.

The relationship between energy use, CO<sub>2</sub> emission and economic growth examined in 58 countries over the period 1990 to 2012 by Saidi and Hammami (2015), and used GMM estimator and found positive effect of energy consumption on economic growth and negative relationship between CO<sub>2</sub> emissions and economic growth but on the other side, the causal relationship between energy use, CO<sub>2</sub> emission, urbanization, trade openness and economic growth investigated in EU member and candidate countries over the period 1992 to 2010 by Kasman and Duman (2015), and used panel co integration methods, panel causality tests and unit root test and empirical results found that energy consumption, CO<sub>2</sub> emission, trade openness and GDP are significant in EU member and candidate countries.

To discuss the impact of energy consumption on carbon dioxide emission in the specific situation in South-east Asia, this study has conducted with panel data. To the best of our knowledge, a very few studies has focused on the impact of energy consumption on

carbon dioxide emission in developing countries, especially in the low-middle income countries. The study aims at fulfilling this gap by analyzing the relationship between energy consumption per capita with carbon dioxide emission in a very dynamic region in South-east Asia. The purpose of the study is to investigate the link between energy consumption and carbon dioxide emission in the case of some South-east Asian developing and developed countries over the time period of 1971 to 2014.

The structure of the study is as follows. Section 2 discussed the method. Section 3 presented results. Section 4 covers the discussion and conclusion.

## 2. Method

### 2.1. Data

The data used in the study is sourced from the database of World Development Indicators (WDI), Department of Statistics (DOS) in relevant countries used. Data that we use in this study were collected for some countries in South-east Asia. Using a sample dataset during the period of time from 1971 to 2014 on a yearly basis, the data is analyzed using Stata 15 software.

In this study, the data consist of energy consumption and CO<sub>2</sub> emission as proxy, respectively, to illustrate the relationship between development of energy and climate change. The study has a conduct on eight South-east Asia countries, including, Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.

**Table 1: Measurement of Variables Used in the Study**

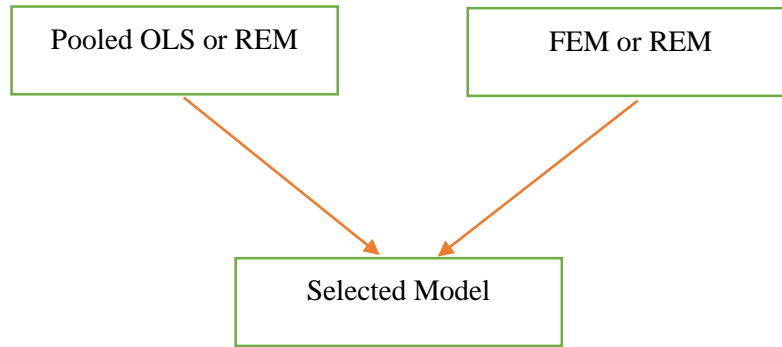
<b>Dependent Variables</b>	<b>Abbreviation</b>	<b>Source</b>
CO <sub>2</sub> emission (kilo tons)	CO <sub>2</sub>	WDI
<b>Independent Variables</b>		
Energy consumption (kWh per capita)	ENERGY	WDI

*Source: Author*

### 2.2. Research Model

Impact of energy consumption on CO<sub>2</sub> emission has been investigated in some empirical studies in the world. Based on theoretical consideration, it is evident that the study is used a panel model with pooled OLS, fixed effect method (FEM), and random effect method (REM).

A large number of previous studies have been applied common regression models such as Pooled Ordinary Least Square (Pooled OLS), Fixed Effects Model (FEM), and Random Effects Model (REM). In this study, we will investigate based on the steps and we will analyze how to select the best model among three models. The process of the analysis can be explained in the following figure:



**Figure 1. Model Selection**

In order to discover the analysis of this relationship, we hypothesize the following model:

$$CO2_{it} = f(ENERGY_{it})$$

The equation for the fixed effect model is:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + u_{it} \quad (2.1)$$

$$CO2_{it} = \alpha_i + \beta_1 ENERGY_{it} + u_{it} \quad (2.2)$$

Where:

- $\alpha_i$  ( $i=1 \dots n$ ) is the unknown intercept for each country (n country-specific intercepts),
- $Y_{it}$  is the explanatory variable; i, and t denote for the country i and time t. This can be abbreviated by CO2,
- $X_{it}$  denotes an independent variable. It is ENERGY,
- $\beta_1$  is the coefficient for that independent variable,
- $u_{it}$  is the error term.

Regarding random effects model, the rationale behind REM is that the variation across entities is assumed to be random and uncorrelated with the predictor or independent variables included in the model. An advantage of random effects is that you can include time invariant variables (i.e. gender). In the fixed effects model these variables are absorbed by the intercept. REM allows to generalize the inferences beyond the sample used in the model

The random effects model is:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + u_{it} + \varepsilon_{it} \quad (2.3)$$

$$CO2_{it} = \alpha_i + \beta_1 ENERGY_{it} + \varepsilon_{it} \quad (2.4)$$

Where:

- $\alpha_i$  ( $i=1 \dots n$ ) is the unknown intercept for each country (n country-specific intercepts),

-  $Y_{it}$  is the explanatory variable;  $i, t$  denote for the country  $i$  and time  $t$ . This can be abbreviation like CO2,

-  $X_{it}$  denotes an independent variable. It is ENERGY,

-  $\beta_1$  is the coefficient for that independent variable,

-  $u_{it}$  is the error term between entity error,

-  $\varepsilon_{it}$  is the error term within entity error.

### 3. Results

#### 3.1. Descriptive Statistics

**Table 2: Descriptive Statistics**

Country	Items	Electric Consumption	CO2 Emission
<b>Cambodia</b>	Mean	92.07772	3278.665
	Minimum	13.51334	1540.14
	Maximum	271.3673	6684.941
	Std. Dev	75.48331	1605.193
	Observations	20	20
<b>Indonesia</b>	Mean	274.564	226612.2
	Minimum	14.35356	38987.54
	Maximum	811.9069	637078.9
	Std. Dev	242.5486	154570.7
	Observations	44	44
<b>Malaysia</b>	Mean	1905.698	98249.01
	Minimum	313.1318	16677.52
	Maximum	4651.959	242821.4
	Std. Dev	1348.851	73437.41
	Observations	44	44
<b>Myanmar</b>	Mean	63.77161	7809.21
	Minimum	19.81103	4110.707
	Maximum	215.2989	21631.63
	Std. Dev	44.38055	3674.288
	Observations	44	44

<b>Country</b>	<b>Items</b>	<b>Electric Consumption</b>	<b>CO2 Emission</b>
<b>Philippines</b>	Mean	434.287	54655.38
	Minimum	235.7687	26442.74
	Maximum	696.3468	105653.6
	Std. Dev	128.1611	22186.88
	Observations	44	44
<b>Singapore</b>	Mean	5379.077	38580.59
	Minimum	1154.811	16593.17
	Maximum	8844.688	61682.61
	Std. Dev	2649.99	11776.05
	Observations	44	44
<b>Thailand</b>	Mean	1080.51	135955.8
	Minimum	120.3268	19248.08
	Maximum	2538.796	2538.796
	Std. Dev	799.7707	98802.98
	Observations	44	44
<b>Vietnam</b>	Mean	323.3391	53440.69
	Minimum	33.88759	13923.6
	Maximum	1423.688	166910.8
	Std. Dev	391.8653	46800.31
	Observations	44	44

*Source: Result from the analysis*

Table 2 presents data description including 656 observations of 8 South-east Asian countries over a 44-year period from 1971 to 2014. In fact, for each country with each index, first row is mean. Respectively, rows are minimum, maximum, standard deviation and the number of observations used in the study. In general, as far as electric consumption in average, Singapore is the leading country, with 5379 kWh per capita, followed by Malaysia with 1905 kWh per capita. The third position belongs to Thailand with 1080 kWh per capita. The country whose has the lowest average electric consumption is Myanmar with 63 kWh per capita. In addition to CO2 emission, Indonesia is the leading country in the group of 8 selected countries, which is over 1.5 times the second leading country - Thailand. Myanmar and Cambodia are two countries at the bottom of the CO2 emission list.

### 3.2. Correlation Investigate

**Table 3: Correlation Coefficients between Variables**

	Electric Consumption	CO2 Emission
Electric Consumption	1	
CO2 Emission	0.0678 (0.2207)	1

*Source: Result from the analysis*

It is can be seen that the correlation coefficient between the two variable is rather low of 0.0678 and more, the corresponding probability value of the test, in which show the correlation coefficient is significant or not, is larger than 0.05. This suggests that there is not a linear correlation between electric consumption and CO2 emission.

### 3.3. Discussion of Estimation Models

Quantitative research method is used to find empirical evidence on the factors affecting the balance of trade. The regression methods on the panel data are used include pooled OLS (Pooled Ordinary Least Square), FEM (fixed-effect model) and REM (random-effect model). In respect to FEM, individual specific effect is significantly correlated with the independent variables, assuming that there is a true effect size which underlines all studies in the study, and differences in observed effects are due to sampling error. In connection to REM, the true effect can exactly vary from study to study.

As suggested in Wooldridge (2010), pooled OLS is more exactly to estimate if the study can select a different sample for the period of time of the panel data. Because of existence of inadequate pooled OLS, either FEM or REM should be employed in relation to the situation of the same sample of entity used in the study. Thus, the results are examined by fixed or random effects models that are suggested are more possibly exact than using by pooled OLS.

In general, the effect size may be either higher or lower in this study. Due to the difference in the mixes of participants, implementations of interventions, and other reasons, it is evident to recognize that there might be different effect sizes underlying different analyses. Breusch and Pagan Lagrangian multiplier test for random effects can be used to choose either Pooled OLS or REM. In the theory, the results the variance for  $u$  is 0 and the p-value is 5% which means the study cannot reject the null hypothesis and hence select to do a pooled regression. Otherwise is REM. The result is represented in the Table 4 below.

**Table 4: Breusch and Pagan Lagrangian for Homoscedasticity**

	Value
<b>Chibar2 (01)</b>	1503.04
<b>Prob &gt; Chibar2</b>	0.0000
H0: Constant variance	

*Source: Result from the analysis*

First of all, Breusch and Pagan Lagrangian multiplier test is used for the choice of model between pooled OLS and REM. The p-value of the Breusch and Pagan Lagrangian multiplier test is very close to zero. For the significance of 5%, the appropriate model is REM or FEM, not POLS.

In order to choose between FEM and REM, Hausman specification tests have been focused. To be precise, the selection between the two models is based on the inter-variance and intra-variability. The select model is FEM if  $Pro > Chi2$ , otherwise is REM.

$H_0$ : The null hypothesis is that the preferred model is random effects

$H_a$ : The alternate hypothesis is that the model is fixed effects.

The Hausman test result is given in Table 5.

**Table 5: Hausman Test Results**

	Value
<b>Chi2 (2)</b>	3.65
<b>Prob &gt; Chi2</b>	0.0561

*Source: Result from the analysis*

Table 5 indicates that p-value of the Hausman model is 0.0561, which is much larger than 0.05, RE model is suggested to be used rather than FEM. In conclusion, REM is the most suitable in this study, in which the independent variable is CO2 emission.

### 3.4. Results of Econometric Modelling

In this section, the study will totally discuss results of the econometric modelling in the case of South-east Asian countries.

**Table 6: Results of Econometric Modeling with dependent variable of CO2 emission**

Variables	FEM	REM
<b>Energy consumption</b>	25.93062*** (0.000)	24.76632*** (0.000)
<b>C</b>	49684.03*** (0.000)	47863.64* (0.096)

*Notes: \* and \*\*\* indicate significance level of 10% and 1%*

*Source: Result from the analysis*

Because, REM is the most suitable in this study, we have tested the diagnostics of the model in connection REM.

#### 3.4.1. Autocorrelation test

Based on the Wooldridge test, we have:

- The Null hypothesis  $H_0$ : no first order autocorrelation
- The Alternative hypothesis  $H_a$ : existence of an autocorrelation

At this stage, autocorrelation test used for null hypothesis: “no first order autocorrelation”, the Wooldridge Test is used. According to the results in Table 7, the p-value of the REM is very close to zero. They are all less than 0.05 so that null hypothesis is rejected, which indicated that there is an autocorrelation between variables in the three models.

**Table 7: Wooldridge Test for Autocorrelation in Panel Data**

	<b>REM</b>
<b>F(1,7)</b>	87.40
<b>Prob &gt; F</b>	0.000

*Source: Wooldridge test - STATA 15*

### 3.4.2. Heteroscedasticity Test

To test for heteroscedasticity of the REM model, the White test is performed. In the theory, if the test result with p-value of 0.05, so there is heteroscedasticity in the model at the significant level at 5 percent. In a result, Table 8 indicates that the test result with p-value is 0.0000, which proved that the model has heteroscedasticity problem.

**Table 8: Heteroscedasticity Test**

	<b>REM</b>
<b>White test</b>	W0 = 48.485863 (Pr > F = 0) W50 = 39.834402 (Pr > F = 0) W10 = 44.523481 (Pr > F = 0)

*Source: Results from STATA 15*

To sum up, the model has problems of autocorrelation and heteroscedasticity. In order to fix these errors, the study needs to correct them. After correction the errors, the results are shown in the following table:

**Table 9: Results of Econometric Modeling with dependence variable of CO2 emission (Correction)**

<b>Variables</b>	<b>REM*</b>
<b>Energy Consumption</b>	24.76632 (0.217)
<b>C</b>	47863.64 (0.029)

*Source: Result from the analysis*

## 4. Discussion and Conclusion

According to Table 9, the estimation of the random effects model is finally selected as the best model to discuss. Regarding the estimation results, our analysis shows the impact of energy consumption on CO2 emission - in the case of South-east Asian countries, we can say that: Regression coefficients of energy consumption is 24.76632, which is positive but statistically insignificant. An increase in energy consumption by 1 kWh per capita, on average, will cause an increase of CO2 emission by 24.76632 kilo tons.



This result is consistent with many other empirical findings and also with our theoretical expectation because theoretically. In fact, when energy consumption which is denoted by energy consumption per capita in relation to an economic factor that will worsen a country's CO2 emission. But this is insignificant.

In this study, energy consumption which is the factor impacting the CO2 emission in South-east Asian countries is focused. Empirical results demonstrate that energy consumption is insignificant to CO2 emission. Thus, in South-east Asian countries the energy consumption is not the key point in increasing the air pollution. The government of these countries still can motivate the use of energy for economic and citizen life without worrying of climate change.

## 5. References

1. Dong, K., Dong, X., Dong, C., (2019), *Determinants of the global and regional CO2 emissions: What causes what and where?*, Appl. Econ. 1-14.
2. Hasnisah, A., Azlina, A.A., Taib, C.M.I.C., (2019), *The impact of renewable energy consumption on Carbon dioxide emissions: Empirical evidence from developing countries in Asia*. Int. J. Energy Econ. Policy 9 (3), 135-143.
3. Kasman, A., Duman, Y.S., (2015), *CO2 emissions, economic growth, energy consumption, trade and urbanization in new EU member and candidate countries: a panel data analysis*, Econ. Model. 44, 97-103.
4. Muhammad, B., (2019), *Energy consumption, CO2 emissions and economic growth in developed, emerging and middle east and north Africa countries*, Energy 179, 232-245.
5. Saidi, K., Hammami, S., (2015), *The impact of CO2 emissions and economic growth on energy consumption in 58 countries*. Energy Rep. 1, 62-70.
6. Salahuddin, M., Gow, J., (2014), *Economic growth, energy consumption and CO2 emissions in gulf cooperation council countries*, Energy 73, 44-58.
7. Wooldridge, J., (2010), *Econometric Analysis of Cross Section and Panel Data*. MIT Press.

# ADAPTING TO CLIMATE CHANGE THROUGH OCCUPATIONAL MOBILITY IN MEKONG RIVER DELTA

*Hoang Thi Quyen*

*hoangquyenhv4@gmail.com*

*Faculty of Sociology and Development, Regional Academy of Politics 4, Hanoi, Vietnam*

## **Abstract**

*In recent years, climate and environmental changes have brought about drastic and rapid shifts in the relative importance of individual sectors and occupations in the world economy. This means that more and more people will have to adapt to a change of job or career - almost certainly involving different skills - during their working life. In an attempt to address this issue, the author reviews the literature on the analysis of research to suggest theoretical as well as practical guidance to answer the question on how climate change affects occupational mobility in Mekong River Delta. My review reveals that, to date, we still know little about occupational mobility caused by extreme weather events and changing seasons. However, many researchers believe that: in the Mekong River Delta we're already witnessing the loss of lives and livelihoods because of extreme weather events and changing seasons. Working people are on the frontlines of climate change, with more than 2 million people displaced from their homes. But the question has not been answered yet such as: how climate change affect jobs? How do people adapting to climate change through occupational mobility in Mekong River Delta? What can we do to help people, especially the poor, women and ethnic minorities overcome difficulties caused by climate change? This is still the motivation for scientists to continue researching. In this article, I contribute to find the gaps that have not yet been mentioned in previous works about occupational mobility caused by climate change.*

**Keywords:** *climate change, Mekong River Delta, occupational mobility*

## **1. Introduction**

The Vietnamese Mekong Delta is most affected by climate change. Rising sea levels and global warming have been upsetting the socio-economic development of the delta in recent years. Erosion, drought and saline intrusion have made a large area of agricultural land be unusable; many people have lost their residence. They must migrate or change their lives and livelihoods. There are more and more migration flows due to the impacts of environmental changes. In the Mekong River Delta, migration is a good way to adapt to climate change. Common migration flows include intra-regional migration and migration from the Mekong Delta to Ho Chi Minh City. "During the period 2004-2009, net migration from the Mekong Delta to the Southeastern region (including Ho Chi Minh City) reached 714,000 people." (International Organization for Migration (IOM), 2016: 8)

To solve the situation, some climate change adaptation policies have actively been implemented. Since the 1990s, the Vietnamese Government has been formulating resettlement plans to help communities that were impacted by environmental degradation to build new, safe residential areas. The government can prevent unexpected environmental disasters by evacuating people from insecure areas. However, all environment and climate change adaptation policies and plans are not always fully and effectively implemented. Many resettlement areas that had been built with the goal of creating a safe place for displaced people were left empty. People still choose to live in unsafe places because these newly built residential areas do not guarantee their livelihoods, jobs, and income. Many climate change adaptation policies have been implemented in the Mekong River Delta have not achieved the desired targets because they did not pay attention to studying the relationship between climate change, environment and job adaptability. The relationship between the need for safety and the ability to change jobs has not been confirmed fully in national, regional or provincial policies. To find the basis to make and implement social and economic development policies, we need to find out how occupational mobility has been taking place in climate change.

## **2. Method**

In this paper, the author review the modeling problems related to the analysis of the effect of environment and climate change on occupational mobility and the main trend in the study of occupational mobility. To evaluate the impact of climate change on occupational mobilities in Mekong River Delta, secondary data were gathered from multiple sources. Some data were obtained from government agencies including the Department of Fisheries, the Department of Environment and Resources and data were taken from books and magazines. Data from 1990 up to the present were analyzed. The purpose of the literature review is to find out theoretical as well as practical instructions; academic performance at the individual level, and suggest various solutions. I synthesize the necessary information and data to indicate the gaps in materials, theoretical tools, methods to identify new research tools and methods to answer the question: How has occupational mobility been taking place in climate change?

## **3. Results**

### ***3.1. Understanding Occupational Mobility***

Occupational mobility is a type of social mobility which is referred to "changes in individual or group social status in stratification system" (Bui The Cuong - Đặng Thi Viet Phuong - Trinh Huy Hoa, 2010:140), Do Thien Kinh shown that social mobility is referred to "change from the original status to a new social status at a specified time" (Do Thien Kinh, 2012:36). Similar to social mobility, "Occupational mobility refers to changes in individual occupational status. Occupational mobility is usually measured by changes in the International Standard Classification of Occupations (ISCO) categories. This criterion cannot, however, be applied to researchers because most job changes would not result in a change in ISCO category."(Ana Fernández-Zubieta, Cornelia Lawson, 2015). In Oxford

Sociology Dictionary, “Occupational mobility refers to the movement of a particular career group or of workers to switch career fields or of a career vacancy that takes place in social space” (Bui The Cuong - Đặng Thi Viet Phuong- Trinh Huy Hoa, 2010: 142)

To date, there are many different approaches to the study of occupational mobility. Occupational mobility refers to changes in individual occupational status in occupations stratification (occupational mobility of individuals over time) or the changes in occupational status of parents and their children (Intergenerational Occupational Mobility). Researchers call the individual's occupational status change and individual's social advancement or regression compared to their original occupation as "vertical mobility". In contrast to vertical occupational mobility, according to Sorokin all changes are not related to changes in occupational status (in other words do not change position in the stratification system) which named as horizontal mobility or "horizontal mobility"(Gunter Endruweit và Gisela Trommsdorff, 2002: 119). In addition researchers also mentioned another form of occupational mobility, which is collective social mobility. The changes in stratification system or status are due to changes in the assessment of occupational positions in the stratification. For example one can re-classify occupational status due to changes in the assessment. The criteria for organizing occupational groups in the stratification system are a form of occupational mobility that is called "collective social mobility". (Gunter Endruweit và Gisela Trommsdorff, 2002: 119).

In recent years, *climate* and environmental *changes* have brought about drastic and rapid changes in the relative importance of individual sectors and occupations in the economy. This means that more and more people will have to adapt to a change of job or career - almost certainly involving different skills - during their working life. That explains the reason why researchers are interested in answering “How people change their jobs over times?” Therefore occupational mobility concept is more extended. [Adam Hayes](#) argues that: “Occupational labor mobility refers to the ability of workers to switch career fields in order to find gainful employment or meet labor needs” ([Adam Hayes](#), 2019). In addition, career progression is a driver of vertical occupational mobility. “Changes within the academic career, for example, promotion from assistant professor to associate and then full professor, are usually associated with positive changes in job profile and job content and provide access to additional resources. Therefore, job changes that result in a promotion could be considered a proxy for occupational mobility.” (Ana Fernández-Zubieta, Cornelia Lawson, 2015). In recent years, researchers take into account the internal mobility of a generation that considers a change in a career title or-an occupational skill or career advancement of an individual. Blau and Duncan pay attention to the changes in professional level (usually measured through degrees, academic degrees, degrees); working motivation, and learning motivation. Ronald Bachmann, Peggy Bechara and Christina Vonnahme used worker-level micro data to examine occupational mobility and its link to wage mobility across a large number of EU countries. The results show that on average, 3% of European workers change their occupation per year, and that the extent of occupational mobility differs strongly by country. The job with many changes are managers, skilled workers working in agriculture,

forestry, fishery and other basic occupations. Experts, technicians and associate specialists, craftsmen and trade workers, factory workers, operators and assemblers of machines, service and sales personnel are the observation group had fewer career changes. People with part-time contracts are more likely to move careers than full-time employees. In addition the research results indicate that individual characteristics play an important role in person-specific occupational mobility, but have little explanatory power for differences among countries. Occupational mobility is strongly associated with earnings mobility, and occupation movers are more likely than job movers who experience a downward rather than an upward earnings transition. By contrast, changing occupation voluntarily is more often followed by an upward wage transition. As opposed to composition effects, employment protection legislation seems to play an important role in explaining cross-country differences in occupational mobility through its impact on overall job mobility. (Ronald Bachmann Peggy Bechara Christina Vonnahme, 2019).

### ***3.2. What do we know about the impact of climate change on occupation in Mekong River Delta?***

Climate change, which is manifested by global warming and rising sea levels, has seriously been impacting production, life and the environment over the world. Increasing temperatures and rising sea levels causes flooding, salinization of water sources that have remarkably been affecting agriculture, causing great risks to industries and other economic sectors (Prime Minister, 2011). Natural disasters and climate change have gradually been affecting the dwelling and livelihoods of many people around the world. In order to adapt to climate change, more and more people have had to change their job or career and residence.

Vietnam is one of the countries that have been affected by climate change. In the period 2008-2015, there were about 2 million people who have been affected by natural disasters in Vietnam. Many people have to move to live in new areas temporarily or forever. Seasonal or permanent migrants move to urban communities with the aim of escaping from unsafe environmental conditions, improving their livelihood, earning money to support other family members who are struggling due to environmental degradation and climate change. People who are left behind are always at a high level of vulnerability because natural disasters emerge many times a year (Đang Nguyen Anh, Irene Leonardelli and Ana Alicia Dipierri, 2016: 40).

Studies in the Mekong River Delta also show that there are more and more extreme climate phenomenon such as storms, floods, saline intrusion in the areas. Climate change makes the area of local agricultural land narrow. It is predicted that in some next decades, Mekong River Delta will loss of 15,000-20,000 km<sup>2</sup> of agricultural land caused by sea level rising. High salinity levels will penetrate 30 to 40 km deep which will turn over 1,300 hectares of land into saline soil. The land is difficult to product. Increasing temperatures, fluctuations in other climatic and weather factors reduce animal resistance and create an enabling environment for disease. Cattle and poultry are susceptible to disease. That made people whose livelihoods rely on agriculture become poor. In Can Tho, according to the

report of the city authorities, the erosion of the banks of rivers and canals is becoming more and more serious, complicated, increasing both in intensity and quantity in the area. From 2010 to the end of 2017, in Can Tho city there were 153 landslides, with a length of landslide were about 6km that made 63 houses completely damaged. In addition, currently there are more than 106 locations, which are at high risk of landslides with a total length is about 52.7 km. The city has just announced the Population Planning to 2020, with a vision toward 2030. Accordingly, there are about 9,353 households in the city, who are affected by landslides and saline intrusion that need to be moved (Ha Van). The Mekong Migration Network (MMN) and the Asian Migration Center (AMC) research in Thanh An commune, Vinh Thanh district, Can Tho city show that due to extreme warming climate that impacts the quality of water and arable land in the area, the lives, jobs and income of local people have been affected severely. Climate change has been affecting on the trees and crops, houses, infrastructure such as buildings, roads and riverbanks in the city (Dang Nguyen Anh, Irene Leonardelli and Ana Alicia Dipierri, 2016:44). In the Mekong Delta provinces, including Can Tho, there are five industries, which are most heavily affected by climate change such as: agricultural farming (2) aquaculture and fishing (3) trade retail and consumer services (4) processing of agricultural products (5) industry - crafts (Ha Van). The main impacts of climate change on labor and employment are: migration, labor structure changes; losing and changing job quality (Institute of Labor and Social, 2010). In Mekong River Delta region, migration is a good way to adapt to climate change. Common migration flows include intra-regional migration and migration from the Mekong Delta to Ho Chi Minh City. "During the period 2004-2009, net migration from the Mekong Delta region to the Southeast region (including Ho Chi Minh City) reached 714,000 people." (International Migration Organization, 2016:8). Can Tho is one of province that has a positive net migration rate in the Mekong Delta,... The extra migration rate is 36 % in Can Tho in 2019. There is not much difference between sexes with regard to (35.8 % and 36.1 %). " (Can Tho Statistical Office, 2019:5).

### ***3.3. How do people adapting to climate change through occupational mobility in Mekong River Delta?***

Aquaculture in Mekong River Delta has been heavily affected by climate change in recent years. If the temperature rises to 1 ° C yield will reduce 10 percent (Le Thi Xuan Lan 2012:389). Some regions such as Bac Lieu, Tien Giang province difficult to engage in shrimp culture because of water pollution and climate change effects. Farmers have quickly changed in agriculture activities to adapt to new conditions. They change type of tree; develop new type of tree that can resist harsh environmental conditions; strength irrigation systems, develop appropriate farming techniques. In addition to rice cultivation, people grow other tree such as pineapple, corn, potato, beans, vegetables. With the goal of developing good aquaculture practices for dissemination to small farmers in the locality in order to diversify their income sources, experimental polyculture model was set up in some provinces. The model combined different products such as rice and shrimp. In many places, farmers combine rice and fish to increase income but still create a fertile land for rice

cultivation. Models of rice and fish; rice and shrimp; or rice and vegetables bring higher income than the monoculture model of rice. In Can Tho the households only grow rice have low income but the households implement the method Mixed farming claims that their lives are improving. Aquaculture households also find new cultivation methods that suitable to the environment changes. Farmers who live along the Tien and Hau rivers, besides raising fish and rafts, they also develop shrimp pens. Flood season business models are also applied in flood areas. An Giang is one of province that applying this model. The model has brought unexpected results with a production value thousands billion VND. It contribut to creating jobs for more than 100,000 workers when floods return. Changing in farming production activities is good way to adapt to climate change. There are more and more evidence shows that many people have to change the job skills that they practice during their working life.

Another way to adapt to climate change is migration. Poor fishermen in Ca Mau are facing increasingly depleted fisheries resources and the weather is getting worse. They have improved and rehabilitated their livelihoods by diversifying livelihood activities, relocating to other areas. (United Nations in Viet Nam. 2014: 3). "During the period 2004-2009, net migration from the Mekong Delta to the Southeastern region (including Ho Chi Minh City) reached 714,000 people." (International Organization for Migration (IOM), 2016: 8) Although migration is a good solution for many poor workers who are affected by climate change and those who live in a precarious state. For migrant workers in industrial zones, even when they have a labor contract, they always face risks such as job loss or reduced income. Unregistered workers, especially temporary migrant workers who do not register their temporary residence, their labor contracts are violated (United Nations in Viet Nam, 2014:16). People, especially women who have to move their house due to environmental impacts are in danger of losing their job. There are many barriers for over 40 year-old women to find new job. In fact, most women who live near landslides which are expected to be dredged / embanked are unskilled labor (manicure, makeup, small traders. As a result implementating climate change projects will increase women's risk of unemployment (*People's Committee of Can Tho City*, 015:68). The resettlement programs that Vietnam has been implementing to stabilize people life who are affected by climate change created many changes in employment structure. After relocation to new residential, the unemployment rate increas to 5.6%. The income of each household is almost unchanged, but the structure of income has changed. Non-agricultural income increased sharply while agricultural income, including hired activities, decreased (United Nations in Viet Nam, 2014:23). There is growing evidence that migration can help improve resilience for people and communities, which is considered an effective adaptation measure and diversification of livelihoods. Evidence in Mekong Rever Dalta also indicates that resettled people are still relocating to seek better employment opportunities and living conditions. As a whole, migration and resettlement can bring about positive or negative results. It can create new opportunities and livelihoods as well as improve resilience, but also create new vulnerabilities, such as migrants in urban areas facing water supply and drainage systems. fight against floods and degradation of living costs.

It is clear that climate change has been affecting the lives and livelihoods of many people in the Mekong Delta. Many people are struggling to change their jobs to adapt to new conditions. However, changing job skills is not always easy, especially for disadvantaged groups like women and the poor. Climate change most affect poor and disadvantaged groups, who are unable to adapt. (Dang Nguyen Anh, Irene Leonardelli và Ana Alicia Dipierri, 2016:3). The most vulnerable groups under the impact of climate change in the Mekong Delta (both urban and rural areas) are the poor, children, the elderly, disabilities people, single women and ethnic minorities (Le Anh Tuan). Migrant households often have low incomes and live in poor housing conditions. It seems that only the most vulnerable families have to migrate, while households with better housing and economic conditions can afford to stay (Han Entzinger và Peter Scholten, 2016:IX). It is clear that the trend of agricultural separation, migration, diversification of revenue sources are waies to adapt to new conditions. It also partly confirms peoples' vulnerability to the effects of climate change.

#### ***3.4. Why some Climate change adaptation policies have not achieved the desired targets?***

Mainstreaming is one of the key mechanisms advocated by international agencies for the effective adoption and implementation of sustainable development, environmental management and climate change adaptation objectives in a development context. As many developing countries, Governments of Vietnam are urged to 'integrate' or 'mainstream' the environment into overarching policy documents and sector and local government policies, plans and budgets. To help people in areas affected by natural disasters, the government has been implemented many policies. Since the 1990s, the Vietnamese Government has been formulating resettlement plans to help communities that were impacted by environmental degradation to build new, safe residential areas. Programs Current resettlement is diverse, including resettlement for people in areas affected by natural disasters ears and some other target groups. This solution was implemented to address the level of prior exposure hazards and injuries in the face of floods and other forms of environmental degradation (such as bank erosion) river). A series of resettlement policies to reduce exposure to climate and environmental hazards have been implemented issued, especially from 1996 onwards. Especially since the historic flood in 2000 in the Mekong Rever Delta, The flood living program has been implemented as an adaptation and program solution This is further expanded with efforts to relocate people out of unsafe areas. The program includes activities to build and upgrade residential clusters. Residential routes are areasto be raised to the ground height along rivers and canals where boats can flow; the living standards of local households have been improved and their access to public services is improvedcopy. Numerous residential clusters with basic infrastructure have been built and households have been relocated. According to the Implementation Plan of National Disaster Prevention and Disaster Strategy. Since 2015 Vietnamese Government has relocated for 130,000 households. (United Nations in Viet Nam. 2014: 3) By the policies, the government can prevent unexpected environmental disasters by evacuating people from insecure areas. However, all environment and climate change adaptation policies and plans are not always



fully and effectively implemented. Many resettlement areas that had been built with the goal of creating a safe place for displaced people were left empty. People still choose to live in unsafe places because these newly built residential areas do not guarantee their livelihoods, jobs, and income. For example Lung Ranh residential area in Khanh Hoi commune, U Minh district, Ca Mau province, that has built since 2011 with a scale of over 100 households, mainly are Khmer people who live in the West Coast protective forest areas. Infrastructure of the area is built quite fully, with elementary schools, medical teams, market houses, public lighting systems and clean water sources to serve people's daily life. According to the project regulations, each household was provided 300m<sup>2</sup> of residential land and was supported 20 million VND to help them to built house. However, now many households left the residential areas. Mr. Huynh Hoang Tuong, Chairman of Khanh Hoi People's Committee, said: "Initially, there were more than 90 households eligible to be allowed to live. After a period of staying, there are about 40 households left. Many households have left to work as hired laborers in Dong Nai, Binh Duong ... or return to their old places ". (Thuy An) Many climate change adaptation policies have been implemented in the Mekong River Delta have not achieved the desired targets because they did not pay attention to studying the relationship between climate change, environment and job adaptability. Having a Job play an important role in people's life. So enhancing the adaptability of workers is good way to help people to adapt to climate and economic change. For example, since 1951, some European countries has set up the European Coal and Steel Community (ECSC), creating a common market in coal and steel. The structure of the ECSC was based not on stability of employment but, on the contrary, on the adaptation of workers to economic change: occupational mobility. The creation of a common market in coal and steel meant closure of some plants and re-conversion of others which provided help to support the re-conversion of enterprises and the redeployment of workers who lost their jobs, as well as helping workers search for work elsewhere or to retrain for other jobs. The idea was that workers ought not to have to bear the consequences of economic change, made inevitable by technical progress. As basic skills are a prerequisite for occupational mobility, the Commission emphasised the benefit of a cost-free access to acquisition of basic skills for everybody. Given the increasing importance of employment in a 'knowledge based society', the Commission put priority on information and communication technologies (ICT) and suggested the adoption of EU-wide standards regarding the validation of ICT skills. Mobility would also be enhanced by the creation of a modular system for the accumulation of qualifications from different institutions and countries. Better information have been given to girls and women about education, training and job opportunities in the areas of science and technology, which would help to overcome existing imbalances in terms of gender composition: a barrier to occupational mobility. Similarly, to overcome barriers to occupational mobility linked with [social exclusion](#), there should be targets for educational achievement and better integration into education systems for young people with disabilities, people with learning difficulties, immigrants and people from ethnic minorities. (Eurofound.europa, 2017).

#### 4. Discussion and Conclusion

Allmost nation aims to bring about equal opportunities for its citizens in the course of development. In other words, every society has programs and policies to reduce the inequalities that are always associated with the level of social mobility. That explains the significance of studying occupational mobility. Social mobility level tells us the degree of increase or decrease of social inequality. Since the middle of the twentieth century, especially in the years after World War II, inter-generational mobility has been studied by many scientists. (Gunter Endruweit và Gisela Trommsdorff, 2002:120). Intergenerational occupational mobility research were carried out in many countries around the world such as USA, France, England, Brazil, China, Japan and many other countries including Vietnam. Most research shows that children's outcomes tend to depend strongly on parental outcomes. There is relationship between the status of parents and that of their children, especially the career status of children. My review reveals evidence on descriptive questions occupational mobility levels vary considerably across countries, and even across areas within countries. Mobility appears to be substantially lower in low-income than in high-income countries, but even among countries of similar income levels large differences can be seen. Some research also show that in countries with income inequality, the economic position of parents will have a greater influence on the economic status of children. However, we should note that when studying inter-generational occupational mobility researchers in the US and Europe only considered the mobility, the success of son compared to his father, which is shown in father-son Turnover Table. This has been critically and methodically criticized. In particular, feminists argued that the selection only male in models to analysis occupational mobility did not reflect all gender differences as well as the consequences of the division labor by sex. It will also be necessary to consider various different between men and women because the sexes as a base for the sexual division of labor is most known human societies. In Vietnam, in recent years, there are some inter-generational occupational mobility research works, but each work approaches to generation in different way. Some researcher use generations refer to age groups therefore it is difficult to analyze in depth the process of transferring social advantages and disadvantages among generations in the family. the absence of research that systematically analyzes in which social advantages and disadvantages are transferred from generation to generation, which has led to the majority stratification and inequality research works has just stopped at listing the risks created by inequality. There were not many research pay attention to find out the causes of inequality or structural inequality. Therefore, the process of reproducing the advantages and disadvantages in Vietnamese society is still an open question that requires further studies at the special theoretical and experimental levels, especially in new social condition when climate change have been changing. such changes in people's livelihoods and jobs creates new challenges for the job restructuring process.

In addition, this study reveals that, to date, we still know little about occupational mobility caused by extreme weather events and changing seasons. However, many researchers believe that: in Mekong River Delta we're already witnessing the loss of lives and livelihoods because of extreme weather events and changing seasons. Working people

are on the frontlines of climate change, with more than 2 million people displaced from their homes. As many developing countries, Governments of Vietnam are urged to ‘integrate’ or ‘mainstream’ the environment into overarching policy documents and sector and local government policies, plans and budgets. Since the 1990s, the Vietnamese Government has been formulating resettlement plans to help communities that were impacted by environmental degradation to build new, safe residential areas. But some Climate change adaptation policies have not achieved the desired targets because of many question have not been answered yet such as: “how climate change affect jobs?”. How do people adapting to climate change through occupational mobility in Mekong River Delta? What can we do to help people, especially the poor, women and ethnic minorities overcome difficulties caused by climate change? This is still the motivation for scientists to continue researching.

### 5. References

1. Anh Nguyen Dang, Irene Leonardelli và Ana Alicia Dipierri. 2016). *Assessing the Evidence: Migration, Environment and Climate Change in Viet Nam*, International Organization for Migration
2. [Adam Hayes](https://www.investopedia.com/terms/o/occupational-labor-mobility.asp). 2019. “Occupational Labor Mobility.” (<https://www.investopedia.com/terms/o/occupational-labor-mobility.asp>)
3. Ana Fernández-Zubieta, Cornelia Lawson. 2015. “Global Mobility of Research Scientists.” (<https://www.sciencedirect.com/topics/social-sciences/occupational-mobility>)
4. Ana Fernández-Zubieta. 2015. “What Do We Know of the Mobility of Research Scientists and Impact on Scientific Production”
5. ( <https://www.sciencedirect.com/topics/social-sciences/occupational-mobility>)
6. Cuong Bui The, Phuong Dang Thi Viet, Hoa Trinh Huy Hóá (2010), *Oxford Sociology Dictionary*, Ha Noi national university
7. Can Tho Statistical Office. 2019. “*Press Release Preliminary results the 2019 Population and Housing*”
8. Can Tho *People's Committee*. 2015. “*Socio-economic survey report of Can Tho city development and strengthening urban adaptability project*”
9. Hien Bui Ton. “Some key solutions to respond to climate change in the field of labor and society”. (<http://ilssa.org.vn/vi/news/mot-so-giai-phap-chu-yeu-ung-pho-voi-tac-dong-cua-bien-doi-khi-hau-trong-linh-vuc-lao-dong-va-xa-hoi-114>)
10. Han Entzinger and Peter Scholten.2016. *Adaptation to climate change through migration, a case study of the Mekong Delta*, International Organization for Migration
11. Le Thi Xuan Lan.2012. “Assessing climate change impacts on agricultural development in the Mekong river Delta” in *Mekong river Delta Economy 2001-2011*, t. 1. Can Tho University Publisher

12. Gunter Endruweit và Gisela Trommsdorff, *Sociological dictionary translated from German*, translated by Tam Huu Nguy and Bao Nguyen Hoai, World Publishing House, 2002
13. Kinh Do Thien (2012), *Social stratification system in Vietnam*, Social Sciences Publishing House
14. Eurofound.europa.eu, “Occupational mobility”
15. (<https://www.eurofound.europa.eu/observatories/eurwork/industrial-relations-dictionary/occupational-mobility>)
16. United Nations in Viet Nam. 2014. *Migration, Resettlement and Climate Change in Viet Nam Reducing exposure and vulnerabilities to climatic extremes and stresses through spontaneous and guided migration*, Ha Noi
17. Ronald Bachmann Peggy Bechara Christina Vonnahme, (2019), *Occupational Mobility in Europe: Extent, Determinants and Consequences*, truy cập từ trang [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3468627](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3468627)
18. Prime Minister, (2011), Decision No. 2139 / QĐ-TTg Approving the National Strategy on Climate Change
19. Le Anh Tuan. “The impact of climate change on the livelihoods of people in the Mekong Delta”
20. ([https://www.researchgate.net/profile/tuan\\_le9/publication/269392455\\_anh\\_huong\\_cua\\_bien\\_doi\\_khi\\_hau\\_toi\\_sinh\\_ke\\_nguoi\\_dan\\_dong\\_bang\\_song\\_cuu\\_long/links/5488523b0cf2ef344790792f/anh-huong-cua-bien-doi-khi-hau-toi-sinh-ke-nguoi-dan-dong-bang-song-cuu-long.pdf](https://www.researchgate.net/profile/tuan_le9/publication/269392455_anh_huong_cua_bien_doi_khi_hau_toi_sinh_ke_nguoi_dan_dong_bang_song_cuu_long/links/5488523b0cf2ef344790792f/anh-huong-cua-bien-doi-khi-hau-toi-sinh-ke-nguoi-dan-dong-bang-song-cuu-long.pdf))
21. Thuy An “Arduous resettlement for people in landslides” (<https://baomoi.com/gian-nan-tai-dinh-cu-cho-nguoi-dan-vung-sat-lo/c/26861128.epl>)
22. Van Ha “Strengthening capacity to cope with climate change”, truy cập từ <<https://baocantho.com.vn/tang-cuong-nang-luc-ung-pho-bien-doi-khi-hau-a95852.html>>

# IMPACT OF THE BREADTH AND DEPTH OF OUTREACH ON OPERATIONAL SUSTAINABILITY IN VIETNAM'S FORMAL MICROFINANCE INSTITUTIONS

*Dr. Ha Van Duong*

*dhv05@yahoo.com*

*Postgraduate Training Institute, Hong Bang International University,  
Ho Chi Minh City, Vietnam.*

## **Abstract**

*The breadth and depth outreach, and operational sustainability are the microfinance outreach indicators and its very important progression was monitored by microfinance institutions (MFIs). This study analyzed the impact of the breadth and depth outreach on operational sustainability of formal MFIs. The study used the regression analysis on a set of panel data from 2010 to 2019 of all formal MFIs in Vietnam. The results showed the breadth of outreach had a positive relationship with operational sustainability; the depth of outreach had a negative relationship with operational sustainability. Through the findings the study offers policy implication, recommends and helps the managers and policy-makers to understand this impact for effective and sustainable management of formal MFIs.*

**Keywords:** *Breadth of outreach, depth outreach, microfinance, operational sustainability*

## **1. Introduction**

Microfinance outreach tends to reduce poverty and to support the empowerment of socially excluded persons and improve access to financial resources for microfinance customers in many countries. In Vietnam, the operations of formal MFIs have reached many provinces and cities with over 100 branches and transaction offices. Many formal MFIs increased the breadth and depth outreach to expand their operation and improve operational sustainability.

However, many formal MFIs are faced with various challenges, including balance the goals of the breadth and depth of outreach and operational sustainability. The breadth and depth of outreach have now become the important goal along with operational sustainability which are the top targets that formal MFIs strive to achieve in their operation strategies. Therefore, we should be taking a wider view of breadth and depth of outreach goal, and operational sustainability and assessing the impact of the breadth and depth of outreach on operational sustainability.

There has been some of the studies on the operations of MFIs in Vietnam, but there had been no studies the impact of the breadth and depth of outreach on operational sustainability. This study's purpose was to examine the factors that affect the operational

sustainability including the breadth and depth of outreach. This study has developed an in-depth analysis of microfinance outreach and an econometric analysis on the impact of the breadth and depth of outreach on operational sustainability. The research demonstrated that the breadth and depth of outreach had relationship with operational sustainability. The study results will contribute to the theoretical and experimental. At the same time, the study offers policy implication and new insights for developing a more operational sustainability of formal MFIs and further emphasizes optimal policies to formal MFIs management to change the decision-makers' perception of formal MFIs; so, they can develop an effective suitable management strategy. Therefore, this study is urgently required to balance the goals of the breadth and depth of outreach and operational sustainability. In particular, this study is helpful to decision-makers and other stakeholders of formal MFIs in Vietnam.

## **2. Literature Review**

### ***2.1. The Breadth and Depth of Outreach, and Operational Sustainability***

The breadth of outreach was one of the microfinance outreach indicators. There are many the research on the MFIs' breadth of outreach, and there are generally assumed that the larger the number of borrowers the better the breadth of outreach. Rashid and Twaha (2013) showed the number of active borrowers was an indicator of the breadth of outreach. Quayes (2012) showed that the breadth of outreach was measured by the number of people a microfinance institution has extended credit to, or the number of borrowers over a specific period. With the rapid growth of microcredit, the breadth of outreach had also increased both at the industry level and also at the individual microfinance institution level. From the point of providing poor people with access to credit, the breadth of outreach could be thought of as measuring the quantity of microcredit. Rao (2014) found that breadth of outreach was the number and percentage change of clients served, and the number and percentage change of clients served should be broken down by microfinance services. Abdulai and Tewari (2017) revealed the breadth of outreach was related to the actual number of poor people reached with financial services. According to Abrar (2018), the breadth of outreach as measured by the number of credit clients, the depth outreach as depicted by average loan size. The study of Ha (2020a) also demonstrated the breadth of outreach the larger the number of borrowers the better the breadth of outreach in MFIs.

The depth of outreach was defined as microfinance outreach indicator. According to Ledgerwood (1999), the depth of outreach was measured by average loan size. Quayes (2012) showed that the depth of outreach was defined as access of credit disbursement to borrowers, wherein the borrowers were the greater was the depth of outreach. This study also showed the depth of outreach had received more attention from all quarters who are concerned about the overall social outreach of microfinance including policy-makers. From the point of providing poor people with access to credit, the depth of outreach measured the quality of microcredit. Rao (2014) revealed the depth of outreach was the average loan size, it could be measured dollars disbursed, average balance. Abdulai and Tewari (2017) found the average loan balance per borrower was a measure of depth of outreach, all financial

service providers expanded the depth of outreach to develop new products and channels or to move to new regions and market segments. Ha (2020b) showed the MFIs were striving to develop to ensure coverage for those living with high relative poverty levels, the depth of outreach was how deep within the clients a microfinance institution was able to reach.

Operational sustainability was a method of evaluating a microfinance institution can maintain existing practices and develop the resources in the future. Ledgerwood (1999) showed that operational sustainability was measured by the operational self-sustainability index. This index was measured continuously to monitor the level of income to cover all costs to ensure that MFIs will develop in the long-term. The MFIs would have operational sustainability if their revenue covered its operating expenses, financing costs and loans loss provisions. UNESCAP (2006) found that operational sustainability, expressed in percentage terms, provides an indication whether an MFI is earning sufficient revenue to cover its total costs-financial costs, operational costs and loan loss provisions. Sustainability can be defined as the ability of the organization to meet the operating cost and build enough reserves for recapitalization. Rao (2014) revealed indicators that suggested institutional sustainability, such as operational self-sufficiency, it gave other relevant factors weight in assessing the MFIs' length of outreach. According to Ha (2019a), operational sustainability was the goal of many sectors and fields, each sector would rely on economic and social characteristics to plan the most suitable strategy for sustainable development. Operational sustainability generally means the ability of an ongoing program to perform activities and services in pursuit of the planned objectives. For an ideal microfinance institution, this means the ability to continuously operate. Therefore, operational sustainability generally meant the ability to continuously operate of an MFIs' operations to perform services in pursuit of the planned objectives, and the operational sustainability in MFIs refers to the ability of institutions to cover their operating expenses, financing costs and loans loss provisions from their operating revenues.

## ***2.2. The Factors Affecting Operational Sustainability***

Operational sustainability refers to the ability of MFIs to cover all of its costs through their income. Therefore, operational sustainability is associated with all MFIs operations and is influenced by many factors, including:

*Firstly*, MFIs age: The age of microfinance institution is directly related to the change in the operational sustainability. According to Bogan et al. (2007), the age was the deciding factor in the operational sustainability of MFIs. Kipesha (2013) found that the age of MFIs had a positive impact on their sustainability. Wijesiri et al. (2017), age had a positive relationship with MFIs' operational sustainability, and the MFI have matured and gained experience in establishing its operations with age. According to Ha (2020b), the age reflected operational experience and had contributed to increase the profits of credit institutions. This showed that the age contributed to increase their operational sustainability.

*Secondly*, depth of outreach: According to Paxton (2002), there was a trade-off between the depth of outreach and operational sustainability of MFIs. Mahapatra and Dutta (2016) found that average loan balance per borrower positively affect the operational sustainability of MFIs. With regard to the research of Churchill (2017), the result showed there was a trade-off between sustainability and depth of outreach, the negative effects of sustainability on outreach were much stronger. Abdulai and Tewari (2017) also showed that evidence of trade-off between the depth of outreach and operational self-sustainability of MFIs. According to Ha (2019b), the depth of outreach had a negative impact on the breadth of outreach of MFIs. This reduced the number of borrower and affected the operational sustainability of MFIs.

*Thirdly*, debt-to-equity ratio: The debt-to-equity ratio is calculated by dividing a microfinance institution's total liabilities by its equity. This ratio is used to evaluate a microfinance institution's financial leverage. Bogan (2012) found the causal evidence supporting the assertion that increased use of grants by MFIs decreased operational self-sufficiency. Therefore, debt-to-equity ratio had a negative impact on the operational sustainability of MFIs. Veenapani (2017) showed that operational sustainability depended on the debt-to-equity ratio of MFIs. Joseph and Kibera (2019) found that MFIs reduced the debt-to-equity ratio in the management of financial resources tended to grow at a slower rate, but more sustainably. According to Ha (2019a), many MFIs used funding sources for lending and the rapid increase in debt financing would put pressure on their profitability, and this would have a negative impact on the operational sustainability of MFIs.

*Fourth*, breadth of outreach: According to Zerai and Rani (2012), there was a strong positive correlation between the breadth of outreach and operational sustainability. Rai and Rai (2012) found that number of active borrowers influence operational sustainability. This revealed the breadth of outreach had a positive impact on the operational sustainability of MFIs. Abdulai and Tewari (2017) showed that a positive association exists between the breadth of outreach and operational sustainability of MFIs. Ha (2019b) many MFIs increased their outreach breadth, contributed to increase the average loan per borrower, and this had led to increase the operational sustainability.

*Fifthly*, repayment ratio: Narwal and Yadav (2016) showed that MFIs might be focused on the repayment rate for attaining the level of sustainability in their operation. Jote (2018) found that improving repayment rate helped reduce the dependence on subsidies, which would improve operational sustainability of the MFIs. Ha (2019a) revealed that credit institution had a low non-performing loan rate, or high repayment rate would help them to ensure the safe operations, and this contributed to their operational sustainability. According to Ha (2020a), the econometric model result exhibited a very significant effect of the repayment ratio on the operational sustainability. Many MFIs had high repayment ratio, which helped them to ensure their operations were safe over the years, and a high repayment ratio helped to regenerate the loan capital, this contributed to increase their efficiency and operational sustainability.



### 3. Method

The both primary and secondary data were used to achieve the study's purpose. The primary data collected from the MIX Market website, and the annual reports and financial reports of formal MFIs that were licensed by the State Bank of Vietnam from 2010 to 2019. The secondary data were collected from international journals, books, etc. This study tests the following hypothesis on the impact of the breadth and depth of outreach on operational sustainability: (i) There is a positive relationship between the breadth of outreach on operational sustainability of formal MFIs, (ii) There is a positive or negative relationship between the depth of outreach on operational sustainability of formal MFIs. The analysis models of the impact of the breadth and depth of outreach on operational sustainability of formal MFIs were established as follows.

$$OSS = \beta_0 + \beta_1 AGE + \beta_2 ALB + \beta_3 DER + \beta_4 NAB + \beta_5 RR + \mu$$

Where,

The  $\beta_0$  is constant term, the coefficient  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$ ,  $\beta_4$  and  $\beta_5$  are regression parameters, the  $\mu$  is stochastic error term. The Stata 15.0 software was used in this study, and the definitions of variables and expected signs are presented in Table 1.

**Table 1: Summary of the research model variables**

Variables and symbols	Definition	Expected sign and hypotheses
<b><i>Dependent variable</i></b>		
Operational self - sustainability (OSS)	Operating income / (Operating expenses + financing costs + provision for loan losses)	
<b><i>Independent variable</i></b>		
The age of MFI (AGE)	Number of operational years of MFI	H1: + (high AGE, high OSS)
Depth of outreach (ALB)	The average loan per borrower	H2: +/- (high ALB, high or low OSS)
Debt-to-equity ratio (DER)	Total liabilities / Total equity	H3: - (high DER, low OSS)
Breadth of outreach (NAB)	The number of active borrowers	H4: + (high NAB, high OSS)
Repayment ratio (RR)	The value of the refunded credits / The value of the due credits	H5: + (High RR, high OSS)

Source: Own study

This study used regression analysis on a set of panel data, evaluated the fluctuations of variables and performed the correlation analysis. The study performed the fixed effects estimation according to FEM and REM. This research performed the Hausman test and tested for the statistical significance of difference between the coefficients estimates obtained by FEM and by REM, The study chose the result between FEM and REM, and compared them with pooled OLS to determine the influencing factors for this model and found the impact of the breadth and depth of outreach on sustainability sustainability of formal MFIs.

## 4. Results

### 4.1. Descriptive Statistics and Correlation Analysis

Descriptive statistics of both dependent and independent variables are presented in Table 2. The results testify that AGE, ALB, OSS, RR variables have smaller standard deviations than the average. DER and NAB variables have fluctuations, due to the large difference in debt-to-equity and breadth of outreach between formal MFIs in Vietnam in the period from 2010 - 2019.

**Table 2: Descriptive statistics**

Variable	Mean	Std. Dev.	Min	Max
OSS	130.5	21.18052	100	178.4
AGE	18.25	6.674675	6	29
ALB	.01004	.0075793	.0026	.0507
DER	5.27	5.613526	1.16	23.87
NAB	96003.65	108988.8	414	339468
RR	89.189	12.5435	60.36	99.99

*Source:* Own calculations.

The analysis results of correlation between variables in the model indicate a very low degree of correlation among the variables, the presence of any multicollinearity is neglected in Table 3.

**Table 3: Correlation matrix**

Factors	OSS	AGE	ALB	DER	NAB	RR
OSS	1.0000					
AGE	0.1702	1.0000				
ALB	-0.4271	-0.0307	1.0000			
DER	-0.6312	-0.1391	0.1807	1.0000		
NAB	0.4880	0.6768	-0.1403	-0.3596	1.0000	
RR	0.4600	0.6439	-0.2032	-0.3228	0.6447	1.0000

*Source:* Own calculations.

## ***4.2. Regression Results***

The study analyzed the empirical results from estimating the impact of the breadth and depth of outreach and the other factors on operational sustainability. The OSS was taken as dependent variable and AGE, ALB, DER, NAB, RR were included as the independent variables. By applying a panel data regression, the study was carried out using FEM and REM, and compared them with OLS. The regression result of FEM and REM found that both P-values were less than the significance level of 5% (P-value = 0.000), and the results were statistically significant at the significance level of 5 %.

According to the results of the multiple regressions are presented in Table 4 and from the analysis of the FEM showed that variable NAB had a positive impact on the variable OSS at the significance level of 1%; variable ALB had a negative impact on the variable OSS at the significance level of 5%; variable RR had a positive impact on the variable OSS, and the variables AGE and DER had a negative impacts on the variable OSS, but these variables were not statistically significant in this model. From the analysis of the REM showed that variables NAB and RR had positive impacts on the variable OSS at the significance level of 5% and 10%, respectively; the variables AGE, ALB and DER had the negative impacts on the variable OSS at the significance level of 5%, 10% and 5%, respectively.

The study applied Hausman test to distinguish between the REM and FEM, and choose the suitable model for the study. Hausman test result obtained a P-value of 0.2147, greater than the significance level of 5 % and by running the Hausman test REM was accepted to be the appropriate model. In comparison with the OLS Pooled model, REM was more suitable than the OLS Pooled model. Therefore, REM was used to analyze and test the next steps. The multicollinearity test result showed no serious multicollinearity in this model. Because the model had a result of Mean VIF = 3.02, and VIF of variables from 1.70 to 5.13. The study checked the autocorrelation of the model, P-value = 0.1223 was greater than 0.05 so this model did not have serial correlation. Testing for a variance change was considered with the P-value = 0.0347 and was smaller than 0.05. This result showed it had the variance change phenomenon in this model.

The study performed to overcome the variance change phenomenon in this model and achieved the results as can be seen in Table 4. From the analysis of the REM (xtgls) showed that variables NAB and RR had positive impacts on the variable OSS at the significance level of 1% and 10%, respectively; the variables AGE, ALB and DER had the negative impacts on the variable OSS at the significance level of 10%, 10% and 1%, respectively.

**Table 4: Regression results**

Independent variables	Dependent variable (OSS)		
	FEM	REM	REM (xtgls)
AGE	-0.956 (-1.78)	-1.845** (-2.96)	-1.115* (-2.21)
ALB	-803.7** (-3.00)	-649.0* (-2.24)	-677.8* (-2.05)
DER	-0.665 (-1.65)	-1.281** (-2.98)	-1.032*** (-3.30)
NAB	0.000104*** (3.94)	0.000105** (3.18)	0.0000842*** (3.82)
RR	0.417 (1.85)	0.654* (2.43)	0.543* (2.11)
_cons	112.3*** (6.29)	109.0*** (5.39)	102.7*** (5.27)
P-value	0.0000	0.0000	

Note: Statistics in parentheses \* p<0.05, \*\* p<0.01, \*\*\* p<0.001

Source: Own calculations.

## 5. Discussion and Conclusion

The results of REM (xtgls) in Table 2.4 showed that a significant effect of the age on the operational sustainability with coefficient -1.115 with the significance level of 10%. The result showed that for one unit increase in the age, the operational sustainability was anticipated to decrease by 1.115 units, when the remaining variables in the model were kept constant. This result disagreed with the expected sign and hypotheses and disagrees with the analysis results of Bogan et al. (2007), Kipsha (2013), Wijesiri et al. (2017) and Ha (2020b). Because, most of the formal MFIs were established in recent years and maintained their operational self-sustainability indicator by more than 110% in their operational years. Through this result showed that the experience did not yet play the important role in improving the operational sustainability as it did not yet provide chance for the formal MFIs and borrowers to understand each other and served each other more efficiently over the years.

The study result indicated that the depth of outreach significantly affected the operation sustainability. The coefficient of the depth of outreach was negative and statistically significant at the 10% level. This result showed that for one unit increase in the depth of outreach, the operation sustainability was anticipated to decrease by 677.8 units, when the remaining variables in the model were kept constant. This implied that formal MFIs with more the depth of outreach had lower the operation sustainability. This result agreed with the analysis results of Paxton (2002), Abdulai and Tewari (2017), Churchill

(2017) and Ha (2019b), but agreed with the analysis results of Mahapatra and Dutta (2016). This result showed there was the trade-off between the operational sustainability and the depth of outreach. This meant that formal MFIs focused on attaining the operational sustainability goal was unlikely to increase the average loan per borrower. This could worsen the situation of the average loan per borrower, and the formal MFIs could not provide enough the borrowers' needs, and leading to their exclusion from finance markets.

The outcome of the regression analysis indicated there was a statistically significant effect of the debt-to-equity ratio on the sustainability sustainability. As expected, the study noted a coefficient that was significant at the 1% level. This result showed that for one unit increase in the debt-to-equity ratio, the sustainability sustainability was anticipated to increase by 1.032 units, when the remaining variables in the model were kept constant. The formal MFIs have used a relatively high level of funding to lending and increase the breadth and depth of outreach, contribute to income growth and improve the operational sustainability indexes over the years.

The regression result indicated a significant effect of the breadth of outreach on the operational sustainability. As expected, the coefficient was positive and statistically significant at the 1% level. This result showed that for one unit increase in the breadth of outreach, the operational sustainability was anticipated to increase by 0.0000842 units, when the remaining variables in the model were kept constant. This meant that high breadth of outreach formal MFIs contributed to increase the operational sustainability. This evidence agreed with the expected sign and hypotheses and was in line with findings developed in Zerai and Rani (2012), Rai and Rai (2012), Abdulai and Tewari (2017b) and Ha (2019b). Many formal MFIs increased the number of active borrowers, expand operations, increase their income and contributed to improve their operational sustainability in the period 2010-2019. This meant that formal MFIs focused on attaining the breadth of outreach goal was likely to provide microfinance products and service to many the clients and increase the operational sustainability.

The econometric model result exhibited a very significant effect of the repayment ratio on the operational sustainability. As expected, the coefficient was positive and statistically significant at the 10% level. This result showed that for one unit increase in the repayment ratio, the operational sustainability was anticipated to increase by 0.543 units, when the remaining variables in the model were kept constant. This meant that high repayment ratio formal MFIs had higher the operational sustainability. This result agreed with the expected sign and hypotheses and concurred with the study of Narwal and Yadav (2016), Jote (2018), Ha (2019a) and Ha (2020a). Many formal MFIs had high repayment ratio, which helped them to ensure their operations were safe over the years, and a high repayment ratio helped to regenerate the loan capital, this contributed to increase their efficiency and operational sustainability.

This study's purpose was to analyze the impact of the breadth and depth of outreach on operational sustainability of formal MFIs. The study analyzed this relation using a panel data regression method with research data from all formal MFIs in Vietnam from 2010 to 2019. The two prominent models were identified and these research results were accurate according to the characteristics of the formal MFIs in Vietnam.

The results found that the two factors that had positive relationships with the operational sustainability were the breadth of outreach and the repayment ratio. The three factors that had negative relationships with the operational sustainability were the age, the depth of outreach and the debt-to-equity ratio.

The results showed the breadth and depth of outreach affected operational sustainability according to different trends, the breadth of outreach had a positive relationship with operational sustainability, and the depth of outreach had a negative relationship with operational sustainability. The formal MFIs achieved dual goals, both achieving the breadth of outreach goals and achieving operational sustainability, but there was a trade-off between the depth of outreach and operational sustainability.

Microfinance sustainability are an important area to the MFIs. Microfinance services are tailored to meet the needs and aspirations of the inhabitants, and emphases are towards poverty reduction. Thereby, MFIs contribute to the socioeconomic development of countries. This study will help researchers and managers develop their expertise on the impact of the breadth and depth of outreach on operational sustainability of formal MFIs. Based on the study results, the article recommends the following to improve the breadth and depth of outreach and increase the operational sustainability.

*Firstly*, this study found positive interactions between the breadth of outreach and operational sustainability, so that the immediate policy recommendation is for formal MFIs to focus more on the the breadth of outreach goals and achieving operational sustainability.

*Secondly*, formal MFIs are credit institutions that are allowed to deposit mobilization to lend to borrowers. Therefore, to ensure microfinance sustainability, formal MFIs must also follow the general principle of ensuring safety for all operations. The formal MFIs should focus more on improving repayment ratio, expand the breach of outreach that contribute to promote the operational sustainability

*Thirdly*, formal MFIs should attract more new members to increase financial resources, and reduce external funding. Thereby, formal MFIs will decrease the debt-to-equity ratio and improve the operational sustainability.

*Fourthly*, the primary purpose of formal MFIs is to provide financial services to ever larger numbers of low-income customers. So that, the formal MFIs always maintain a combination of the breadth of outreach and operational sustainability, and an appropriate strategic option can limit the trade-off between the depth of outreach and operational sustainability.

## 6. References

1. Abdulai, A. and Tewari, D. D (2017), Determinants of microfinance outreach in Sub-Saharan Africa: A panel approach, *Acta Commercii - Independent Research Journal in the Management Sciences*, 17(1), 1-10. Available at: <https://doi.org/10.4102/ac.v17i1.414>
2. Abrar, A. (2018). The impact of financial and social performance of microfinance institutions on lending interest rate: A cross-country evidence. *Cogent Business and Management*, 6(1) 1540072. Available at: <https://doi.org/10.1080/23311975.2018.1540072>
3. Bogan, V. L., Johnson, W. and Mhlanga, N. (2007). *Does capital structure affect the financial sustainability of microfinance institutions*. Department of Applied Economics and Management, Cornell University, Working paper.
4. Bogan, V. L. (2012). Capital Structure And Sustainability: An Empirical Study of Microfinance Institutions. *The Review of Economics and Statistics*, 94(4), 1045 -1058.
5. Churchill, S. A. (2017). Sustainability and Depth of Outreach: Evidence from Microfinance Institutions in Sub-Saharan Africa. *Development Policy Review*, Overseas Development Institute, 36(S2), 676-695.
6. Ha, V. D. (2019a). The interactive relationship between credit growth and operational self-sustainability of People's credit funds in Mekong Delta Region of Vietnam. *The Journal of Asian Finance, Economics and Business*, (6)3, 55-65.
7. Ha, V. D. (2019b). The interactive relationship between outreach breadth and outreach depth of vietnam's formal microfinance institutions. *Management and Economic Journal*, 3(9): 650-58.
8. Ha, V. D. (2020a). *The Interactive Relationships in Microfinance*. Publishing house: Eliva Press.
9. Ha, V. D (2020b). Productivity and Social Performance of Co-operative Financial Institutions: Evidence from Vietnam. *The Journal of Social Sciences Research*, 6(3), 259 - 271.
10. Joseph, O. O. and Kibera, F. (2019), Organizational Culture and Performance: Evidence From Microfinance Institutions in Kenya. *Sage Journal*, 9(1), 1-11.
11. Jote, G.G. (2018), Determinants of Loan Repayment: The Case of Microfinance Institutions in Gedeo Zone, SNNPRS, Ethiopia. *Universal Journal of Accounting and Finance*, 6(3), 108-122.
12. Kipasha, E.F. and X. Zhang, (2013). Sustainability, profitability and outreach tradeoffs: Evidences from microfinance institutions in East Africa. *European Journal of Business and Management*, 5(8): 136 - 148.

13. Mahapatra, M. S. and Dutta, S. (2016). Determinants of Sustainability of Microfinance sector In India. *Journal of Rural Development*, 35(3), 507-522.
14. Ledgerwood, J. (1999), *Microfinance Handbook-A Financial Market System Perspective*, The World Bank, Washington, D.C.
15. Narwal, K. P. and Yadav, M. K. (2016). Sustainability of microfinance institutions: the role of outreach and financial sustainability. *International Journal of Financial Services Management*, 8(4), 350 - 365.
16. Paxton, J. (2002), Depth of Outreach and Its Relation to the Sustainability of Microfinance institutions. *Savings and Development*, 26(1), 69-86.
17. Quayes, S. (2012). Depth of outreach and financial sustainability of microfinance institutions. *Applied Economics*, 44(26), 3421-33.
18. Rao, R. M. and Fitamo, T. L. (2014). Concepts and measures of outreach and sustainability in microfinance institutions: A comprehensive literature review. *Research Journal of Finance and Accounting*, 5(21), 41- 48.
19. Rashid, A., and Twaha, K. (2013). Exploring the determinants of the productivity of indian microfinance institutions. *Theoretical and Applied Economics*, 10 (12), 83-96.
20. UNESCAP (2006). Microfinance for Poverty Reduction: Building Inclusive Financial Sectors in Asia and the Pacific. *Development Papers No 27, Economic and Social Commissions for Asia and the Pacific*. United Nations, Manuafacture in Thailand.
21. Veenapani (2017), Performance and Sustainability of Microfinance Institutions in India. *International Journal of Management & Business Studies*, 7(2), 72-77.
22. Wijesiri, M., Yaron, J. and Meoli, M. (2017). Assessing financial and outreach efficiency of Microfinance Institutions: Do age and size matter? *Journal of Multinational Financial Management*, 40(6), 63-76.
23. Zerai, B., Rani, L. (2012), Is There a Tradeoff between Outreach and Sustainability of Micro finance institutions? Evidence from Indian Microfinance Institutions (MFIs). *European Journal of Business and Management*, 4(2), 90-98.



# IMPACTS OF CLIMATE CHANGE ON AGRICULTURAL PRODUCTION IN VIET NAM

*Hoang Ngoc Huong*

*minhtuyenmta@gmail.com*

*Faculty of Political Economy, Political Academy, Ha Noi, Viet Nam*

## **Abstract**

*In Vietnam, agriculture plays an important role in the country's economy in terms of poverty reduction, food security. Studies have shown that Vietnam is one of the countries that most affected by climate change because of its geographical and natural conditions together with its fast but massive and unplanned urbanization. There are many research and studies that have been conducted to assess the impacts of climate change on different sectors. In this article, the authors analyze the impacts of climate change on agricultural production in Vietnam, suggesting some solutions to develop agricultural production in Vietnam in the coming time.*

**Keywords:** *Agriculture production, climate change, Viet Nam*

## **1. Introduction**

Agriculture still accounts for about a quarter of Vietnam's GDP and is the main livelihood of 60% of the population. However, agriculture is one of the industries that are directly and adversely affected by climate change. The impact of climate change on agriculture is reflected in the problems of agricultural land, plants, livestock, their survival and development, water supply difficulties and natural disasters affecting agricultural production. The changing climate could be especially damaging for rice cultivation due to substantial modifications in land and water resources. Hydroclimatic disasters such as typhoons, floods, and droughts, which could become more severe and more frequent as the climate changes, would also affect rice production substantially in Viet Nam.

This paper examines these critical issues and thereby makes two contributions to the literature on food security and climate change. We first assess the impacts of climate change on agricultural production in Vietnam based on crop simulation, hydrological simulation, and river basin models. Section 2 presents the methodologies. Section 3 presents the results of the impacts of climate change on agriculture production: Impacts of climate change on national food security; Impacts of climate change on aquaculture; Impacts of climate change on rural infrastructure. Section 4 concludes by discussing policy implications derived from this study.

## **2. Method**

In this paper, the author uses qualitative research methods to study the impacts of climate change on agricultural production in Vietnam. The author uses data from the

Ministry of Agriculture and Rural Development, the Ministry of Natural Resources and Environment, the United Nations figures as well as some figures compiled by the author. Based on the analysis of the impacts of climate change on agricultural production in Vietnam, the author has grounds to propose some solutions to develop Vietnam's agricultural production in the coming time.

### 3. Results

#### 3.1. Impacts of climate change on national food security

To ensure national food security, the Ministry of Agriculture and Rural Development has formulated the project "Agricultural, farmers and rural issues", the National Food Security Strategy to 2020 and a vision by 2030; Decree on rice land management. According to the statistics of the Ministry of Agriculture and Rural Development in 2009, the area of agricultural crops is about 9.4 million hectares, including 4 million hectares of rice land; The goal is to reach 10 million hectares by 2020. However, it is forecasted that by 2020, our population will reach about 120 million people along with high urbanization rate, in the context of climate change and extreme weather, sea level rise, this target is threatened. threatening.

In agriculture, the damage caused by natural disasters is considerable. Natural disasters increase the divergence of the living standards, hinder and slow down the process of hunger eradication and poverty reduction, especially in regions frequently faced with natural disasters. On average, millions of people need relief each year due to natural disasters and many fall back into poverty (Table 1).

**Table 1. Damage caused by natural disasters to agriculture**

Categories	2009	2010	2012	2013	2014	2015	2016	2017
Damaged rice (ha)	46.490	209.764	504.095	139.321	173.830	149.945	237.799	157.696
Damaged crops (ha)	43.698	50.118	160.780	122.560	215.059	325.614	173.662	--
Buffaloes and cows die (heads)	8.465	288	1.629	427	2.931	414	48.938	4.567
Dead pig (pig)	27.732	2.535	6.705	610	246.553	22.006	98.620	32.555
Dead poultry (birds)	219.456	93.885	131.747	79.766	2.868.985	1.162.303	1.249.087	676.782
Area of shrimp and broken fish ponds (ha)	5.828	14.490	55.691	9.819	17.765	57.199	9.424	28.481
Ship, boat lost (ship)	26	183	383	1.151	266	226	683	164
....	...	...	...	...	...	...		
Total damage (VND billion)				1.471	725		86	
Damage rate/ agricultural production value (%)				<b>0,75</b>	<b>0,31</b>		<b>0,025</b>	

*Source: Office of Central Steering Committee for Flood and Storm Prevention, 2015.*

In 2017, our country was affected by 11 storms and many major floods, causing heavy losses of lives and property. The phenomenon of storms, flash floods and tornadoes has caused severe damage to the crop industry. On the other hand, according to calculations from the climate change scenario of the Ministry of Natural Resources and Environment in 2016, if the sea level rises by 1m, there will be 38.29% of the natural land area and 32.16% of the agricultural land area. Inundation in the 10 most flooded provinces in the Mekong Delta and Ho Chi Minh City (Table 2).

**Table 2. Forecast of rice yield losses under the scenario of 1m sea level rise in the Mekong Delta**

Provinces	Natural land area (1000ha)	Natural soil flooded (1000 ha)	Estimated agricultural land is flooded (1000 ha)	average rice yield (ton/ha/case)	Number of cases / year	Lost output (1000 ton)	Lost value (1000 billions dong)*
Ben Tre	231,5	113,1	81,7	4,06	2,0	663,7	2.522,0
Long An	449,2	216,9	160,0	4,08	2,0	1.305,3	4.960,3
Tra Vinh	222,6	102,1	83,5	4,43	2,0	739,9	2.811,7
Soc Trang	322,3	142,5	116,6	4,93	2,0	1.150,1	4.370,2
HCM city	209,5	86,2	39,2	3,17	2,0	248,6	944,6
Vinh Long	147,5	60,6	49,2	4,77	2,0	468,9	1.782,0
Bac Lieu	252,1	96,2	80,4	4,66	2,0	749,0	2.846,3
Tien Giang	236,7	78,3	60,1	4,90	2,0	588,5	2.236,3
Kien Giang	626,9	175,7	112,8	4,61	2,0	1.040,5	3.953,7
Can Tho	298,6	75,8	64,6	5,18	2,0	669,6	2.544,5
<b>Plus</b>	<b>2.996,8</b>	<b>1.147,4</b>	<b>848,1</b>	<b>44,79</b>	<b>2,0</b>	<b>7.597,4</b>	<b>28.870,2</b>
Structure	-	38,3	32,2	-	-	40,5	40,5

Note: (\*) The price of paddy is calculated at VND 3,800 / kg as at December 2016

Source: Jeremy Carew - Ried - International Center for Environmental Management (ICEM), 2014 and MONRE, 2018.

The table above shows that, by 2018, if the sea level rises by 1m, the rice bowl of the Mekong River Delta and Ho Chi Minh City are at risk of losing 7.6 million tons of rice/year, equivalent to 40.52% of the total production. amount of rice in the region. Thus, if the Ministry of Natural Resources and Environment's scenario on climate change and sea level rise is as expected, Vietnam will face a serious shortage of food in 2018, because losing about 21.39% of rice production (only calculated for the Mekong Delta).

### **3.2. Impacts of climate change on aquaculture**

Viet Nam has a coastline of 3,260 km and an exclusive economic zone of more than 1 million km<sup>2</sup>. These are potential conditions for developing fishing and aquatic products. It can be said that among the benefits brought about by the sea, aquatic and marine resources

occupy an extremely important position. In recent years, climate change has directly affected economic development in coastal areas of Vietnam, including aquaculture:

*Firstly*, the increase in temperature has adversely affected aquaculture. Temperature plays an important role in the growth and development of organisms in general and aquaculture species in particular. In the central provinces, the phenomenon of hot weather has caused the water temperature to rise beyond the tolerance of many species. On the other hand, changes in temperature are also a condition for many diseases to occur in farmed species. Increasing temperatures make the health of farming species worse, which is a favorable condition for the development of harmful microorganisms.

*Secondly*, storms, floods and tropical depressions formed in the South China Sea have caused severe damage to fishing activities. It can be said that among the benefits brought about by the sea, the fisheries economy occupies an extremely important position, interwoven with immediate benefits and long-term benefits. Fisheries play an important role in ensuring and improving the livelihoods of communities living in coastal and island rural areas (58% of the coastal population relies heavily on agriculture and fishing. fisheries, about 480,000 people directly catch seafood, about 10,000 people work in seafood processing and 2,140,000 people provide services related to fisheries). Climate change has a direct impact on aquaculture and fishing in coastal areas of Vietnam.

Vietnam is located in a complex climate zone. All typhoons and tropical depressions operating in the South China Sea have a direct impact on Vietnam's weather (Box 1). In particular, storms and tropical depressions when landing on coastal areas often have unstable speed and direction, wide range of effects, causing heavy rains, causing inundation in many areas: residential and field.

#### **Box 1: Some damage caused by typhoons over the years**

- In August 1996, a tropical depression on Hau Loc sea in Thanh Hoa province killed 113 fishermen and sunk dozens of boats.
- In November 1997, Hurricane Linda landed in Ca Mau peninsula, Kien Giang killed and disappeared over 300 people, over 3,600 fishing boats of fishermen were sunk and damaged.
- In 1998, tropical storms and typhoons No. 4, 6 and 8 hit the central provinces, causing 100 fishermen to die and disappear, 450 boats and boats to be sunk and damaged.
- In 1999, the end of July flash flood in Binh Thuan caused 70 ships to sink and drift, 50 fishermen died. In early November and December 1999, tropical depression caused heavy rain and heavy floods in 7 central provinces, causing 1,282 boats to sink and float and 50 fishermen to die.
- In 2001, typhoon No. 8 hit 3 provinces of Quang Ngai, Binh Dinh and Phu Yen, causing 32 fishermen to die, 853 boats sunk and damaged.
- In 2006, 10 strong storms combined with prolonged northeast monsoon winds and other abnormal phenomena significantly impacted fisheries activities, causing damage to people and fishing vessels. on the sea; in particular, the storm No. 1 Chan Chu sank 18 fishing boats, 266 fishermen died and went missing.
- Typhoon No. 6 (Xangsane) left 7 fishermen dead and missing, nearly 1,000 fishing boats sunk, more than 7.00 ha of aquaculture were flooded, 700 cages were raised.
- Storm No. 9 (Durian) also caused significant human and material damage to the fishing community.

*Source:* Summary of the authors

*Thirdly*, the negative impact of mangrove intrusion on aquaculture. Increased sea level rise and saltwater intrusion have caused the loss of suitable habitat for some freshwater aquatic species, thereby reducing the capacity of inland freshwater aquaculture in the Mekong Delta and Red river delta. Climate change also causes many negative impacts on the reserves of fishing grounds and fishing activities in our country's waters.

*Fourthly*, heavy and abnormal rainfall adversely affect aquaculture. The intense rainfall causes the salt concentration to decrease in a short time, leading to the loss of brackish and coastal water, especially bivalve molluscs (clams, clams, oysters ...) due to mass succumb to salt concentration changes. Low-value tropical fish have increased, sub-tropical fish species of high economic value have been reduced or lost. Changes in temperature also cause many diseases for rearing species. With such an impact mechanism, climate change has caused significant economic losses to the fishery and therefore it has also been causing adverse changes to the labor and employment of the industry ( Box 2).

**Box 2: Impacts of climate change on employment and income of fishing and aquaculture households**

Survey results of the Ministry of Labor, Invalids and Social Affairs in 2016 showed that, in the surveyed localities, there were a high proportion of employees working in the field of aquaculture, from over 50% to 90 % of labor force working in this sector. For coastal areas such as Nam Can district (Ca Mau), the aquaculture area accounts for over 90% of the total farming area of the district, with approximately 90% of labor associated with this livelihood. Due to limited capital and knowledge / technology, the production process of local people is almost dependent on the natural environment, weather, ... Due to the impact of climate change, damage. In aquaculture, there has been an increase in recent years. More and more aquaculture area is being raised, destroyed or damaged by sea level, ... Besides, due to the phenomenon of drought, saltwater intrusion, unseasonal floods, ... changing the water environment (temperature changes, salinity changes), so many areas of farming pangasius, shrimps, clams, ... have reduced productivity, diseases, died in mass. The losses due to climate change for households and workers are becoming more and more serious. The rate of damage in some aquaculture areas in Bac Lieu Ben Tre, Ca Mau has increased to 30-40% / year. Households in the severely affected areas have to leave the pond, "suspend the pond" and produce in moderation. Aquaculture workers are underemployed for many months of the year or have to earn other livelihoods such as working as hired laborers, switching to salt production, going to sea ...

*Source:* Report of local survey results by Ministry of Labor, Invalids and Social Affairs, 2016

**3.3. Impacts of climate change on rural infrastructure**

Climate change causes sea level rise to lead to the risk of dyke breakage during typhoons. Due to rising sea levels, the force regime of waves and coastal currents has changed; it also causes bank erosion. Rising sea levels reduce the likelihood of draining water into the sea, causing the water levels in the inland rivers to rise. When there is an increase in flood flows from the upstream as a result of extreme weather events, rising sea levels will cause flood peaks to increase, threatening the safety of river dikes in the provinces of the northern provinces. North, dikes and embankments in southern provinces. Most coastal drainage systems are now self-draining systems. The rising sea level makes it

difficult to drain water itself, especially at high tide, causing flooding in many areas. Sea level rise also makes saline intrusion inland, underground aquifers in coastal areas, making it difficult to get water for production. Data from the Office of the Central Steering Committee for Flood and Storm Prevention and Control show that climate change, the most evident of which is natural disasters, has severely affected rural infrastructure. Particularly in 2010, rain, flood, storm No. 9 has damaged about 155,700 m<sup>3</sup> of canals, 50,000 m<sup>3</sup> of dikes, more than 322 irrigation works of all sizes (Table 3).

**Table 3: Statistics of natural disaster damage in 2018**

Categories	Unit	Rain and Tornado, flood	Flash hail	Flash floods	Storm number 9	Storm number 11
Volume of gravelly soil, drift, accretion	m <sup>3</sup>	223.320	0	16.988	2.070.708	355.619
Canal, dam	m <sup>3</sup>	155.700	0	0	0	0
Dykes for aquaculture	m <sup>3</sup>	50.000	0	0	0	0
Rocks, drift	m <sup>3</sup>	450	0	0	381.845	10.210
Dyke	m	10.000	0	0	36.276	16.104
Rafting	m	0	0	312	100,400	2,250
Canal erosion, damage	m	0	1.400	5.396	174.605	121.974
Number of bridges, culverts broken, drifted	pieces	3	0	2	15	0
Number of small and broken irrigation works	pieces	0	0	16	332	0
Number of small irrigation works damaged	pieces	4	0	392	1,259	179
The number of buoys temporarily floated	pieces	1	3	330	0	0
Number of stations, pumps flooded	pieces	0	0	0	9	0
Estimated into money	million dong	18.000	-	-	-	-

*Source: Statistics of the Office of Central Steering Committee for Flood and Storm Prevention, 2018.*

### **3.4. Some solutions to develop agricultural production**

In order for the Party and State's guidelines and policies to come to life, at the same time, to promote people's initiatives in the process of coping with climate change, contributing to the sustainable development of Vietnam's agricultural economy. In the next time need to note some of the following focus:

*Firstly*, studying the relationship and interaction between environmental pollution, climate change and economic growth, in which more specifically assesses human activities for the purpose of economic growth. polluting the environment, leading to climate change.

*Secondly*, enhance the capacity of the economy to endure climate change through innovation of growth model, towards green growth and green investment; restructuring the economy, selecting appropriate economic sectors to focus on development; improve the practicality and effectiveness of regional linkages in the overall economy, transformation of plant varieties and animal breeds.

*Thirdly*, to restructure agriculture in response to climate change, gradually form an agricultural economic structure along the direction of commodity production, with high productivity, quality and economic efficiency; Expand services in agriculture; Links in investment, production, processing and consumption of agricultural products; Building and developing livelihoods to adapt to climate change. Re-plan irrigation systems to be more suitable for flood retention, to prevent salinity to be more flexible and to serve a variety of farming systems, especially aquatic and fruit production; Strictly planning and managing the planning of mangroves / brackish forests to ensure ecological and environmental balance. Establishment of payment mechanism for environmental services to create livelihoods for local people to develop and protect mangrove / brackish forests; Clearly planning specialized areas for commodity production under sub-regions and having sanctions for strict implementation and management of planning ...

*Fourthly*, to survey and synthesize people's initiatives in dealing with climate change phenomena and to increase resources to support and further enhance the activeness and long-term in the measures.

*Fifthly*, focus on investing in upgrading transport infrastructure, to reduce time and cost of intra-regional transportation (improving waterways to transport agricultural products, especially from specialized areas to centers). process). Specifically, review and adjust the planning of waterway, road, seaport transportation systems, supplement the railway plan to connect in specialized farming areas, connect specialized areas with each other, and connect specialized areas. farming with processing areas and connectivity to markets; avoid unreasonable division; To re-plan urban areas and rural population areas from linearly arranged in clusters and backward into coastal / river banks to ensure safety against the effects of floods, sea level rise, mangroves, etc.

*Sixthly*, renovating production organization and promoting value chain linkages; Researching and applying science and technology in production and processing. Encourage service to support farmers to acquire and apply science and technology, empower farmers and enterprises to participate in evaluating and ordering research and extension agencies; Promote the socialization of agricultural science and technology activities; decentralize agricultural extension activities to farmer organizations and businesses.

*Seventhly*, continue reviewing to complete the legal frameworks and policy mechanisms; consider and pilot some specific mechanisms and policies for specialized farming areas; promote international cooperation to support the Agriculture sector to adapt to climate change and develop sustainable livelihoods, including:

- Land policy: Open up the land market, promote the accumulation and concentration of agricultural land.

- Policies to attract investment: Create a strong motivation to attract investment and encourage business development in agriculture through creating feasible policies and mechanisms that meet the needs of businesses.

- Tax and fee policies: Improve the tax and fee system, motivate the application of sustainable, climate-resilient agricultural models.

- Credit policy: Promote lending credit along the agricultural value chain. Complete the legal framework to develop a comprehensive supply of new financial products and services to increase access to credit on a larger scale and longer term for farmers, farms, cooperatives and businesses in agriculture and rural areas.

- Insurance policy: Continue to implement agricultural insurance programs / models for key agricultural products of the region, gradually linking insurance and credit along the chain. Develop social insurance policies for informal workers.

- Trade policy: Reviewing, renovating and perfecting the quarantine apparatus, ensuring biological safety and epidemiological hygiene for import and export goods. Continue to promote the implementation of policies to support building agricultural value chains. Establish a mechanism for conciliation of disputes in agriculture, forestry and fishery underwriting contracts in order to resolve disputes over conflicts, proceeding to develop a mechanism for sharing prices between actors in the price chain. agricultural governance to ensure the interests of stakeholders and sustainable development.

#### **4. Discussion and Conclusion**

Climate change is posing great challenges for countries, especially for developing countries like Vietnam. Judging by international organizations, Vietnam is one of the five countries most seriously affected by climate change. With the agriculture still highly dependent on nature as it is today, Vietnam needs to be proactive, regularly assess and forecast the impacts of climate change, in order to timely take measures to support the agricultural economy sustainable development.

As an agricultural country (agriculture contributes about 20% of GDP), the majority of the poor live on agriculture and fishing, so Vietnam is ranked by the United Nations Development Organization as one of the five standing countries. The world's most vulnerable and directly vulnerable to climate change. With agriculture still highly dependent on nature as it is today, Vietnam needs to proactively assess and forecast the impacts of climate change, in order to timely take appropriate measures to respond and develop appropriate agricultural economy suitable and sustainable.

#### **5. References**

1. Doraszelski, U., and J. Jaumandreu (2009), *R&D and productivity: Estimating endogenous productivity. Mimeo. Cambridge, Mass., U.S.A.: Harvard University.*
2. Eastham, J., F. Mpelasoka, M. Mainuddin, C. Ticehurst, P. Dyce, G. Hodgson, R. Ali, and M. Kirby (2008), *Mekong river basin water resources assessment: Impacts of climate change. Clayton South, Australia: Commonwealth Scientific and*



*Industrial Research Organisation (CSIRO): Water for a Healthy Country National Research Flagship.*

3. Fan, S (2008), *Public expenditure, growth and poverty in developing countries: Issues, methods and findings eds.* Baltimore: John Hopkins Publications.
4. Fan, S., P. L. Huong, and T. Q. Long (2003), *Government spending and poverty reduction in Vietnam.* Report prepared for the World Bank.
5. Fan, S, B. Yu, and A. Saurkar (2008), *Public spending in developing countries: Trends, composition and changes. In Public expenditure, growth and poverty in developing countries: Issues, methods and findings*, ed. S. Fan. Baltimore: John Hopkins Publications.
6. Felipe, J., R. Hasan, and J. S. L. McCombie (2008), *Correcting for biases when estimating production functions: An illusion of the laws of algebra?* Cambridge Journal of Economics 32 (3): 441-459.
7. GSOa (General Statistics Office of Vietnam). *Various years. Statistical yearbook of Vietnam. Hanoi: GSO.*
8. GSOb (General Statistics Office of Vietnam). *Various years. The rural, agricultural and fishery census. Hanoi: GSO.*
10. GOV (Government of Vietnam) (2009), *Resolution No. 63/NQ-CP dated December 23, 2009 on ensuring national food security*, Hanoi, Vietnam
11. IPCC-TGCI (Intergovernmental Panel on Climate Change, Task Group on Scenarios for Climate Impact Assessment) (2000), *Emissions scenarios 2000: Special report of the Intergovernmental Panel on Climate Change.* Cambridge, U.K.: Cambridge University Press.
12. Kirby, M., and M. Mainuddin (2009), *Water and agricultural productivity in the lower Mekong basin: Trends and future prospects.* Water International 34 (1): 134-143.
13. Long, S. P., E. A. Ainsworth, A. D. B. Leakey, J. Nosberger, and D. R. Ort (2006), *Food for thought: Lower-than-expected crop yield stimulation with rising CO2 concentrations.* Science 312: 1918-1921.
14. McCulloch, C. E., S. R. Searle, and J. M. Neuhaus (2008), *Generalized, linear, and mixed models.* 2nd ed. Hoboken, N.J., U.S.A.: Wiley.
15. Minot, N., B. Baulch, and M. Epprecht (2006), *Poverty and inequality in Vietnam: Spatial patterns and geographic determinants.* Research Report 148. Washington, D.C.: International Food Policy Research Institute.
16. Nguyen, T. 2006. Poverty, poverty reduction and poverty dynamics in Vietnam. Background paper for the Chronic Poverty Report 2008-09. Manchester, U.K.: Chronic Poverty Research Centre.
17. Sadoulet, E., and A. de Janvry (2003), *Quantitative development policy analysis.* Baltimore: Johns Hopkins University Press.
18. Swinkels, R., and C. Turk (2006), *Explaining ethnic minority poverty in Vietnam: A summary of recent trends and current challenges.* Background paper for Vietnam Country Economic Memorandum (CEM)/Ministry of Planning and Investment (MPI) meeting on ethnic minority poverty.

19. Van Diepen, C. A., J. Wolf, H. Keulen, and C. Rappoldt (1989), *WOFOST: A simulation model of crop production*. *Soil Use and Management* 5 (1): 16-24.
20. Vu, L., and P. Glewwe (2008), *Impacts of rising food prices on poverty and welfare in Vietnam*. Working Paper Series No. 13. Hanoi, Vietnam: Development and Policies Research Center (DEPOCEN).
21. Zhai, F., and J. Zhuang (2009), *Agricultural impact of climate change: A general equilibrium analysis with special reference to Southeast Asia*. Asian Development Bank Institute Working Paper Series 131. Manila, the Philippines: Asian Development Bank.
22. Zhu, T., and M. V. Trinh (2010), *Climate change impacts on agriculture in Vietnam*. *In Proceedings of the International Conference on Agricultural Risk and Food Security*, June 11-12, 2010, Beijing.

# EXPLOITING THE CULTURAL HERITAGE VALUES FROM THE SUSTAINABLE TOURISM DEVELOPMENT VIEW: CASE STUDY IN TRAN VAN THOI DISTRICT, CA MAU PROVINCE

*Trinh Minh Chanh*

*mingzheng79@gmail.com*

*Ho Chi Minh City University of Technology*

## **Abstract:**

*Vietnam's tourism industry is currently increasingly improving, as well as gradually becoming a key tourism industry in the country. Exploiting the values of marine cultural heritage of localities and regions to become a typical tourist product is completely consistent with the guidelines and policies of the Party and the Government. To do so requirements in the orientation of Government management from the central to local levels; the contribution of domestic and international travel businesses; the readiness of the local community and the interest of tourists. Exploiting cultural values that need to approach the goals of tourism and the sustainable development of the World Tourism Organization (UNWTO); reference to Global Sustainable Tourism Council (GSTC); Need to learn from the experience of countries in the world and the region. Hence, there are orientations and solutions to maintain, preserve and promote the values of Vietnam's cultural and maritime heritage. Each locality has a different tourism culture, to attract tourists to visit and explore. The main objective of the paper is to exploiting the cultural heritage values from the sustainable tourism development view: case study in Tran Van Thoi District, Ca Mau Province.*

**Keywords:** *Cultural heritage, Sustainable tourism, Nghinh Ong festival.*

## **1. Introduction**

Determining the importance of exploiting cultural heritage and connecting destinations in Ca Mau province to diversify tourism products is an indispensable need in tourism activities. In addition, tourism is also a strategy to promote, preserve and promote the cultural values of the festival. Towards a comprehensive view in the exploitation, conservation and promotion of marine cultural values to serve cultural tourism activities, directly to create diversity, abundance and attractiveness for existing tourism products and arousing the potential of cultural tourism have not been invested and exploited. At the same time, the creation of conditions for cultural heritage values to be sustainably maintained and tourism is the most effective means of preserving, promoting and transmitting will be raised the concern of the Party, the State as well as the locality.

Decision No. 147 / QĐ-TTg approving the "Vietnam Tourism Development Strategy to 2030" refers to: Focusing on developing cultural tourism, associating tourism development with conservation and promoting prices. cultural heritage and national identity.

Besides, Plan No. 63 / KH-UBND of Ca Mau province "Protect and promote the value of intangible cultural heritage in Ca Mau province to 2020, orientation to 2030" in which the focus should be on heritage, such as: "Gác kèo ong"; "Muối ba khía", "Nghinh Ong - Song Doc" festival, the ceremony of Vía Bà Thủy Long (Dam Doi).

## **2. Literature review**

### **2.1. Approach theory**

Cultural heritage in Tran Van Thoi district is always associated with the ecological environment element where the community has impacted the natural environment to create cultural value systems and livelihoods suitable to the social environment. Thus, for cultural heritage to develop sustainably, the three components of the natural environment, socio-cultural and livelihood are sustainable developments. Sustainable development is development that meets the needs of the present without affecting the ability to meet the needs of future generations (Gro Harlem Brundtland, 1987).

Therefore, exploiting the cultural heritage of the sea and rivers in tourism activities is an indispensable feature of the current trend. Cultural heritage exploited in sustainable tourism must ensure the harmony of future-oriented stakeholders, as according to the research of UNWTO (2013), Tourism takes into account the current and future economic, social and environmental impacts, addressing the needs of travelers, industry, environment and host communities (UNWTO, 2013), especially focusing on three factors, such as economic, social and environment next to mention to the travelers' needs and related tourism activities.

From Vietnam's perspective, it is said that "Sustainable tourism development is tourism development that simultaneously meets the socio-economic and environmental requirements, ensuring the harmony of interests of participating stakeholders. participate in tourism activities, without prejudice to their ability to meet tourism needs in the future" (Tourism Law, 2017, Article 3). Concepts, principles, goals of tourism, sustainable development, and sustainable tourism always move and change with the development of society.

Cultural heritage and tourist sites in Tran Van Thoi District are mostly associated with the sea and river ecological environment due to: The district has a long coastline bordering the east and west, with two seaports: Song Doc and Da Silver that is very advantageous to develop waterway transport with the large Thi Tuong islands and lagoons, thus facilitating the development of ecotourism in a form of tourism based on sustainable natural resources, focusing on experience and learning about nature, and is ethically managed to have low impact, and local direction (control, benefits, and scale). It usually occurs in natural areas and will contribute to the conservation or conservation of those areas (David A. Fennell, 2003).

Ecotourism is not only limited to natural resources, but it is also associated with the cultural value of local communities because it is a type of tourism based on nature, associated with cultural identity. local, with the participation of the community, combining education on environmental protection (Tourism Law, 2017, Article 3). Therefore, exploiting the values of cultural heritage and tourist destinations in Tran Van Thoi district from the

perspective of sustainable tourism and eco-tourism, we all see the common denominator is sustainable development regards to the natural environment, also associated with local communities, and indigenous cultural values.

## ***2.2. Potential aspects and strengths of Tran Van Thoi District***

Tran Van Thoi district has an area of 70,271.64 ha and a population of 189,911 people with 45,849 households, of which there are 2,385 ethnic minorities with 10,760 people, 10,360 Khmer people, 340 Chinese people. The district has 13 administrative units, including Tran Van Thoi town, Song Doc town and 11 communes, the district center is located in Tran Van Thoi town. Administrative boundary: East borders city. Ca Mau, Cai Nuoc district; West borders West Sea; The South borders Phu Tan district; North borders U Minh district. Economic activity: The coast of Tran Van Thoi district is 36 km long and has many estuaries such as Da Bac, Ba Tinh and My Binh. Song Doc town is currently a grade IV urban area in the south of Tran Van Thoi district, on the mouth of Ong Doc river, which is one of the ports with the largest concentration of boats in the Mekong Delta, especially Song Doc is the entrance of many fishing boats inside and outside the province, creating here one of the busiest sea towns in Ca Mau province, a land containing many unique marine cultural nuances. The town has a synchronous infrastructure system, developing along the direction of industry, handicrafts and commerce and tourism services. In recent years, the economic growth rate of Tran Van Thoi has reached an average of 8% per year. Song Doc town is also located on the coastal eco-tourism route with mangroves, U Minh Ha National Park, Thi Tuong lagoon, natural landscapes connecting Hon Chuoi and Da Da silver islands with many potentials development and benefits to develop the tourism. This is a region with unique characteristics, beautiful and diverse natural landscapes, typical of mangrove ecological regions (mangroves, fish sauce, parrots, etc.). There are cultural and historical relics such as Lăng Ông, Miếu Bà, etc. Along with the natural landscape of the river, create advantages for tourism development. Culture - beliefs: the religion has Buddhism, Catholicism, Cao Dai and three worshipping places such as: Nam Hai temple, Chua xu temple and Thien Hau temple.

## ***2.3. Marine and river cultural heritage and tourist sites in Tran Van Thoi district***

With the investment in infrastructure, tourism services, and accommodation standards, in recent years, Ca Mau province has welcomed many tourists from inside, outside the province and international visitors.

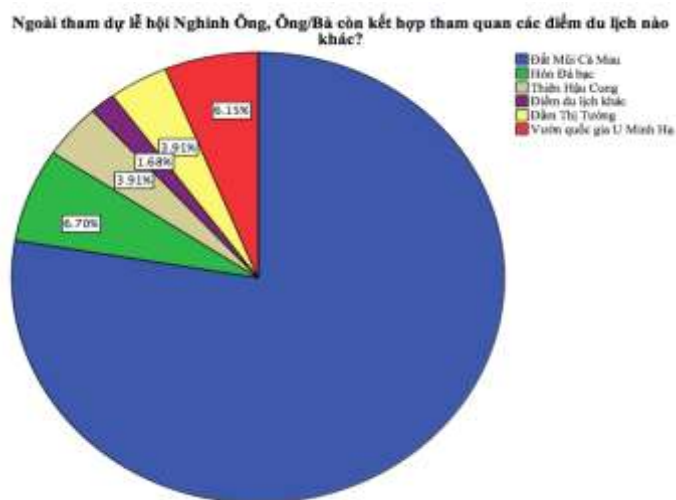
**Table 1. The number of tourists visited to Ca Mau province**

Number of tourists	Year 2017	Year 2018		Year 2019	
	Quantity	Quantity	+/-	Quantity	+/-
Number of domestic tourists	1.215.000	1.412.341	16%	1.663.220	18%
Number of foreign tourists	25.000	27.969	12%	29.430	5%
<b>Total</b>	1.240.000	1.440.310	16%	1.692.650	18%

*Source: Department of Culture, Sports and Tourism of Ca Mau Province, 2019*

According to Table 1, total number of tourists visited to Ca Mau province, especially in Tran Van Thoi District increased steadily, from 12% (2017) to 18% (2019). In the number of tourists traveled to Ca Mau Province, a number of domestic and foreign tourists have both increased from 2017 to 2018. The growth rate of the number of domestic tourists was higher than that of international tourists. In 2019, the growth rate of the number of international tourists visited to Ca Mau province decreased, reaching only 5%. In particular, the proportion of domestic tourist accounts for a high proportion of the total number of tourist arrivals in Ca Mau province. Over 3 years (2017 - 2019), this proportion reached an average of 98.1% of the total number of tourists visiting Ca Mau, while average proportion of international visitors to Ca Mau was about 1,9%. Coming to Ca Mau Province, visitors have the opportunity to visit the Nghinh Ong festival.

Besides Nghinh Ong festival, tourists can visit other tourist destinations, such as Hon Da Bac, Thien Hau Cung, Dam Quoc Gia U Minh Ha, Dam Thi Tuong, etc. The percentage of tourists visited Ca Mau Province in order to come a particular famous tourist destination will be showed in Figure below:



**Figure 1: The percentage of tourists visited different festival in Ca Mau Province**

Source: Department of Culture, Sports and Tourism of Ca Mau Province, 2019

*Nghinh Ong Festival in Song Doc:* is the biggest folk festival in Ca Mau province taking place from 14th to 16th February of the lunar calendar every year in Song Doc town, Tran Van Thoi district. In which, the Nghinh Ong Ritual is solemnly prepared and organized with items and rituals, before boarding the boat to go to the sea of the elders and dignitaries, the board of the students, the members of the Management Board of the Ong Ong tomb. At the ceremony, Nghinh Ong delegation was moved from the mausoleum to move through the center of the town.

*Coastal cuisine in Tran Van Thoi district:* Eating food is the fastest way to learn about the culture of the community through tourism activities. That's why all the countries in the world have so-called national foods, in Vietnam, we have pho, grilled fish, Saigon bread, broken rice, etc. Speaking of Ca Mau, tourists will think of Ca Mau crab, Ba Khia,

mudskipper, Bon Bon melon, Melaleuca honey, etc. Particularly in Tran Van Thoi, there are also typical dishes of the sea: dried mulch, dried shrimps (surface), Black sturgeon (black transplanted), dried banana juice, etc.

*Hon Da Bac tourist area:* elonging to Song Doc, Khanh Binh Tay commune, Tran Van Thoi district, Ca Mau province This is considered the most popular tourist attraction in Ca Mau, this is a relic - scenic area. There is a Nam Hai Mausoleum quite famous for its holiness, especially with seafarers. According to the legend, Mr. Nam Hai was often manifestly helping the fishermen in the area. In addition, the spiritual element is quite sacred. The service at the beach here is also quite diverse, you can join in fishing, squid fishing or fishing near the shore. Especially, you can enjoy seafood when coming here. Currently, the resort is in the conversion and upgrading phase.

In addition to the potentials and advantages of the cultural heritage and tourist attractions mentioned above, the existing tourist destinations in Tran Van Thoi district still have certain limitations from subjective and objective viewpoints.

Firstly, due to geographical factors, Ca Mau is located at the end of the east and west sea, not on the main highway of National Highway 1A, so it is limited in designing tourism routes in the Mekong Delta provinces.

Secondly, the traffic system connecting districts in the province has been upgraded but not significantly, roads are small and narrow, and large cars are difficult to move when taking, picking up and dropping off passengers.

Thirdly, accommodation, food and entertainment establishments with proper and standard facilities to serve have not been invested much.

Fourthly, destinations of cultural heritage, tourist destinations have not been equipped with knowledge, guidelines, and information, especially the speakers at the point must be professional.

Finally, promoting the promotion and promotion of systematic tourism for destinations in Ca Mau to other provinces in the country and internationally, etc. Therefore, finding appropriate solutions for the direction of Ca Mau province is of interest in the near future.

#### ***2.4. Solutions to exploitation, preservation and promotion of cultural heritage values***

*Firstly, to exploit the values of cultural heritage and tourist sites in association with the goals of sustainable tourism development:*

- The exploitation of marine cultural values and tourist destinations must comply with the goals of sustainable tourism development, but it also depends on the policies and characteristics of each locality.

- In terms of environment, the cultural heritage in Ca Mau is associated with the natural environment of rivers, seas, and natural ecosystems. The ecological environment has helped the community so they must respect, preserve, preserve and sustainably use the oceans, seas and marine resources.

- In terms of culture and society, sustainable development creates closeness, without harming the social or cultural structures of the community where they are implemented. Instead, developing sustainable marine cultural heritage and tourism destinations is a form of respect for local culture and traditions, encouraging individuals, communities, operators and managers management of all aspects of planning, development, supervision and community education towards sustainable development.

- In terms of economics, sustainable development is associated with economic development because of its economic contribution to the community and the creation of fair and stable incomes for local communities as well as the parties. other related. Therefore, "The participation of the local community in tourism not only helps them increase their income and improve their living standards but also makes them more responsible for the resources, tourism environment, and tourism industry." The calendar takes care of improving the quality of tourism products. This is very significant, an important contribution to the sustainable development of tourism" (Pham Trung Luong, 2002, p.28.29).

*Secondly, to build a tourist route connecting sea cultural heritages and destinations:* From the perspective of travel businesses, the participation of travel companies is very important in the design of attractive travel destinations, building tourism products for businesses to promote, introduce to domestic and foreign tourists. Including the connecting role of the Department of Culture, Sports and Tourism of Ca Mau Province, the participation of local communities and the association of businesses inside and outside the province.

Inter-provincial and inter-regional tourist routes should be established such as:

Route: TP. Ca Mau - Hon Da Bac - Nghinh Ong Festival - TP. Ca Mau (1 day)

Route: TP. Ca Mau - U Minh Ha - Nghinh Ong Festival - TP. Ca Mau (2 days 1 night)

Route: Ho Chi Minh City - Nghinh Ong Festival - Dam Thi Tuong - Homestay Muoi Ngot (3 days 2 nights)

*Thirdly, it is necessary for building the construction of infrastructure and technical materials for tourism:*

- It must ensure the key transport system, meeting the demand for goods circulation and transporting tourists to serve tourist destinations. In addition to the main national highways, the provincial roads in the province need to be completed to complete the alignment, and need to be upgraded regularly and expanded so that tourist routes to serve tourists will be effective and fast.

- Building water supply and drainage system in public parks, yards, and spots; hygiene and safety at points, tourist resorts, souvenir shops, restaurants serving food should be inspected for food quality, raising the awareness of waiters in the work of hygiene. food safety and service behavior, price rectification, it is necessary to promulgate a civilized tourism behavior at cultural and historical sites.

- Building restaurants, hotels, entertainment areas, vending machines, standard utilities to serve tourists during their stay, visit, and participate in festivals is essential.



*Fourthly, promoting and advertising the values of cultural heritage and tourist destinations:* Destinations need the support from the Tourism Promotion Information Center to organize and support tourism information and promotion activities to widely propagate and popularize the people inside and outside the province; coordinate with Ca Mau Department of Culture and Information in introducing tourism programs and tourist destinations, gradually improving destination brands. Besides using the mass media: television, internet, fan page, foreign websites, newspapers, travel magazines, reportage, seminars, fairs, exhibitions, videos to introduce Introduction about the country and people of Ca Mau. Various types of cultural publications such as tapes, disks, pocketbooks, postcards, atlases, travel guides, festivals, and a guide map of the festival venue, accompanying service information With festivals are needed for every traveler.

*Fifthly, training human resources:*

- Human resources for tourism and cultural activities include human resources for state management in the field of tourism, culture, and human resources directly and indirectly involved in tourism activities. On the cultural and tourism management side, it is necessary to train and foster a contingent of officials with professional qualifications from the province to the locality in management.

- On the side of guides, speakers, need to raise awareness and responsibility for the profession. With speakers at the sights, they must be aware of the meaning of the work they are doing and how to conduct work effectively and professionally to meet the requirements of visitors.

- On the local resources side, which owns cultural heritage, it is necessary to have timely directions and policies. Specifically, improve the understanding of people when putting cultural heritage into tourism activities. Each local is the host, the local guide because cultural heritage is a vitality, is the property of the community.

*Finally, strengthening international cultural exchanges to promote the sustainable development of marine cultural heritage values and tourist destinations:* Promote regional and international festive activities with useful and necessary effects in preserving, promoting and promoting cultural heritages and destinations of Ca Mau tourism to friends domestic and international.

### **3. Discussion and Conclusion**

Vietnam's tourism has been proposed to become a spearhead economic sector of the country, which must fully converge the following factors: power, resources and human resources. Exploiting the values of humanistic tourism resources and natural resources to become tourism products is the direction of Vietnam and Ca Mau province also stems in that trend. However, exploiting the values of marine cultural heritage and tourist destinations requires a reasonable orientation and solutions in addition to consultation on sustainable tourism development and ecotourism of Vietnam and the world. in the context of globalization and localization today. Exploiting but having to bring certain sustainable values to the heritage and the tourist destination; ensure the interests of the community, avoid cultural conflicts; bring legal rights for travel businesses. Including the combination of three houses "Government - Household - House to do tourism (Nhà nước - Nhà dân - Nhà làm du lịch)"./.

#### 4. References

1. Huỳnh Quốc Thắng. (2007), *Khai thác lễ hội và các sự kiện góp phần phát triển du lịch tại thành phố Hồ Chí Minh*. Hồ Chí Minh: NXB Trẻ.
2. Nhiều tác giả. (2018). *Hội nhập quốc tế về bảo tồn cơ hội và thách thức cho các giá trị di sản văn hóa - International intergration of conservation opportunities and challenges for cultrural heritage values*. Kỷ yếu hội thảo quốc tế. Hồ Chí Minh: NXB Đại học Quốc gia.
3. Nghệ Văn Lương & Huỳnh Minh. (2003). *Cà Mau xưa, loại sách sưu khảo các tỉnh, thành năm xưa*. Hà Nội: NXB Thanh Niên.
4. Nguyễn Đình Hòe & Vũ văn Hiếu. (2001). *Du lịch bền vững*. Hà Nội: NXB Đại học Quốc gia.
5. Nguyễn Mỹ Hồng (2015). *Việt Nam Đất nước - Con người, Du lịch Cà Mau*. Hồ Chí Minh: NXB Phương Đông.
6. Phạm Anh Tú. (2011). *Tín ngưỡng thờ bà Thiên Hậu ở Cà Mau*. Hà Nội: Khoa học Xã hội.
7. Phạm Trung Lương. (Chủ nhiệm đề tài). (2002). *Cơ sở khoa học và giải pháp phát triển du lịch bền vững ở Việt Nam*. Báo cáo tổng hợp. Đề tài Khoa học Công nghệ độc lập cấp Nhà nước. Hà Nội.
8. Sở Văn hóa, Thể thao & Du lịch tỉnh Cà Mau. (2016). *Hướng dẫn du lịch Cà Mau - Việt Nam*. Cà Mau: NXB Thông Tấn.
9. Trần Phong Điều (2014). *Đặc điểm văn hóa đồng bằng sông Cửu Long*. Hà Nội: NXB Văn hóa Thông tin.
10. David A.Fennell. (2003). *Ecotourism, An introduction*. (Second edition). London and New York: Routledge Taylor & Francis Group.
11. Educational and Scientific Institute of Culture, Sports and Tourism. (2019). *Sustainable Development of Tourism Products and Human Resources*. Proceedings of International Conference. Lam Dong province: Information and Communications.
12. Gro Harlem Brundtland. (1987). *Our common future*. Oxford University Press.
13. Peter P.Rogers, Kazi F.Jalal, Jonh A.Boyd. (2008). *An Introduction to Sustainable Development*. Published by Glen Educational Foundation, Inc
14. World Tourism Organization (UNWTO). (2013). *Sustainable Tourism for Development Guidebook*.
15. UBND tỉnh Cà Mau, Kế hoạch số: 63/KH-UBND tỉnh Cà Mau. *Bảo vệ phát huy giá trị di sản văn hóa phi vật thể trên địa bàn tỉnh Cà Mau đến năm 2020, định hướng đến năm 2030, Cà Mau*, ngày 29 tháng 05 năm 2019.
16. Thủ tướng chính phủ (2020), Quyết định số: 147/QĐ-TTg, *Phê duyệt chiến lược phát triển du lịch Việt Nam đến năm 2030*, Hà Nội, ngày 22 tháng 01 năm 2020.

# CLIMATE CHANGE ADAPTATION POLICIES IN MEKONG RIVER DELTA

*Dr. Ha Huy Ngoc*

*huynhoc47ql@yahoo.com*

*Dr. Tran Thi Tuyet*

*trantuyet.iesd@gmail.com*

*Institute of Human Geography, Hanoi, Vietnam*

## **Abstract**

*According to the Climate change and sea-level rise scenarios 2016, if the sea level rises by 1m, the Mekong Delta is most at risk of flooding (38.9% of the area), in which, Hau Giang province is the largest flooded area (80.6%) (MONRE, 2016). If this scenario occurs without coping solutions, it will greatly affect the socio-economic development and the environment of the region. Recognizing this, the Government has soon developed policies, as well as action plans to adapt to climate change (CC) for the region. However, policies and programs to cope with climate change are still inadequate and limited. In order to complete the climate change coping policies in the Mekong Delta in the current new context, the Government and localities in the region need to implement more comprehensive and practical solutions to the region.*

**Keywords:** *Policy; Climate change adaptation; the Mekong Delta.*

## **1. Introduction**

The Cuu Long (Mekong) Delta region consists of 13 provinces/cities directly under the Central Government, with a population of 17.5 million and a natural area of about 40,604.6 km<sup>2</sup>. The region is one of the largest and most fertile plains in Southeast Asia and the world, and it is increasingly playing an important role in the country's economy. However, at present, the region is facing many great internal and external challenges and impacts of international integration. In particular, climate change (CC) has affected all industries, fields and economic components, especially the livelihoods of rural population communities. In response to the negative impacts of climate change, the Government and localities have developed and reformed a series of institutions, policies, programs and projects to cope with climate change. Therefore, building a system of solutions to create a long-term, sustainable and suitable vision for the region is extremely important in the current new development context. Because, good coping actions will lead to efficiency and positive impacts; on the other hand, the wrong solution will result in a waste of resources, reverse effects, causing expensive regrets.

## 2. Method

The main methods employed in this article are review of literature and statistical along with descriptive analysis methods.

In addition, data sources related to the climate change manifestations and scenarios; impacts of natural disasters on the socio-economic of the Mekong Delta; data on public investment in climate change in the region ... are also collected by the authors from MONRE, Department of Climate Change, General Department of Irrigation, General Department of Disaster Prevention, General Statistics Office and the Mekong Delta localities, in the course of 2011-2019.

## 3. Results

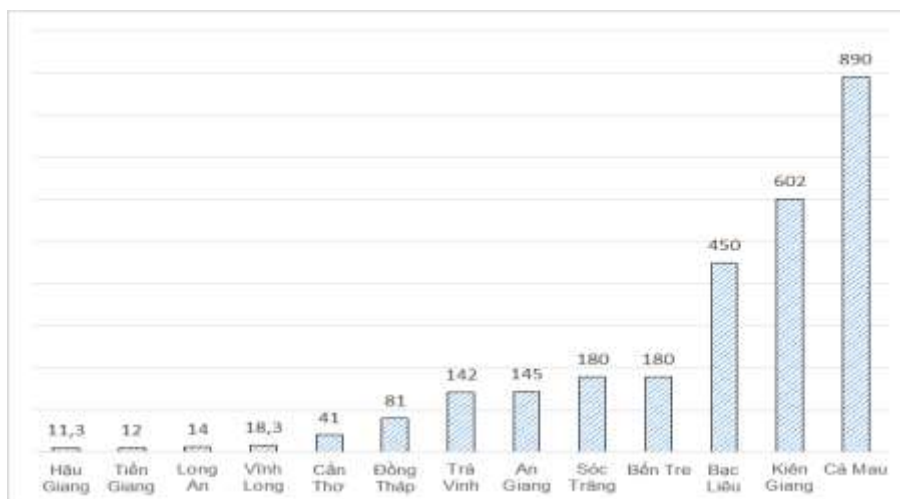
### 3.1. *Effects of climate change on the Mekong Delta.*

From the end of 2015 to June 2016, the provinces in the Mekong Delta suffered periods of natural disasters, such as severe drought and saltwater intrusion. By June 2016, 13/13 provinces and cities in the region have issued decisions to disclose natural disasters, droughts and saltwater intrusion in the area. Drought and saltwater intrusion have damaged nearly 139,000 ha of rice in the region, of which more than 50% of the area was destroyed completely, causing losses of about 215 billion VND. Ca Mau, Kien Giang, Ben Tre, and Bac Lieu are provinces with the largest areas of rice damaged. At the same time, about 400,000 households (1.5 million people) are short of freshwater... (MARD, 2016). Estimated total loss during the drought-saline intrusion season from 2015 to 2016 in the entire Mekong Delta was about 7,520 billion VND, of which Kien Giang, Ca Mau and Bac Lieu were the most adversely affected provinces: both provinces lost about 4,350 billion VND<sup>1</sup>. Drought, saltwater intrusion in 2019-2020 is equivalent to and at times, even more severe than the record drought, saltwater intrusion in 2015-2016. Drought and saltwater intrusion in the Mekong Delta in 2019 occurred earlier than usual, from the end of November, compared to January 2020 if it were under normal. As of January 2020, there are areas where saltwater intrusion enters up to 70 km inland, such as those in Ben Tre, Tien Giang, parts of Soc Trang and Bac Lieu, Ca Mau, Kien Giang, Tra Vinh ... in the drought-saline intrusion season 2019-2020, affecting nearly 100,000 hectares of rice, 130,000 hectares of fruit trees in the Mekong Delta. In addition, there are about 100,000 households at risk of tap water shortage, estimated economic losses will be greater than the drought, salinity period 2015 - 2016 (MARD, 2020).

On the other hand, in the period of 2016 - 2019, the Mekong Delta region continues to suffer the erosion of river and coastal banks with unprecedented frequency and scale in over 300 years of its development.

---

<sup>1</sup> The authors' calculation (2017), based on the Report of the General Department of Disaster Prevention, on the situation of damage caused by natural disasters in 2016.

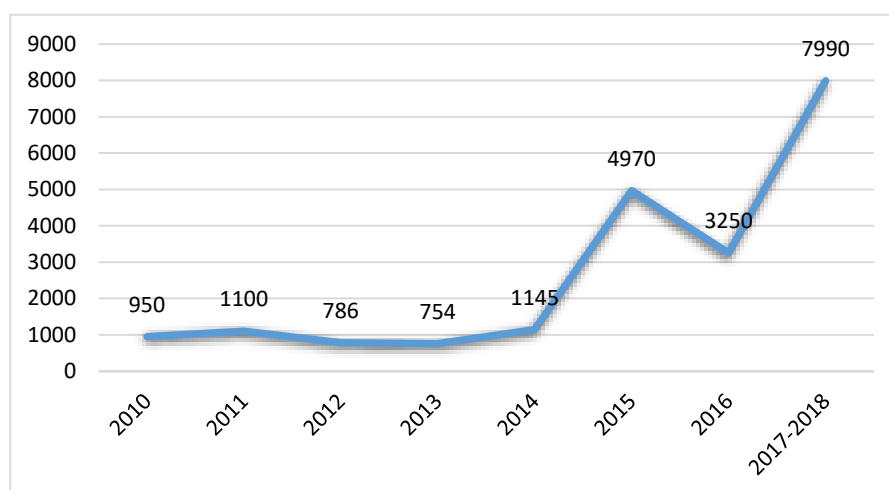


**Figure 1. Total damage due to the riverbank and coastal erosion in the Mekong Delta period 2010-2019.**

*Source: Authors' calculations based on the report on riverbank and coastal erosion by the General Department of Water Resources and the report on river erosion in 13 provinces of the Mekong Delta (2019).*

Erosion directly threatens people's lives and property, seriously affect the safety of coastal natural disaster prevention and infrastructure and degrade coastal mangroves. The total damage caused by bank erosion of the Mekong Delta in December 2019 was more than 2,955.3 billion VND<sup>2</sup>.

The level of damage caused by natural disasters and climate change increased in the period of 2010-2018, with total damage of up to 20,945 billion VND, the most severe damage in 2017-2018 accounted for 38.1% (7,990 billion VND).



**Figure 2. Estimation of damages caused by natural disasters and climate change in the Mekong Delta, period 2010-2018 (billion VND)**

*Source: Authors' calculations from the General Statistics Office of Disaster Prevention's Disaster Statistics, Annual Damage Reports of 13 provinces/ cities, period 2010-2018*

<sup>2</sup> Authors' calculations from reports on damage caused by river erosion in localities of the Mekong Delta, 2019

### ***3.2. Policy for climate change adaptation in the Mekong delta***

#### ***3.2.1. Policies for climate change adaptation in the Mekong delta***

a. Group of policies related to regional development planning and plans that integrate climate change adaptation.

By December 2018, there had been roughly 2,558 plans developed for the Mekong Delta, which directly and indirectly integrated the issue of coping with climate change. In particular, there are currently 22 regional plans, including 3 plans on socio-economic development; 5 plans on construction; 7 plans on agriculture and rural development; 7 plans to develop some key industries and sectors (transport, electricity, trade, tourism, information and communication ...). Regional plans are also made according to different spatial scales, such as the Mekong Delta region as a whole (13 provinces/cities), key economic regions (4 provinces/cities) and Vietnam's coastal areas of the Gulf of Thailand (MPI, 2017).

b. Group of policies related to infrastructure adaptation to climate change.

Decision No. 1397 / QD-TTg dated September 25, 2012 of the Prime Minister approving the Mekong Delta Irrigation Plan period 2012-2020 and orientation towards 2050 in the context of climate change (CC) and sea-level rise (SLR). The decision emphasized that irrigation planning aims to contribute to the effective exploitation, use, protection and development of water resources in the upstream and surrounding areas. The above plan also particularly lays stress on harmoniously combining construction and non-structural solutions; limiting the harmful effects caused by water, especially floods and saline intrusion in the context of climate change and sea-level rise. Therefore, the plan proposes solutions such as: (i) salt control, resolving conflicts between coastal aquaculture and agricultural production areas of Cai Lon - Cai Be river basin, including Kien Giang, Hau Giang and Bac Lieu; (ii) proactively responding to climate change, SLR, creating fresh water sources for coastal areas to address the shortage of fresh water in the dry season, preventing forest fire; (iii) enhancing flood drainage, drainage, soil acidity neutralization and (iv) integrating waterway and road transport development in the project area. In order to implement Decision No. 1397 / QD-TTg, the Prime Minister also issued Decision No. 498 / QD-TTg, dated April 17, 2017, on the approval of investment guidelines for Cai Lon - Cai Be Irrigation System project phase 1.

Besides, the Prime Minister issued Decision No. 2623 / QD-TTg, dated December 31, 2013 on Approving Urban Development Project to cope with climate change period 2013-2020. Accordingly, the Mekong Delta has 12 municipalities supported by the Government to develop scenarios to assess the impact of SLR, improve the capacity to cope with climate change, and develop urban planning to respond to climate change and SLR. On that basis, the Prime Minister issued Decision No. 68 / QD-TTg, dated January 15, 2018, on Approving the revision of construction planning of the Mekong Delta region by 2030 with vision towards 2050. With the aim of developing Mekong Delta region towards green growth, sustainability, and climate change adaptation, develop the region into a national key area for agricultural production, fishing, and aquaculture strongly develop the marine

economy, eco-tourism. Develop regional space with synchronous technical and social infrastructure systems, typical of the Mekong Delta region in order to develop economy, improve quality of life, and protect the environment (Nguyen QuangThuan, Ha Huy Ngoc, Pham Sy An. 2019)

c. Group of policies related to regional integration in the formation of local key products to adapt to climate change.

Decision No. 639 / QD-BNN-KH, dated April 2, 2014 approving the Planning on agriculture and rural areas in the Mekong Delta by 2020, with vision towards 2030 under climate change conditions. The decision emphasizes the planning of agriculture and rural areas in the Mekong Delta based on innovative thinking, market approach; exploits and promotes the strengths of regions and localities to develop agricultural production along with the direction of increasing added value and sustainable development; creating production linkages, builds specialized production areas and large fields; applies Science & Technology achievements in production with product processing and consumption, in the context of responding to the impacts of climate change.

In order to concretize the legal mechanism for regional integration in the Mekong Delta, the Prime Minister issued Decision No. 593 / QD-TTg, dated April 6, 2016, promulgating the Regulation on piloting joint socioeconomic development of the Mekong Delta in the period 2016-2020. In particular, focusing on regional linkages in responding to climate change, such as: (i) investing in construction, upgrading irrigation systems for irrigation, flood control, saltwater intrusion control; (ii) manage, exploit, use and protect water resources, improve the efficiency of water use for domestic use, agricultural production and aquaculture in dry season; (iii) build and upgrade systems of sea dykes, embankments, sluices, dams, mangrove belts and projects on environmental protection, climate change response ... In order to implement the Decision above, the Prime Minister continued to promulgate Decision No. 2220 / QD-TTg, dated November 17, 2016 on the Issuance of the Implementation Plan of Decision 593 / QD-TTg. Decision 2220 sets out an inter-regional action plan to cope with climate change, including (i) water management, exploitation, use and protection of water resources for flood control and salt control, enhance the region's capacity to store freshwater; (ii) mangrove planting plan, environmental protection, climate change adaptation, forest protection plans. To further promote the implementation of Decision 593 in localities, the Prime Minister issued Decision No. 64 / QD-TTg, dated January 18, 2017 on the Establish interdisciplinary steering group on the Mekong Delta linkage period 2016-2020. Since the Prime Minister's Decision No. 593 / QD-TTg, dated April 6, 2016, a number of localities in the region have actively developed projects to link sustainable development based on eco-social sub-region, typically as:

Schemes namely Scheme of Linking Sustainable Development of Dong Thap Muoi sub-region by 2020 with vision towards 2030 (including 3 provinces of Dong Thap, Long An and Tien Giang), Scheme of Linking Sustainable Development of the East Coast Sub-region by 2020 with vision towards 2030 (including 4 provinces of Tien Giang, Ben Tre,

Vinh Long and Tra Vinh), Scheme on Linking sustainable development of the Long Xuyen quadrangle sub-region by 2020 with vision towards 2030 (including 4 provinces of Can Tho, Hau Giang, An Giang and Kien Giang) and Scheme on Linkage of Sustainable Development of Sub-region of Ca Mau peninsula by 2020 with vision towards 2030 have proposed group of fields localities can link: (i) linkage on regulations planning and plans (layout of development space); (ii) linkage on production and trade promotion of agriculture and fisheries; (iii) linkage on tourism development; (iv) linkage on water resources management, environmental protection, multi-purpose and climate change adaptation; (v) linkage on regional information systems establishment ; (vi) linkage on institutional building policies for the sub-region.

d. Group of policies that are integrated, interdisciplinary and multi-objective related to climate change adaptation.

In order to develop sustainable development in the Mekong Delta in the context of climate change and to cope with challenges from the internal development of the region and upstream areas, the Government issued Resolution 120 / NQ-CP, dated November 17, 2017 on Sustainable development of the Mekong Delta to adapt to climate change. The resolution sets out the following strategic guidelines: (i) development models must be people-centered; (ii) identifying climate change and SLR as indispensable trends, living together and adapting are unavoidable, taking water resources as the core, as a basis for planning regional development strategies; (iii) the paradigm shift must be based on ecosystems, respecting natural laws; (iv) approaching collectively, in the direction of overall socio-economic integration of the whole region, strengthening linkages among localities in the region; (v) all investment activities must be unified and coordinated, ensuring inter-regional, inter-sectoral, focal and key points. The Resolution's advent has contributed to the creating of a long-term and sustainable development vision of the Mekong Delta, based on the principle of respecting the natural ecological values and people of the region. (Bui Quang Tuan, Ha Huy Ngoc, 2018). At the same time, in order to realize Resolution 120 / NQ-CP, some ministries, typically, Ministry of Natural Resources and Environment and Ministry of Agriculture and Rural Development (MARD), also issued action plans to implement the Resolution. Next, as of June 2019, in order to implement the Overall Action Program to implement Resolution 120 / NQ-CP, dated November 17, 2017 on Sustainable Development in the Mekong Delta region adapting to climate change, 13 / 13 provinces and cities in the Mekong Delta have developed plans and proposals on the list of local tasks to be submitted to MONRE for integration into the Overall Action Program. In which 13/13 provinces/cities have issued local action plans to implement Resolution 120 / NQ-CP. Based on the list of tasks proposed by ministries and localities in the Mekong Delta, the Prime Minister issued Decision No. 417 / QD-TTg, dated April 13, 2019, promulgating the Overall Action Program to implement Resolution 120 / NQ-CP, dated November 17, 2017 on Sustainable Development of the Mekong Delta adapting to climate change with 55 projects, programs, schemes, urgent, priority tasks that need to be implemented in 13 provinces of the Mekong Delta region.



### *3.2.2. Implementation of climate change adaptation policies.*

The Steering Committee of 158 provinces/cities has developed and implemented programs, projects and tasks to cope with climate change in the Mekong Delta. In the period of 2011-2016, the National Target Program (NTP) on climate change response had 18 central-led projects implemented in the Mekong Delta region with the corresponding budget of more than 3476 billion VND; and 37 local-led projects with a total implementation cost of 2,560 billion VND. In addition, the Support Program to Respond to Climate Change (SP-RCC) had 7/16 projects implemented in the Mekong Delta with a budget of more than 2,301 billion VND<sup>3</sup>. In which, the budget for projects focusing mainly on the field of climate change adaptation is about 2,221 billion VND, most of which are infrastructure constructions to respond to climate change. Meanwhile, the financial resources for the project related to climate change mitigation are very limited, only about 80 billion VND (mainly focusing on policy development, scientific research, communication for energy saving, renewable energy model at household level ...). In total, during the period of 2011-2017, the Mekong Delta has mobilized about 12,879 billion VND for programs, projects and tasks to cope with climate change. In particular, the capital source for climate change response activities is 11,923 billion VND, while the financial resources for climate change mitigation activities are around 956 billion VND. (Ha Huy Ngoc, 2018).

In addition, in the period of 2011-2017, the ODA capital from the World Bank (WB), United Nations Development Program (UNDP), Asian Development Bank (ADB), and German International Development Agency (GIZ), United States Agency for International Development (USAID), Australian Agency for International Development (Aus AID), International Fund for Agricultural Development (IFAD), ... supporting for projects related to climate change adaptation in the Mekong Delta are more than 764 million USD.<sup>4</sup>

### *3.3. Some inadequacies and limitations of climate change adaptation policies in the Mekong Delta.*

Since the above-mentioned policies, programs and projects have been implemented in the Mekong Delta region, people's lives have improved, incomes have increased and livelihoods have been sustained and well adapted to climate change. However, policies to adapt to climate change in the Mekong Delta in recent years still have shortcomings.

- Climate change has impacts on a large scale, both inter-provincial and inter-regional. However, programs and projects to adapt to climate change in recent years have been mainly developed and implemented locally, scattered according to administrative boundaries, mechanisms to solve inter-sectoral and inter-regional issues remain insufficient therefore resources are scattered, spread and low in implementation efficiency. There is a

---

<sup>3</sup> Including the following international organizations: French Development Agency (AFD), Japan International Cooperation Agency (JICA), World Bank (WB), United Nations Development Program (UNDP), Agency for German Development (GIZ), Australian Agency for International Development USAID ...

<sup>4</sup> Data calculated by the authors (2018), Adapted from sources, including Ministry of Agriculture and Rural Development, Ministry of Natural Resources and Environment, Ministry of Construction, Ministry of Planning and Investment, and other ministries/sectors.

lack of continuity, connection and sharing of information among localities in the process of formulating public investment projects. Not to mention, projects on constructing infrastructure and irrigation in adapting to climate change will have a negative impact on the province or surrounding area, if not implemented in a comprehensive manner and shared information between localities.

- Most programs and projects on climate change adaptation have been designed in the field of construction solutions, accounting for about 89% of the investment capital for climate change in the Mekong Delta in the period of 2011-2017<sup>5</sup>. In particular, focusing on construction: sea dikes, river dikes, reservoirs, dams, canals for flood drainage, sewers to prevent salinity ...; attention has not been stressed on non-structural, semi-structural and technological solutions, such as natural disaster monitoring and early warning systems; renewable energy; climate change adaptation based on ecosystems, protection of mangroves; sustainable livelihood model for the community...

- The budget demand for climate change adaptation in localities of the Mekong Delta is very large, while 12/13 provinces and cities have not yet been able to balance budget revenues and expenditures and have to apply from the central budget. In the context of tightening and cutting public investment budget as currently, budget spending only meets about 25% of local demand, while it is difficult to attract funding for climate change investment from the private sector or the community. (Bui Quang Tuan - Ha Huy Ngoc, 2018).

#### **4. Discussion and Conclusion**

##### ***4.1. Policy recommendations***

Firstly, it is necessary to prepare and promulgate a Master Plan for the sustainable development of the Mekong Delta region in response to climate change by 2030, with a vision to 2050, in an integrated, multi-sector method. On the basis of general planning, review, adjust and build new regional planning, industry planning, comprehensive, inter-regional and inter-sectoral programs and projects.

Secondly, perfecting the institution to adapt to climate change in the Mekong Delta, concentrating on:

- Develop priority criteria to select projects under the Climate change adaptation and green growth program for the period 2016-2020; The program for implementing Resolution 120 / NQ-CP is as follows: (i) The project is urgent; (ii) Interprovincial and interregional projects; (iii) Prioritize semi-structural and non-structural measures; (iv) In case of constructing large-scale, inter-provincial irrigation projects (sea dykes, river embankments, etc.), the project must be publicized and consulted by the community, experts and scientists in the stage of making investment projects.

- The Government needs to assign Ministry of Natural Resources and Environment, Ministry of Agriculture and Rural Development, together with the Ministry of Finance to develop financial regulations to disburse capital for the projects under the Climate Change

---

<sup>5</sup> Authors' calculations, 2017 based on data on the implementation of projects under the National Target Program on Climate Change, Department of Climate Change, 2017.

and Green Growth Program. The program implements Resolution 120 in the Mekong Delta for localities to proactively implement and accelerate the disbursement of capital for urgent projects. If the procedures for capital disbursement are made in accordance with the current Law on Public Investment, and during the project construction progress, funding and disbursement process will be very slow and complicated.

- The Government should soon examine to establish a Regional Coordinating Council to create synergy and close linkages in the sustainable development of the region. This management model will have functions, tasks, powers and funds to play a decisive role in the development process of the Mekong Delta region. The examination proposal to establish a Committee Council to approve projects under the national target programs on climate change should be based on integrated, interdisciplinary and inter-regional criteria.

Thirdly, it is necessary to consider and establish a Sustainable Development and Climate Change Adaptation Fund in the Mekong Delta, with a clear operational management mechanism, in order to mobilize urgent funds, dedicated to specific purposes, in accordance with the general principles of sustainable management, regional adaptation.

Fourthly, it is necessary to invest in the system of observation, early warning of natural disasters and climate change in the Mekong Delta;

In which focuses on the following issues:

- Strengthening the capacity of monitoring, observing, warning, forecasting, perfecting, exploiting and using the integrated database on the Mekong Delta.

- Investing in upgrading and modernizing the system of observation, supervision, warning and forecast on natural resources and environment, including environment, islands, water resources, hydro-meteorology, climate change, subsidence, erosion, accretion of the plains.

- Connecting with the database of the International Mekong River Commission; exploit and use effectively for multi-purposes, share and organize the announcement to relevant agencies, organizations, and individuals.

## **4.2. Conclusion**

Through the above analysis, it is shown that the Mekong Delta is suffering from negative impacts of natural calamities and climate change. To date, many policies and programs related to climate change have been implemented in the region. However, the content of the policies remains overlapping and spreads across many fields, thus, there is a lack of resources for implementation. On the other hand, the current process of planning and allocating public investment for climate change has to go through many procedures, which leads to low adaptive efficiency. Therefore, in the upcoming period, the Government and localities in the Mekong Delta need to focus on completing policies towards proactively adapting to climate change in the spirit of Resolution 120 / NQ-CP.

### *Note:*

Studying and Proposing Policy Framework to Proactively Adapt to Climate Change in Mekong Delta by Socio-ecological Approaches, code 507.01-2019.301, sponsored by National Foundation for Science and Technology Development.

## 5. References

1. Central Steering Committee on natural disaster prevention and control (2017), Report on natural disasters and damage caused by natural disasters in 2017, Hanoi
2. Ministry of Planning and Investment, (2017), *Presentation report Developing the Mekong Delta Master Plan*, Report presented at the Conference on Sustainable Development of the Mekong Delta Climate Change Adaptation, Can Tho.
3. Ministry of Agriculture and Rural Development (2020), *Current situation of drought and saltwater intrusion in the Mekong Delta 2019-2020*, Report presented at the Conference on Prevention of drought and saltwater intrusion, ensuring agricultural production and livelihood of Mekong Delta's people in the drought-saline intrusion season 2019-2020 , Ben Tre 3/1/2020.
4. Ministry of Agriculture and Rural Development (2016), *Report on damage caused by drought and saline intrusion in the Central Highlands*, Mekong Delta, Hanoi.
5. Ministry of Agriculture and Rural Development (2017), *Report on the riverbank and coast erosion in the Mekong Delta, solutions to adapt to climate change*. Report presented at the Conference on Sustainable Development of Mekong Delta in response to climate change, Can Tho, September 26 - 27, 2017.
6. Ministry of Agriculture and Rural Development (2018), *Report on disaster damage situation in 2018*, Hanoi.
7. Ministry of Natural Resources and Environment (2016), *Climate change and sea-level rise scenarios for Vietnam*, Publishing house of Natural Resources and Maps, Hanoi.
8. Department of Climate Change (2017), *Report on the status of implementation of projects related to climate change in Vietnam for the period of 2011-2017*, Hanoi
9. Ha Huy Ngoc (2018), *Implementing climate change adaptation policies in the Mekong Delta*, Journal of Regional Sustainable Development, No. 4, p.60-73.
10. Ha Huy Ngoc and Bui Quang Tuan (2018), *Coping with the impacts of climate change in Vietnam today*, Vietnam Journal of Social Sciences, p. 29-39.
11. Nguyen Quang Thuan, Ha Huy Ngoc, Pham Sy An (2019), *Solutions to adapt to climate change in the Mekong Delta in a new context*, Vietnam Journal of Social Sciences, No. 3, p.3-16.
12. Bui Quang Tuan and Ha Huy Ngoc (2018), *Implementing regional integration policies to cope with climate change in the Southwest region in a new context*, Journal of Economic Research, No. 7 (482), July 2018, p. 52-64.

# **SOME PROBLEMS OF LAND ACCUMULATION AND CONCENTRATION IN AGRICULTURAL DEVELOPMENT IN AN GIANG PROVINCE IN THE PERIOD OF 2010-2020**

*MA. Nguyen Thi Xuan Loc*

*xuanlocntt2016@gmail.com*

*Department of Tourism and Vietnam Studies, Nguyen Tat Thanh University*

## **Abstract**

*An Giang is the province that has right directions and timely decisions of agriculture, in which the model of land accumulation and concentration is implemented in many forms, bringing high efficiency in agricultural development. However, land accumulation and concentration is also facing difficulties that need to be resolved. The content of the article mentions "Some issues of land accumulation and concentration in agricultural development in An Giang province" and suggests appropriate recommendations to further develop of agriculture and economy of the province.*

**Keywords:** *agriculture, development, land accumulation, land concentration*

## **1. Introduction**

An Giang is a province that has creative models in agricultural development, especially policies on land, from the model of cooperatives, allocation to households (land allocation to households), to land concentration, accumulation in agricultural development. Through the provincial policies and guidelines corresponding to national policies and guidelines, they have brought high efficiency to the economy, especially in the agricultural sector, making an important contribution to stability of the province's socio-economic, security and political situation.

## **2. Method**

To carry out this study, several research methods were applied:

- Methods of analysis and synthesis: are applied to analyze materials related to the research problem.

- Historical method and logical method: The historical method is applied to describe the research problem according to the process, namely the period (2010-2020). Logical methods help in identifying appropriate research problems.

Research limit:

Limited of space: the research is concentrated in An Giang province.

Limited scope of the study: the study focused on Some problems of land accumulation and concentration in agricultural development in An Giang Province in the period of (2010 -2020).

### **3. Results**

#### ***3.1. General overview of land accumulation and concentration***

##### ***Land accumulation***

Land accumulation is an increase in the land scale of production units (farmer households, farms, agricultural enterprises...) from time to time due to reclamation, inheritance, purchase, lease, pledge,... to carry out agricultural production (Pham Dung, 2017).

##### ***Land concentration***

Land concentration can be understood as "gathering" a lot of existing land into large-scale plots and fields to serve for agricultural production and service industries by hiring or associating in production, business and contributing land use rights (QSDĐ) to enterprises (Pham Dung, 2017).

#### ***3.2. The forms of land concentration and accumulation in An Giang Province***

In recent years, in order to respond to the development requirements of agricultural production, in our country in general and An Giang Province in particular, there have been many forms of land concentration and accumulation, but mainly in the following forms:

- Accumulating land in the form of a farm from renting public land and private land, received transferring, borrowing or being assigned, inheriting or being given ... thereby forming farm that is from small to large scale.
- Concentrating, accumulating land through the form of land consolidation and exchange of land to develop the farmer household economy and services of agricultural cooperatives.
- The form of farmer household voluntarily contributing land and capital to purchase machinery and equipment, cooperating in production. There are also cases where the State provides capital to buy machines, implement agricultural mechanization to increase the efficiency for each household according to the accumulation of land and capital of each participating household.
- The form of some farmer households voluntarily transfer their land to others by renting or selling the land, when they no longer need production or they are unable to cultivate.

#### ***3.3. Some groundbreaking land policies of An Giang Province***

In the process of implementing regulations, directives and resolutions of the Central Government on land issues, An Giang Province has implemented its own groundbreaking policies in accordance with the province's development conditions, bringing about outstanding economic results. In particular, the policy of land accumulation is considered the right and appropriate direction in the context of agriculture requires association to compete with others.

##### ***3.3.1. Land policies of An Giang Province from 1986 to 2000***

Since 1986, our country has entered the renovation period, with turning-point policies and guidelines in economic, political, social and agricultural development,

especially, the Government always has important policies and guidelines on land. Particularly in the area of An Giang Province, the People's Committee (UBND) of An Giang Province issued Directive No. 49/CT-UB, dated December 18, 1986 on the management of the use of machines for agricultural production.

In 1988, the Provincial People's Committee issued Decision 303/QD-UB, dated October 4, 1988 on promulgating specific provisions for the implementation of the Politburo's Directive No. 47/CT-TW on resolving some of urgent land issues: respecting the lawful and stable and long-term use of land to promote the true production capacity of farmers; and advocating for manufacturing corporations to turn to services.

Directive No. 25/CT-UB of the Provincial People's Committee, dated November 27, 1991, on the construction of the farmers' organizations in agricultural production. In 1993, the Land Law in 1993 admitted that farmer households has the right to use land: transfer, inheritance, mortgage, lease and conversion.

### *3.3.2. Policies of the State and An Giang Province on land from 2000 to 2020*

In 2001, An Giang Provincial People's Committee launched the Cooperative Development Project for the period of 2001-2005 on September 18, 2001 with the content of re - organizing production (agriculture) in the direction of cooperation and 4 cooperations. The Land Law in 2003 was amended and replaced by the Land Law in 2013 that has greatly affected the process of land accumulation and concentration in our country. Decree 135/2005/ND-CP dated November 8, 2005 of the Government in accordance with the provisions of the Land Law in 2013. The policy on agricultural land accumulation for rural agricultural development was first introduced in Resolution No. 26-NQ/TW dated August 5, 2008 of the 7<sup>th</sup> Conference of the 10<sup>th</sup> Central Executive Committee on agriculture, farmers, rural areas (Resolution No. 26-NQ/TW). Resolution No. 19-NQ/TW, dated October 31, 2012 of the 11<sup>th</sup> Central Executive Committee on *Continuing to renovate land policies and laws in the period of comprehensive renovation, ...* identified that: Continue to allocate land, lease agricultural land to households and individuals to use, expand the concession limit of agricultural land to create favorable conditions for the process of land accumulation and concentration to gradually establish large-scale agricultural production.

On the basis of the 5<sup>th</sup> Resolution of the 9<sup>th</sup> Central Executive Committee on promoting industrialization and modernization of agriculture and rural areas in the period of 2001-2010; An Giang Provincial Party Committee also issued a Resolution on accelerating the industrialization and modernization of agriculture and rural areas in An Giang in the period of 2001-2010. The Resolution emphasized the important role of land concentration and accumulation associated with professional development (An Giang Rural Development Strategy to 2020, 2004).

In 2012, the 6<sup>th</sup> Conference of the 11<sup>th</sup> Central Executive Committee issued Resolution No. 19-NQ/TN dated October 31, 2012 on *Continuing to renovate land policies*

*and laws in the period of comprehensive renovation, creating a foundation for our country to basically become an industrialized country towards modernization by 2020.* Regarding the land allocation and lease policy, the Resolution states: “Continue to allocate and lease agricultural land to households and individuals for a definite time *in a longer term than the current regulations* to encourage farmers to stick more to land and feel secure to invest in production. At the same time, *expand the concession limit of agricultural land* in accordance with specific conditions of each region and each stage to create favorable conditions for the process of land accumulation and concentration to gradually establish large-scale agricultural production. 10<sup>th</sup> Resolution of Provincial Party Congress of An Giang, tenure 2015 - 2020 gave the orientation "Agriculture is a key economic sector, making the province become the agricultural center of the Mekong Delta. At the Resolution of the Government's regular meeting in February, 2017, the Government requested the relevant ministries to review and propose amendments to the land policy, to facilitate the land accumulation and concentration and to expand the concession limit for large-scale agricultural production.

#### *3.4. Achievements from the policy on land accumulation and concentration in An Giang Province*

From 1986 to 2000, An Giang Province completed the transfer of land to households. In 2003, the land use coefficient in An Giang Province was up to 2.09 times; food production reached over 2.7 million tons; the average food per capita is 1,275 kg. In particular, the implementation of Project 31/DA-BCS during the flood season in 2002 created jobs for nearly 100,000 workers, generated an additional income of VND 520 billion. In 2003, created jobs for over 150,000 workers, generated an additional income of VND 630 billion. (An Giang Rural Development Strategy to 2020, 2004).

From 2015 to 2019, An Giang Province issued several guidelines and policies to encourage farmers, groups and cooperatives to increase production scale: Consulting, management training, management - production knowledge for households with a scale of farm or above (3 hectares) and creating conditions for banks to lend and support 50% interest rates for households to lease land (An Giang Rural Development Strategy to 2020, 2004).

In 2018, An Giang Province continued to promote agricultural production in the direction of flexible structure of plant, associated with high technology applications. Productivity of rice continuously increased over the years; the average rice output was about 4 million tons/year, the value of agricultural production was more than VND 173 million/hectares. Through groundbreaking policies, the material and spiritual life of rural people was improved, average income per capita in 2018 reached VND 40.7 million VND/person/year. The area of agricultural land was over 250,000 hectares, rice production was about 3.89 million tons/year. Large-field form is planting up to 22,000 hectares (Huynh Loi, 2018).



By 2019, An Giang Province had had nearly 600 hectares of land accumulation with many forms, most of which were more effective than before; especially for land lessors (income from leasing; from other jobs such as raising animals, planting ornamental plants, working as hired labor for businesses). As for rice area with a cultivated area of over 250,000 hectares, the production of 3 crops with the land use coefficient as 2.43 times; rice production in 2019 reached nearly 3.92 million tons; in which output of sticky rice and other rice varieties reached about 1.050 million tons (Phan Thi Thu Ha, 2020).

### ***3.5. The remaining problems need to be solved of land accumulation and concentration in An Giang Province***

At present, An Giang's agriculture is gradually forming concentrated production areas, large fields and specialized areas. However, there are still problems in concentrating and accumulating land in the An Giang Province:

***Firstly***, most of the production scale is based on small farmer household, low productivity; the accumulation and concentration of land are limited within the province. Agricultural land in the province is also quite fragmented. Land statistics in 2018 showed that the agricultural land area was 8,000 square meters/household. The number of households using less than 3 hectares of land accounted for 95%. The number of households with 30 or more hectares accounted for only 0.01%. For nearly 10 years, the rate of land accumulation has increased extremely low, the land accumulation has been mainly affected by production factor and the market, there have no specific policies that directly affected the process of land accumulation. The Land Law has amended the concession limit to 10 times (30 hectares), but the actual accumulation of over 30 hectares accounted for a small number (Duc Quynh, 2018).

***Secondly***, for the form of land accumulation from large fields, enterprises have to make large investments, which is difficult to manage the associations. The model of renting land from farmers is difficult to negotiate with many households, the risk of reclaiming land before maturity, large investment costs, and difficult to withdraw redundant labor (Thuy An, 2017).

***Thirdly***, a part of household do not produce or produce with low efficiency but still think of keeping fields and land, not renting or lending for fear of losing arable land, just farming to keep land, and being afraid to allocate land for cooperatives.

***Fourthly***, regarding land policies and laws, the annual concession limit to households and individuals has not encouraged the accumulation and concentration of land for developing large-scale agricultural production.

***Fifthly***, when businesses have rented a large area of a few dozen hectares to concentrate but some households with surrounding fields do not agree to lending, renting or selling land, making it difficult to accumulate land for large investment and apply high-tech applications in economic development.

## **4. Discussion and Conclusion**

### **Discussion**

*Firstly*, land accumulation does not push farmers to the "margin" of modernization in agricultural production. It officially creates jobs and non-farm incomes to push rural labor out of agriculture. The farmers do not become impoverished, but transfer the economic form of "working at their own places", the policy of land accumulation must be associated with social policy, job creation, vocational training for farmers when they have given rent land, so that farmers can have better life even they don't have land.

*Secondly*, the State needs to focus on building and perfecting the legal corridor, ensuring harmony the interests of related parties, the common interests of the whole economy and the stability and order of social relations. State should eliminate accumulation and use of land in the direction of speculation and consider in the appropriate policy of concession limit to the current development trend.

*Thirdly*, putting the interests of the farmers first on the concentration and accumulation of land. We should let farmers contribute capital by the area of land, business enterprises and farmers themselves are workers on their land.

*Fourthly*, create opportunities for capable farmers to stay, accumulate land, lease and buy land easily with low transaction costs, have capital to buy land, buy machines, have roads, mechanized electricity, which can be associated with the land market and infrastructure construction.

### **Conclusion**

Land accumulation and concentration in An Giang Province has contributed to agricultural restructuring, created economic development value according to the current trend, people get rich on their own land by farming, they can transfer production methods to achieve high economic efficiency through efficiency of land accumulation and concentration. Along with the policies of the Central Government, An Giang has made appropriate policies in transferring and contributing agricultural land to large fields. Through the guidelines and policies of the state, the appropriate decisions of the leaders of An Giang Province have been gradually improving the mechanism of land accumulation, proceeding to eliminate the concession limit and creating favorable conditions for enterprises to accumulate land to invest in developing agricultural production and hi-tech applied agriculture on large scale. Therefore, it is necessary to implement policies and solutions to ensure the rights and benefits of farmer households who are most closely associated with fields and agriculture, and promote an effective modern agricultural production.

## 5. References

1. According to Pham Dung (2017), *Journal of Communism, Accumulation and Concentration of Land in Vietnam in New Conditions: Theoretical and Practical Issues*, <http://tapchimattran.vn/nghien-cuu/Central-Capital-of-the-Middle-East-Vietnam-Vietnam-in-the-New-Area-of-the-History-of-Southeast-Asia-Architecture-10798.html>
2. An Giang rural development strategy till 2020, (Issued together with Decision No. 669/2004 / QD-UB of April 20, 2004 of the People's Committee of An Giang province).
3. Decision No. 899 / QD-TTg of June 10, 2013.
4. Duc Quynh (2018), *There are still many difficulties in accumulating agricultural land* <https://vietnambiz.vn/con-nhieu-kho-khan-trong-tich-tu-ruong-dat-nong-nghiep-105784.htm>
5. Hong Giang (2016), *Land accumulation: Solutions to implement agricultural restructuring*, <http://baoninhbinh.org.vn/tich-tu-ruong-dat-giai-phap-thyc-hien-tai-co-cau-nong-nghiep-2016121308363601p2c21.htm>
6. *Land Law* (2013), Publisher. National Politics, 2013.
7. Ministry of Natural Resources and Environment (2016), *Report on land accumulation and concentration of some localities in the Northern region*.
8. Nguyen Dinh Bong (2013). *Land accumulation policies seen from the real situation of the Mekong Delta*, *Communist Review*. 847 (5-2013). tr. 54-58.
9. Nguyen Dinh Bong, Ta Huu Nghia (2010), *Analyzing and evaluating the role of State management impact on land accumulation*, Department of Cooperative Policy and Rural Development, Ministry of Agriculture.
10. Nguyen Thi Xuan Loc (2005), *Land issues in An Giang in the period of 1988 - 2003*, Master of History thesis.
11. Nguyen Van Tuat (1991), *Some land issues in An Giang agriculture*, *Journal of Social Science*, No. IV- 1991.
12. Phan Thi Thu Ha (2020), *Land accumulation in agriculture - situation and policy recommendations*, <http://lapphap.vn/Pages/tintuc/tinchitiet.aspx?tintucid=210380>
13. Report No. 13-BC / NN-NT dated November 25, 2016 of the Department of Agriculture and Rural Development, Central Economic Board, 2016.
14. Thanh Sang (2019), *Leverage of policies on agricultural and rural development in An Giang*, <https://bnews.vn/don-bay-chinh-sach-phat-trien-nong-nghiep-nong-thon-an-giang/137593.html>
15. The Hung (2016), *Vietnamese agriculture stands at a crossroads*, <https://dantri.com.vn/kinh-doanh/nong-nghiep-viet-nam-dang-dung-truoc-nga-ba-duong-20161030064014869.htm>

16. The Government (2017), the Government agreed to extend the land limit, accumulate land, <https://bnews.vn/chinh-phu-thong-nhat-mo-rong-han-dien-tich-tu-ruong-dat/37834.html>
17. Thuy An (2017), *Mekong Delta: Land accumulation seen from reality*, <http://www.baohaugiang.com.vn/nong-nghiep-nong-thon/dong-bang-song-cuu-long-tich-tu-ruong-dat-nhin-tu-thuc-te-55518.html>
18. Tran Quoc Toan (2013), *Renewing land ownership relations - Theory and practice*, Publisher. National politics. Hanoi.
19. Truc Giang (2019), *An Giang converges the potential of agricultural development*, <https://baodautu.vn/an-giang-hoi-tu-tiem-nang-phat-trien-nong-nghiep-d113560.html>
20. Vo Van Sen (2010), *Some urgent issues in the process of industrialization - modernization of the Khmer in the Mekong Delta*, Publisher. Ho Chi Minh City National University.

# HIGH-TECH AGRICULTURE DEVELOPMENT IN VIETNAM TODAY: SITUATION AND SOLUTIONS

*Truong Thi Thuy Lien*

*thuyliektcn@gmail.com*

*Thai Nguyen University of Technology*

## **Abstract**

*In the national economy, agriculture plays a very important role. Developing high-tech agriculture in association with sustainable development is Vietnam's top priority. Currently, the agricultural sector is implementing restructuring plans in the direction of raising added value, developing high-tech agriculture, developing sustainably and coping with climate change. high-tech, advanced technology has been applied in every stage or in the entire production chain to bring high added value to agricultural products. In order for agriculture to really be a strength of Vietnam in the context of integration, having a strong brand and competitiveness in the domestic and international markets, it is necessary to conduct a strong and methodical investment in agricultural production. to expand, develop and further develop high-tech application zones and areas. Only the development of high-tech agriculture can turn our country's agriculture into a modern agriculture. Sustainable development of high-tech agriculture is a requirement for our country's industrialization and modernization of rural agriculture. This article, the author discusses the current status of high-tech agriculture development, and gives some solutions to the development of high-tech agriculture in Vietnam today.*

**Key words:** *agriculture, high technology, sustainable development, Vietnam*

## **1. Introduction**

The term High Tech is now widely used in the world not only in agriculture but also in other science and technology. There are many different definitions of this concept, but in general, most believe that the term high technology refers to a technology (technology) or a technique (advanced technique) is advanced to be applied to the production process to create products with high quality, quality and low price.

High-tech agriculture is an agriculture applied in combination with new and advanced technologies to produce in order to improve efficiency, make a breakthrough in productivity and quality of agricultural products, and meet increasing demands. high society and ensure sustainable agricultural development.

High technology integrated applications in high-tech agriculture include: agricultural industrialization (mechanization of the stages of production, harvesting, preliminary processing, processing ...), automation and industrialization. information technology, new materials technology, biotechnology; high-quality and high quality plant and animal breeds; advanced farming processes, organic farming ... for high economic efficiency per unit of production.

In Vietnam, agriculture still plays an important role in the national economy. Agriculture helps ensure food, eradicates hunger and alleviates poverty, stabilizes national politics ... However, in reality, Vietnam's agricultural production is facing many challenges: The population increases so the demand for wages The reality is constantly increasing; The agricultural land area is narrowed due to the urbanization process, thus it is necessary to improve agricultural productivity to meet food security; Climate change is happening strongly, creating great pressure on our country's agriculture; The process of international integration requires higher agricultural quality. Meanwhile, the achievements from the application of hi-tech agriculture in production have contributed greatly to creating new breakthroughs in categories and quantity. and the quality of agricultural products. Therefore, high-tech agriculture is considered an indispensable trend that a country needs towards not only in Vietnam but all countries in the world are following this trend. The benefits of high-tech applications in agriculture are as follows:

Responding to climate change: Vietnam is one of the countries that suffer the most from annual climate change phenomena. Without high-tech agriculture, backward agriculture will suffer trillions of dong each year.

Against the destruction of pests and diseases: researches on genetically engineered seed sources help to increase the resistance of plants and animals to pests and diseases, contributing to minimize losses in agricultural production.

Reduce labor effort: Compared to the old-fashioned production method, hi-tech agriculture helps people minimize labor force thanks to the mechanization and automation of machines. Previously, each person could only raise chickens and dozens of chickens, now with high-tech chicken raising technologies, one person can manage an entire chicken farm of thousands of chickens.

Reduce farming time, increase economic value: thanks to the mechanization and automation, people shorten harvest time, improve economic value. In addition, the technology applied in agriculture also ensures more accuracy which helps the product value in the agricultural market to be improved.

Centralized and scale agricultural production: Compared with old, fragmented agricultural production activities, thanks to high-tech agriculture, people can easily focus on expanding production scale and production. cost savings, bring a lot bigger revenue.

Therefore, high-tech agriculture is not only a valuable achievement of scientists and research units, but also has great significance for farmers in particular and agriculture in particular. general.

## **2. Method**

The main methods used in this report are statistical, descriptive and economic analysis methods to synthesize and analyze data related to high-tech agriculture. The paper mainly uses data sources collected from the General Statistics Office of Vietnam and other prestigious journals in the country such as Propaganda Magazine, Political Theory

Magazine, Financial Magazine, Industry and Trade Magazine. , etc. as the database for the report. At the same time, the author also gives some specific evidence about the effective high-tech agricultural models operating in Vietnam. Through analysis and synthesis of data on Vietnam's high-tech agriculture, the author proposes a number of solutions to develop high-tech agriculture in the context of international integration.

### **3. Results**

High-tech Agriculture is an agriculture that is properly applied with new and advanced technologies in production in order to improve efficiency, make a breakthrough in productivity and quality of agricultural products, and satisfy the increasing demands of social and ensure sustainable agricultural development. Technologies used in agricultural production include mechanization, automation, biotechnology, computerization, etc. in order to create products of high quality, safety and efficiency. high-tech agriculture is not only a trend of the times but also one of the urgent solutions today. As the climate is gradually changing in the direction of deterioration, the agricultural land area is shrinking significantly, the application of high-tech agricultural solutions solves these difficulties with the following advantages: Saving area arable land, avoiding the spread of pests and diseases, isolation from the environment and the outside weather, ensuring the trees can grow well, providing the plants with the necessary nutrients and water, adjusting light accordingly. management, help reduce labor and operating costs significantly, prevent water losses, ... With those advantages, high-tech agriculture is gradually changing the face of the world's agriculture and has helped many countries to reach the top. Export of agricultural products, crops - which seems impossible. The application of the high-tech agricultural model makes agricultural products become more diverse, higher quality and ensures productivity for people.

Although Vietnam has favorable climate conditions for agricultural development, but high-tech agriculture is a relatively new industry compared to our country, the difficulty is inevitable. Some difficulties that businesses encounter such as: high investment capital, this new model still faces many shortcomings in the management, experts and human resources who do not have sufficient skills and experience. Therefore, during the past time, our Party and State have had many guidelines and policies to promote high-tech application agriculture.

Recognizing the importance of high-tech agriculture, on January 29, 2010, the Prime Minister issued Decision No. 176 / QD-TTg approving the Scheme on development of hi-tech applied agriculture till 2020. To to realize the Project, on February 17, 2012, the Prime Minister issued Decision 1895 / QD-TTg approving the Program on development of high-tech applications of agriculture under the National Program of High Technology Development. by 2020, to contribute to promoting the development of high-tech agriculture, building a modern-oriented agriculture, producing large commodities with high productivity, quality, efficiency and competitiveness.

## Phát triển nông nghiệp công nghệ cao ở Việt Nam

Nông nghiệp ứng dụng công nghệ cao (CNC) là nền sản xuất nông nghiệp theo hướng hiện đại, làm ra sản phẩm nông nghiệp chất lượng và hiệu quả cao, hiện nay là yêu cầu tất yếu đối với nông nghiệp Việt Nam



### ĐIỀU KIỆN CHO PHÁT TRIỂN NÔNG NGHIỆP CNC



### ƯU TIÊN CỦA CHÍNH PHỦ

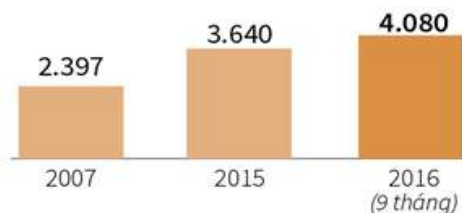
**100.000 tỷ đồng**

Chính phủ khuyến khích các ngân hàng thương mại ưu tiên cho vay vốn đối với các dự án sản xuất nông nghiệp ứng dụng CNC

**29**

Khu nông nghiệp ứng dụng CNC đã được quy hoạch, xây dựng và đưa vào hoạt động

### SỐ DOANH NGHIỆP ĐẦU TƯ VÀO NÔNG NGHIỆP



### KẾT QUẢ ỨNG DỤNG KHOA HỌC-CÔNG NGHỆ TRONG NÔNG NGHIỆP NĂM 2016 (so với 2015)



Tỷ lệ áp dụng máy móc, thiết bị trong sản xuất **tăng 1-2%**



Tỷ lệ cơ giới hóa bình quân khâu làm đất cho cây hằng năm (lúa, mía, ngô, rau màu): **91%** (tăng 1%)



Tỷ lệ cơ giới hóa bình quân khâu gieo, trồng: **40%** (tăng 3%)

Diện tích cây trồng cả nước sử dụng giống mới



Lúa **>90%**



Ngô **80%**



Mía **60%**



Điêu **100%**

TRONG 5 NĂM, HƠN 100 GIỐNG CÂY TRỒNG MỚI ĐƯỢC NGHIÊN CỨU CHỌN, TẠO RA (2011-2015)

Nguồn: Bộ Nông nghiệp và Phát triển Nông thôn; TTXVN

<http://infographics.vn>



Implementing the above decision, provinces and cities throughout the country have been actively promoting the application of high technology (high-tech) to agricultural production. By June 2017, there were 29 high-tech agricultural areas across the country, including 3 high-tech agricultural areas approved by the Government in Hau Giang, Phu Yen and Bac Lieu provinces, and the remaining high-tech agricultural zones by the Committee. Provincial people established. The high-tech agricultural areas are identified as the technological nucleus for replication into the high-tech agricultural production areas. The tasks of the high-tech agricultural park include: applied scientific and technological



research; training high-tech human resources in agriculture; production and service; incubation of high-tech agricultural enterprises. Besides, high-tech agricultural areas have also been initially planned by localities throughout the country such as vegetable areas, fruit tree areas, tea areas, coffee areas, husbandry areas, aquaculture areas ... These are concentrated production areas and apply high-tech to produce one or several agricultural products with advantages of the region to ensure productivity, quality, high added value and environment friendliness. . However, at the end of 2017, there were only two high-tech-recognized agricultural areas in the country, namely: Whiteleg shrimp production area in Kien Giang and Thai Phien flower area (Lam Dong).

Inside and outside the zones, high-tech agricultural areas across the country have appeared many agricultural models applying high-tech in production such as aerobic vegetable growing model, hydroponic vegetable cultivation, vegetable growing in net houses, greenhouses; model of growing flowers in a greenhouse; model of super-intensive shrimp farming in greenhouses; model of pig husbandry applying bio-padding foundation ... The high-tech agricultural models are mainly invested by enterprises. In recent years, preferential policies, supporting the development of high-tech agriculture have attracted many corporations and companies to invest in high-tech agriculture such as Vingroup, NutiFood, Dalat Hasfarm ... There have been 44 successful agricultural enterprises. Recognized as an agricultural enterprise applying high-tech in many fields of animal husbandry, cultivation and aquaculture. Through the implementation of projects and partial funding support from the state, businesses have proactively mobilized their capital to apply advanced technologies in each stage of the production process. Specifically, from the application of new varieties, advanced farming processes, proactive import of technology in processing and preservation of agricultural products, forming a linkage chain with farmer households to build a product value chain to achieve quality standards. Many projects have spread in the province, the city and the surrounding area. Scientific and technological applications are flexibly and dynamically exploited in agriculture and create positive changes for Vietnamese agriculture.

Although it has just been implemented in a short time, the promotion of the development of high-tech agriculture has brought about encouraging results. In the 2011-2015 period alone, more than 100 new crop varieties have been studied and created, so the percentage of the national crop area using the new variety is quite high: rice above 90%, corn 80%, sugarcane 60 % and 100% thing. Some provinces that apply high-tech to agriculture have achieved remarkable results compared to traditional production. Application of automatic and semi-automatic technologies in agricultural production has contributed to improving production efficiency, products to ensure food safety standards such as vegetable and flower production in greenhouses and greenhouses. For vegetables, the revenue is from VND 2.5 billion to VND 9 billion / ha, profit is from VND 1.6 to 4.9 billion / ha. For flower plants, the revenue is from VND 0.5 billion to VND 9.9 billion / ha, profit is from VND 0.3 to 5.4 billion / ha. The farming of vannamei has improved the productivity of shrimp quality; productivity reached 40 tons / ha

40 times higher than mass production, production costs decreased by 30-35% compared to the old process. Dairy production, the productivity reaches over 30 liters of milk / cow / day with good quality ... etc

There are a number of high-tech agricultural models that have been operating very effectively in Vietnam, namely:

*Smart farm in Hoi An:* In April 2018, Vineco - a member of Vingroup just put into operation a 20-hectare VinEco farm at the center of Vinpearl Nam Hoi An (Quang Nam). The farm is planned into specialized areas using modern and intelligent farming technologies such as climate control greenhouses (France), multi-storey cultivation (Singapore), membrane production technology and irrigation. smart (Israel) ... The highlight is the Sky Green multi-storey multi-level hydroponic model that first appeared in Vietnam with features such as power saving, water saving, space saving ... The system includes 60 towers Planting with different heights from 3m, 6m to 9m are allocated at suitable locations. Thanks to optimal area and productivity, this model is being applied in advanced agriculture in the world such as Japan, Australia, Europe, USA ...

Cultivated products of the farm are leafy vegetables, spice vegetables, fruit vegetables, fruits such as strawberries, dwarf coconut, red pomegranate, Thai mango, Taiwanese mango, Australian mango, dates, apples gold ... VinEco has built and successfully developed 15 farms with a total production area of nearly 3,000 hectares with many high-tech agricultural cultivation methods. Each month, this unit supplies thousands of tons of agricultural products to the market with a variety of types such as leafy vegetables, fruit vegetables, root vegetables, spice vegetables, fruits.



*Dome multi-storey vegetable growing model is a modern farming model being applied in advanced agriculture in the world such as Japan, Australia, EU, USA ...*

*High-tech closed supply chain in Nghe An:* TH Group is one of the pioneers in applying high technology in agriculture. Right from its inception, this business is oriented to build a complete supply chain and take high technology as a "golden key" to conquer clean agriculture. In 2009, TH's first cow farm and dairy factory were located in Nghia Dan, Nghe An. This is a closed production chain system from the farm to the cup of fresh, fresh milk for consumers. The Group has invested in a separate material area of 37,000 hectares, ensuring the supply of cows with standard food. The model of vegetable production in the direction of 5 does not include no chemical fertilizers, growth stimulants, chemical plant protection drugs, herbicides, genetic modification and buffer zones for production. The farm takes advantage of crop wastes and animal manure as fertilizer, combining mechanical farming to increase efficiency, control weeds and pests.



*Vegetables are grown in TH Group's membrane system*

In December 2015, 37 vegetable products from FVF Farm received the US organic certification of USDA-NOP and EU of EC 834/2007 issued by Control Union. According to TH representative, the application of high technology contributes to optimal production efficiency at large scale. In February 2017, this enterprise continued to start a high-tech agricultural project in Thai Binh. With an investment of over VND 3,000 billion and a production area of about 3,000 hectares, the group is expected to develop products such as vegetables, tubers, fruits and rice for rice bran oil production according to GlobalGap standards and organic directions. .

*5-star technology cow raising in Thanh Hoa:* Vinamilk's farm successfully meets the 4 philosophies in the dairy farming industry, including good sleep and good milk production; produce many successive batches; environmental protection and community development around the farm. For the first time in Vietnam, there is a system of robots to push and feed automatically, so that the cow always ensures to eat fresh, new and nutritious food at any time of the day. Vinamilk currently has a system of 10 farms spread throughout Vietnam meeting the Global GAP standard with all breeding cows imported from Australia, USA and New Zealand. The total number of cows providing milk to the company (including

Vinamilk's farms and signed farmers) is over 120,000, with an output of about 750 tons of raw fresh milk per day. In addition, the enterprise owns a system of 9 farms certified with international standards spread throughout Vietnam. This is also the largest GLOBAL GAP farm system in Vietnam, as well as Southeast Asia.



*The care of the cows at the farm is completely automatic*

Achieving that result is due to the superiority of technologies such as biotechnology, drip irrigation technology, sensor technology, automation ... helping agricultural production to save costs and increase productivity. , reduce costs and improve the quality of agricultural products, environmental protection. On the other hand, high-tech agriculture helps farmers be proactive in production, reducing dependence on weather and climate. The application of greenhouse technology, drip irrigation, LED technology, touch technology, internet of all things ... to production helps producers to be proactive in production plans, overcome seasonal issues, avoid weather risks, pests, better meet the needs of the domestic market and the world.

In fact, the application of high technology to agricultural production has brought many achievements to the country's economy. However, high-tech agriculture in our country is still facing many challenges and difficulties in the implementation process.

Firstly, it is about investment capital. The biggest difficulty facing high-quality agriculture is attracting investment capital for infrastructure construction, production investment, plant varieties, domestic animals, worker training, and consumption of agricultural products. It is estimated that, in addition to the cost of capital for infrastructure construction, breeding, training of workers, ... want to set up and develop a livestock farm at a moderate scale according to the agricultural model. high-tech will cost 4 - 5 times more than building a traditional model farm. 1ha of greenhouses with full systems of watering, misting and fertilizing are automated with Israeli technology, at least from 10 to 15 billion.

Current reality in our country, the capital investment in the field of high-tech agriculture is quite limited. New investment capital only partially meets the requirements. The number of enterprises investing in high-tech agriculture accounts for a very small proportion of the total number of businesses across the country (about 1.01%). Moreover, the proportion of

FDI in agriculture in Vietnam is always low. Therefore, the lack of investment capital is a difficult and big barrier in developing high-quality agriculture.

The second is human resources. high-tech agricultural production requires a high quality of human resources, with scientific and technical knowledge in agriculture. However, in reality, the professional and trained human resources in our country today in the field of agriculture are still very limited compared to the requirements of integration and development. Low levels of workers have greatly influenced the approach to science and technology. In particular, in regions with underdeveloped economies, there are many difficulties, this is a great barrier in building the scale of a high-tech agriculture.

Thirdly, about land planning. Land consolidation and land consolidation are still slow. In many localities, favorable locations often build service systems, especially industrial zones. Moreover, the land for agricultural production is still small, there is no policy of gathering to expand production, building farms to allow hi-tech agricultural production.

Fourthly, the consumer market. Agricultural products based on the high-tech application of agriculture model in the market are still limited, the competitiveness is low both at home and abroad but not really commensurate with the investment costs. In the international market, the majority of agricultural products in Vietnam have not created a brand and low added value. Scientific and technological activities among provinces in the country have not been closely linked. In many localities, the formulation of organizational cooperation plans between individual scientific researchers and project implementing organizations and agencies is fragmented. Therefore, the implementation with project planning is still inadequate.

#### **4. Discussion and Conclusion**

In order to develop sustainable high-tech agriculture, it is necessary to implement synchronous solutions, and at the same time, boost high-tech agricultural production in association with socio-economic and environmental sustainability.

*Firstly*, the solution on capital. To have investment capital for developing high-tech agriculture requires the state to diversify capital sources by encouraging enterprises of all economic sectors to invest, support investment in building deep processing establishments, and supporting industry development. Continue to implement policies to support enterprises importing and transferring high-tech in agriculture. To mobilize social investment resources and prioritize the allocation of budget resources to support the implementation of programs, schemes and scientific and technological tasks on developing agricultural applications of high-tech and sustainable agriculture in order to Responding and adapting to climate change. Scientific and technological organizations need to drastically innovate in conducting research activities, transfer scientific and technological results into production, support enterprises and farmers on the application of high-tech in agricultural production. For businesses, private farms, farmer households, cooperatives, cooperative groups, it is necessary to closely link to ensure production associated with the market; promoting the pioneering role of enterprises in developing high-tech applications.

*Secondly*, human resource solutions. In the development of high-tech agriculture, the issue of human resource development is decisive. high-tech agricultural human resources are those farmers who directly research and apply scientific and technological advances and directly produce agricultural products. high-tech agricultural human resources are also involved in the processes of research, transfer of science and technology, application of scientific and technological advances to auxiliary technologies, post-harvest technology and product consumption. In order to improve the quality of agricultural human resources, especially high-tech agricultural human resources, the related ministries and branches should promote agricultural training for farmers. Through these training courses, it provides farmers with knowledge and skills to practice modern agricultural production, helping them to change production skills, form market thinking, and receive and apply capacity. scientific and technological advances in production. In the immediate future, it is necessary to provide vocational training immediately for the labor force participating in the stages in the production chain applying high technology In addition, focusing on renovating the content and training program of experts, scientific and technological officials specialized in high-tech agriculture; associate theory with practice. Joint training with universities and research institutes in countries and territories with high-tech agriculture such as Taiwan, Korea, Japan, Israel ...

*Thirdly*, land solutions. In order for high-tech agricultural production facilities to access land smoothly, it is necessary to accelerate the process of land accumulation and concentration. Therefore, continuing to accelerate the land consolidation and exchange in localities to form large fields; extend lease term and rental period. At the same time, the State needs simple procedures for land lease and transfer; localities need to speed up the granting of land use right certificates after land consolidation and exchange; harmonize interests between businesses and farmers; encouraging farmers to contribute capital by land to enterprises; developing trades in rural areas, converting farmers into other fields with higher incomes.

*Fourthly*, solutions on consumption markets. Strengthen trade promotion, promote the brand of Vietnam's agricultural products, through information channels, exhibitions, and fairs, especially focusing on markets with the current large market share of the United States and the United States. European Union (EU), Japan .... have policies to encourage and support agricultural product processing and export enterprises to conduct trade promotion. Calling on and attracting domestic and foreign investors to invest in agriculture, organizing production, purchasing and consuming materials effectively.

*Fifthly*, the policy solution. It is necessary to complete the system of policies to create a legal corridor for agricultural development with high-tech application; encourage forms of cooperation, association of production organizations associated with deep processing, brand promotion and consumption of agricultural products using high-tech between producers, farms and cooperative groups, cooperatives with businesses. It is necessary to continue implementing the key solutions to promote the development of high-tech-applied agriculture according to the Government's Resolution No. 30 / NQ-CP of March 7, 2017; reviewing and completing the system of standards and technical regulations for management of supplies and agricultural products. Continue to implement policies, support enterprises in training

human resources, developing markets, building brands of national and provincial key products, participating in trade fairs at home and abroad. Continue to encourage businesses to invest in research, application of science and technology, application of high-tech in agricultural production and play a key role in the linkage of manufacturing agricultural products in chains, meeting regulatory standards. standard; training professional farmer force, qualified to manage large-scale farms, which can apply high-tech.

*Sixthly*, scientific and technological solutions. Researching and widely applying advanced processes and techniques, promoting mechanization in agricultural, forestry and fishery production. Application of synchronous mechanization process (from soil preparation, planting, tending, harvesting, processing); process of intensive cultivation of rice, maize, groundnut from seeds, intensive investment; apply high technology to develop production areas to concentrate advantageous products, promote the application of advanced and modern science and technology to improve the capacity and quality of agro-forestry and aquatic product processing. To prioritize investment in developing processing industry, renovating technologies and advanced and modern equipment. Combine production with processing, storage and consumption of products along the value chain to increase added value for advantageous products such as rubber, tea, sugarcane, peanuts and rice; husbandry and dairy products; fisheries, forestry, pharmaceuticals, etc.

Organic agriculture or safe and environmentally friendly agriculture is an issue that has been increasingly concerned by the people and has become a strong development trend recently. The application of high technology and effective solutions to develop safe and environmentally-friendly agriculture not only plays an important role but also is an indispensable and necessary trend of Vietnamese agriculture. improve the quality and competitiveness of Vietnamese agricultural products to meet the increasing demands of domestic and international markets.

### **Acknowledgements**

The work described in this paper was supported by Thai Nguyen University of Technology for a scientific project.

### **5. References**

1. Ministry of Agriculture and Rural Development (1/2018), *Report on the results of implementing the 2017 research and technology transfer plan and key tasks in 2018*, Hanoi.
2. Nguyen Chi Mai (1/2020), *Capital for high-tech agriculture in the fourth industrial revolution period*, *Communist Review*, January 20, 2020.
3. Ngo Thanh Tu (2016), *Applying high technology in agriculture - a breakthrough direction of Vietnamese agriculture in the integration period*, Vietnam Union of Science and Technology Associations.
4. Nguyen Thi Mien (July 2018), *Developing high-tech agriculture: Barriers and solutions*, *Political Theory Magazine*, July 26, 2018.
5. Tran Thi Thanh Thuy (4/2020), *The reality of high agricultural development in Vietnam*, *Journal of Industry and Trade*, April 18, 2020.

# AN ANALYTICAL FRAMEWORK FOR IMPACTS OF CLIMATE CHANGE ON THE LIVELIHOOD OF THE URBAN POOR: THE CASE OF HO CHI MINH CITY, VIETNAM

*Ho Ngoc Thuy*

*hongochuy@sgu.edu.vn.*

*Nguyen Tran Thai Ha*

*nguyen.tran thaiha@sgu.edu.vn*

*Faculty of Finance and Accounting, Saigon University, Vietnam*

## **Abstract**

*Under the impact of climate change, people's socio-economic life will change significantly. Moreover, for a developing country like Vietnam, the vast majority of people have to find a way to adapt themselves to or cope with the impacts of climate change such as increasing rainfall, rising temperatures and rapid flooding. These problems seriously affect the economy as well as the health of everyone. Despite the progress above, the discussion of the interlinkages between climate change and inequality, urban poor so far suffers from several deficiencies. The content of this article opens the research directions related to climate change and adaption of resident as well as the government under its impacts on human health and socio-economic life in the Ho Chi Minh City areas. In particular, this study offers a unifying conceptual framework for capturing and studying the interlinkages between climate change and the livelihood of the urban poor. The framework helps to collect, understand, present and discuss the evidence in a more organised, logical, and meaningful way. It helps to identify the gaps that exist in the evidence gathered so far, and thus to point out future directions of research necessary to fill these gaps. Finally, it also helps to discuss the policies needed to address the problems of inequality in the context of climate change.*

**Keywords:** *Climate change, Livelihood, Urban, Poor, Framework, Vietnam, Ho Chi Minh City.*

## **1. Introduction**

The development of industry and service in the city makes a significant contribution to the National Gross Domestic Product (GDP) and boosts economic development. So, the adaptation to climate change is required in each city, according to research about population density, research about the region, city, and zone (McGranahn et al., 2007). However, the city in developing countries often face resource constraints in adapting to climate change, and Viet Nam is no exception. It is one of the five countries which was severely affected by climate change and causing reversed consequences, including persons and property, substructure, economic development, etc. The city was affected clearly by climate change



and estimated the damage of about 16,000 billion VND in 2010 (Statistical Office in Ho Chi Minh City, 2010<sup>1</sup>). Although Viet Nam released “The strategic country is about to safeguard, adaptation, modification of climate change get in 2020” in 2007, climate change still receives attention the governmental agencies, residents, and scholars due to its significant impacts.

Vietnam is extremely vulnerable to climate change impacts, mainly because of its topography. The overwhelming part of the Vietnamese population and most of its economic activities are concentrated in the low elevated coastal zones along the more than 3,000 km of coastline. The two densely-populated main delta regions of the Red River and the Mekong are particularly affected. There, according to Intergovernmental Panel on Climate Change (IPCC) (2021), a 1-meter sea-level rise (SLR) would lead to flooding of up to 20,000 km<sup>2</sup> of Mekong River delta (see map) and 5,000 km<sup>2</sup> of the Red River delta. The metropolises of Hanoi (H.N.) and Ho Chi Minh City (HCMC) are situated within the delta regions, will not only be endangered by the SLR but may also experience a massive migration pressure of climate change refugees from the surrounding areas. The urban poor is therefore especially vulnerable to the impacts of climate change, because of the fragility of the infrastructure of slums and squatter settlements, lack of sanitation, and lack of employment security. The flooding events in the recent past have already placed severe strains on the metropolis, such as in the case of traffic. Climate change, and especially SLR, threaten the general spatial urban development path of HCMC and H.N., according to World Bank (W.B.) (2010) in “The Social Dimension of Adaptation to Climate Change in Vietnam), World Bank (2011) in “Report of development in Vietnam 2011: Management, Natural resources, etc. Care (2011) “Climate vulnerability and capacity of ethnic minorities in the northern mountainous region of Vietnam.”

However, there is too little attention that has been given to the vulnerability of urban livelihood to climate change and especially to the vulnerability of their low-income populations. The growing literature on adaptation gives far more attention to agriculture and to rural livelihoods than to urban economies and livelihoods. It is also inappropriate to consider rural and urban areas separately, given the dependence of urban centres on rural ecological services, the importance for many urban economies of rural demand for goods and services, and the reliance of much of the rural populations on urban centres for access to markets, products and services.

Climate change is now the most burning and essential issue for Viet Nam. Though several types of research have already been done regarding urban and rural coastal areas and their population, the urban poor of HCMC remains unexplored. Simultaneously, with a high concentration of economic activity and population, the city is more vulnerable to the impacts of climate change. Therefore, the economic and social costs of climate change will be much higher in HCMC, where most high-valued infrastructure is located than elsewhere. Climate change has no boundary, and the urban poor has to be part of the equation to solve the climate change crisis.

---

<sup>1</sup> Department of Statistics of Ho Chi Minh City: [www.pso.hochiminh.gov.vn](http://www.pso.hochiminh.gov.vn)

The research is aimed to give a better framework to get the perception of urban poor's vulnerable livelihood due to climate change. It is also that the findings will give us a conclusion about the relationship between the urban poor of HCMC and climate change. The results can be useful for policy options for the urban poor. Another critical role of this research also can be to increase the understanding of how investments in critical infrastructure and pro-poor investments can be smart choices in the long term. Given resource limitations, it is likely that urban may create more low-cost, efficient solutions for adaptation strategies that could be shared with developed countries.

The study covers only slums and squatter settlements of HCM city. The term 'Urban poor' and 'Slum dwellers' is considered synonymous with this research. The primary criteria for slums are considered here predominantly impoverished housing, very high population density and room crowding; low income; and indigent environmental services, especially water and sanitation. In respect of climate change of HCMC effects of the flood, heavy rainfall and extreme temperature are considered. The reason for choosing urban dwellers of HCMC is that they are keeping the economy going through their hard toil and providing most of the necessary services to the city dwellers. There are a number of parameters involved in urban livelihood. Among those, only shelter or housing, water, sanitation, health, and income are considered. The impact on social dimensions like network trust etc. is not analysed in detail. For this research, men, women, and children have been treated equally. The negative impacts of climate change are only considered here.

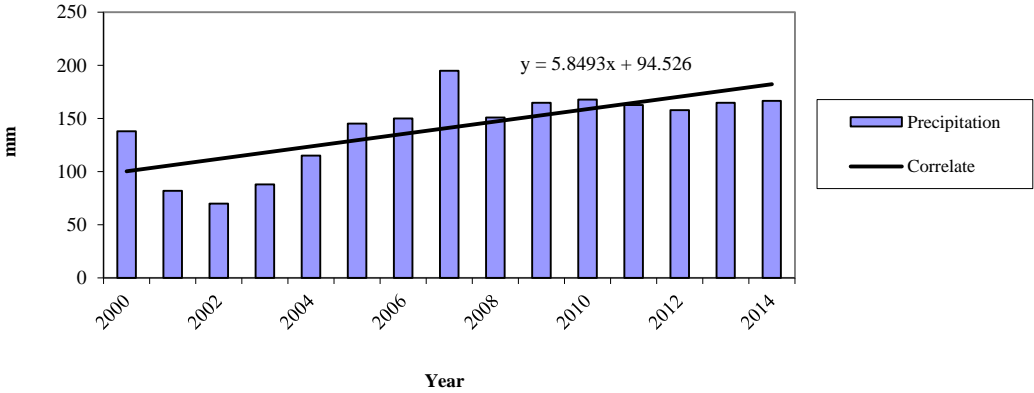
## **2. Literature Review**

The frequency of heavy rainfall events has been increasing since the 1950s. HCMC has seen a significant increase in winter rainfall from extraordinary events since 1961. Pluvial flooding can be caused where intense rainfall (1-6 hr) is unable to be drained away quickly enough. The main cost impact is in urban locations and is responsible for 40% of HCMC flood damage.

Climate change is likely to be a significant factor in riverine, pluvial, and coastal flooding. HCMC is likely to experience more winter rainfall and more heavy rainfall events, both of which could increase the potential for more pluvial and river flooding. Sea level rises will result in higher and more frequent storm surges, although a significant degree of uncertainty remains over probability predictions.

*Precipitation:* There has been a small but noticeable increase in total precipitation of about 0.8mm a year over the past 20 years, and rain events with a large volume in a shorter period of time are becoming more common. This has resulted in a steady uptick of flooding events, from 88 mm/per day in the city in 2003 to 166,7 mm/per day in 2014. A likely major factor in increased urban flooding is land conversion resulting in the loss of agricultural polders and an increase in impervious surfaces (often cement), leading to an increased run-off after storms. The city's canal system is also outdated and incapable of handling current water volume: the canals are not regularly dredged, and many thousands of households have built illegal settlements that slow down drainage. The loss of much of the wetlands on the

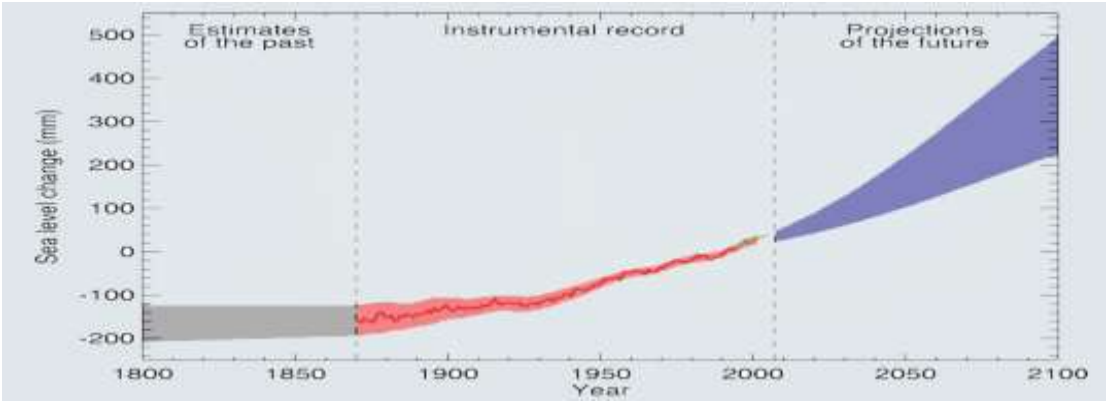
southern and eastern edges of the city to development (Saigon South and Thu Thiem) has decreased overall natural water absorption functions and increased vulnerability of other surrounding areas to flooding as well.



**Figure 1. Total rainfall per day at Tan Son Hoa Station**

(Source: Department of Statistics HCMC)

*Sea level rise (SLR):* The National Meteorology and Hydrology Centre predicts SLR for Vietnam of 35 cm by 2050, 50 cm by 2070, and 100 cm by 2100. For HCMC, this will likely mean an increase in already dangerous flood-tide levels that overtop the existing dyke system. In 2007, high tides inundated 556 ha of the city, causing several hundreds of thousands of dollars in damages. An SLR of just 50 cm added to a flood tide of about 1.5 m would lead to flooding of 300 km<sup>2</sup> of the city. Estimates indicate that 6% of the city land area, 15% of its infrastructure, and 500 major business enterprises would be inundated with a 1m SLR (Carew-Reid, 2008). SLR will likely also increase the salinity of shallow coastal aquifers, from which much urban drinking water is drawn.

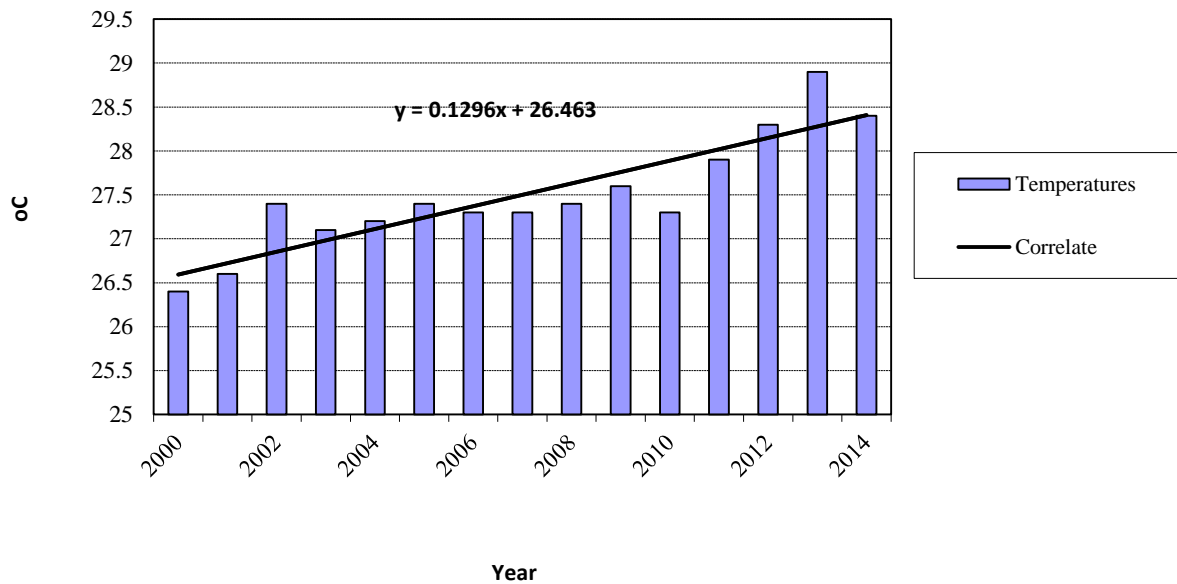


**Figure 2. Sea level rise, the screenplay of climate change**

(Sources: IPCC, 2007)

*Urban temperatures:* Local temperatures have increased 0.78°C in HCMC from 2007- 2014; an urban heat island effect, when combined with the predicted 2-3°C temperature rise forecast for Vietnam, may result in unusually high temperatures within the

city by century’s end. As a result, populations like the elderly may be especially vulnerable to health ailments and increased mortality, given relatively low rates of use of air conditioning in HCMC, especially among lower-income classes. The lack of green space and planted trees for shade and cooling in the central city also exacerbates the problem.



**Figure 3. Urban average temperature from 2000 to 2014**

*(Source: Department of Statistics HCMC)*

### 3. Results

#### 3.1. Climate change and the livelihood of the urban poor in HCMC

Far from being an issue that only has implications for energy supply or the environment, climate change touches all the resources that we depend on in life. In particular, the current and future impacts of climate change will hurt the well-being of the poor and vulnerable. Climate change puts extra burdens on the social and economic challenges that the most miserable people already face. Their vulnerabilities will be emphasised and increased due to the dependence of their livelihoods on climate-sensitive natural resources and their weak social protection structures. By directly eroding the resources that poor people depend on for their livelihoods, climate change makes it easier for people to fall into poverty and harder for the poorest to escape from it. Most of the most impoverished urban dwellers in HCMC live on the worst quality land: on flood-prone embankments, on slopes liable to mudslide or collapse or in densely packed areas which are the most vulnerable to climate change. Floods in dense, poorly serviced settlements also lead to other hazards, which have a significant impact on the health of poor urban residents. During the flood, even poor people lose their jobs or become bound to change their occupations. The potential impacts of climate change on human health, haven, and employment consequently increase vulnerability and reduce opportunities for their livelihood.

### ***3.2. Illustration of the problem***

#### *Flood risks*

The metropolis and economic centre HCMC will be particularly affected. Located on the north-eastern edge of the Mekong delta and approximately 50 km inbound from the South China Sea, the city is built mostly on low-lying and marshy land. Over 60% of the administrative urban land and large parts of the surrounding provinces in the west and south-west are situated below 1.5 m above sea level. The estuary of Dong Nai River, Sai Gon River, and Nha Be River forms a wide-spread network of rivers and canals with almost 8,000 km length, covering 16% of HCMC's area. The infiltration of tides up the Nha Be and Sai Gon River into the urban water system results in a periodically raised water level. Taking the predicted SLR of approximately 1 m until the end of this century into account, this would lead to an inundation of almost half of HCMC's administrative area or quantify, of around 860 sq.km of the overall 2,095 sq.km (Carew-Reid, 2008). However, not only the low elevated areas suffer from flooding. The urban hydrogeology regime is also affected by increasing heavy rain events and flooding from upstream areas. A high groundwater level and an insufficient and mostly polluted sewer system cause backwater and retard the water run-off. This results in the frequency of flooding of extensive quarters of HCMC, even in the high elevated areas.

#### *Increasing temperature*

The urban areas of HCMC will also experience other consequences caused by climate change. In general, the climate in the south of Vietnam is steadily warm to hot and humid all year round. The annual average temperature in HCMC is 26.9°C, with peaks in the spring of more than 40°C. Within the densely built urban districts the lack of vegetation, standing surface water, and evaporation areas, changes in thermal properties of surface materials and human heat generation by air conditioning, transportation or industry led to an overheating of the urban areas, the so-called "Urban Heat Island Effect" (UHI). The uncontrolled expansion of urban land and the increase of building density intensified this effect. Even today, the UHI effect is clearly noticeable in the inner city districts with up to 10 degrees higher than the average temperature of the surrounding areas. This trend will increase by further raising temperatures. According to the most likely projections, the average temperature in the south of Vietnam will further rise by 1 - 2°C until 2050 due to global warming.

#### *Impacts on the built environment*

The rising temperatures will affect the densely built districts of HCMC most. Here, the UHI effect is fostered due to the high ratio of sealed surfaces, the lack of evaporation areas, and the reduced air convection. Hence, the increased cooling demand will be coped by excessive use of air conditioning systems, in particular with an increased living standard in Vietnam. This will lead to a further overheating of the urban space and disproportionately

increased energy consumption. Urban flooding in HCMC has severe impacts on the built environment. The housing production and the ground sealing by infrastructure on former retention and infiltration areas lead to a reduced drainage and storage capacity for flood and rainwater. Even most parts of higher situated urban areas will, therefore, be inundated by flooding and heavy rain events with impacts on transportation. Traffic jams happen quite often in the rainy season due to flooding. Flooding disperses the wastewater from sewerage all over the city, which causes water pollution, epidemic diseases, damage to houses, and infrastructures. Flooding due to tide also causes salinity intrusion, which damages the crops and plants.

### *Impacts on population*

The SLR of 1 m will endanger more than 8 million inhabitants or close to 12% of HCMC's population living in areas to be inundated, making HCMC the most affected province in Vietnam. These figures are likely to be significantly higher if the forecasted inundation zones are adjusted with the phenomena of backwater from the sewer system and reduced run-off capacities. However, the endangering of the Mekong Delta will probably have the most remarkable influence on population flows. With 15,000 - 20,000 sq.km area at risk, including more than 1,000 sq.km of agricultural land, the region will be the worst affected in Vietnam (IPCC, 2007, 2021). This implies the loss of livelihoods for more than 8 million people and could lead to a new dynamic of migration influx into the HCMC region. The inundation of vast parts of the Mekong Delta will result in Vietnam's first climate change refugees. Urban heat waves will be intensified within the densely built areas of HCMC and will influence the health and comfort of urban residents in a negative way. In particular, the elderly, invalids, and the urban poor are most vulnerable to high temperatures.

Climate change affects health directly and indirectly. The most direct impacts of climate change on human health occur through extreme events, for example, the floods in 2015 caused 200 deaths, to severe losses than 200 billion VNĐ. Climate change will also affect the distribution of climate-sensitive diseases. Other diseases such as dysentery, diarrhoea, dengue, and hypertension associated with heat stress, asthma, and skin diseases are also increasing in Viet Nam, particularly during the summer months. While a causative connection between climate change and these diseases is, of course, trying to verify, the conditions associated with climate change (in terms of temperature, rainfall, and salinity) and the impacts on water supply, sanitation, and food production, generate favourable environments for the incidence and spread of such diseases. For example, increased flooding, as well as drought, is resulting in a decline in the availability of clean water, for a country like Viet Nam where water-borne diseases are already responsible for 24 percentages of all deaths.

Today, the scientific community has broadly agreed that climate change is already a reality. The speed and duration of warming in the 21st century has been unprecedented in the last thousand years. The maximum temperature increase, the number of hot days

and the heat index are observed in most parts of the world (IPCC, 2021). However, previous discussions on climate change only focused on its physical impact, with little regard for its impact on the livelihoods and inequalities of the poor, particularly especially the urban poor (Skoufias, 2012). Therefore, this study outlines some of the previous studies to look for a framework on the long-term effects of future climate change on human livelihood.

An early study on this issue was the World Bank report (2002) at the 8th meeting of the UNFCCC. It notes that climate change has reduced access to drinking water, reduced food security and adverse health effects. Stern (2007) notes that climate change will increase poverty due to its impact on agriculture, floods, malnutrition, water resources and health. Some recent studies have examined the problem using cross-country data, such as Paavola (2008) focuses on Tanzania's Morogoro regions; Somanathan and Somanathan (2009) study in India; and Gentle and Narayan (2012) on remote communities in Nepal. Many studies focus on poverty impacts in specific boxes, such as agriculture (Ahmed et al. 2009; Hertel et al. 2010; Hertel and Rosch 2010; and Muller et al. 2011) or in specific areas, such as urban areas (Douglas et al. 2008; and Hardoy and Pandiel-la 2009).

Climate change will combine with existing poverty to create dual adverse effects. It will be the most dramatic in countries with geographical and climatic conditions that are highly dependent on natural resources and less adapt to climate change. Among these countries, the poorest, those with the least resources and least adapted, are the most vulnerable (IPCC, 2007). Forecast changes in the frequency, intensity and duration of climatic extremes (e.g., heat waves, heavy rainfall and drought), as well as annual changes in the average climate, will significantly threaten the livelihood. It is taking into account the combined and potential impacts of local and global environmental changes as well as socio-economic factors.

Studies, such as Rosenzweig & Parry (1994), have examined world food supplies, food prices and the number of people at risk of hunger in developing countries under climate change conditions. These studies have found that while developed countries are likely to experience an increase in agricultural production, developing countries suffer a decline in the developed scenarios. Although there has been criticism of the Rosenzweig and Parry studies (Reilly 1994), the IPCC, however, has accepted the possibility that agricultural productivity will decrease in the tropics, even as a result of small temperature increases. It has suggested that a mean global temperature increase of 2.5°C would lead to an increase in food prices and continuously contribute to poverty.

Hossain (2005) in 'Poverty, Household Strategies and Coping with Urban Life: Examining 'Livelihood Framework' in Dhaka City, Bangladesh' concluded that Slum people invariably live below the poverty line and have little access to employment informal sectors. Experts believe that the melting of glaciers and snow in the Himalayas, along with increasing rainfall attributable to climate change, will lead to more flooding in Bangladesh

in general, especially in cities located near the coast and in the delta region, including Dhaka. Dhaka may also experience increased temperatures from rising levels of vehicle exhaust emissions, increased industrial activity and increased use of air conditioning. (Alam and Rabbani, 2007).

Eakin et al. (2016) discuss the burden for households adapting to adverse water conditions in Mexico. Results that households' efforts to adapt in conditions of marginality can come at the expense of household investment in other aspects of human welfare, reinforcing poverty traps. According to the Report of UN-Habitat (2009), floods in dense, poorly serviced settlements can lead to other hazards, which have a significant impact on the health of poor urban residents. Floodwaters in slums can mix with raw sewage and breed water-borne diseases, such as diarrhoea, typhoid and scabies. Water supplies also become contaminated during floods, as pipes in slum areas are likely to be damaged or to leak. Changes in temperature and rainfall may change the geographic range of vector-borne diseases such as malaria and dengue fever, exposing new populations to these diseases. Young children, as well as pregnant women and their unborn children, are especially vulnerable to petechial fever. In a set of participatory poverty assessments from over 24 countries, the rural and urban reduced identified natural hazards, changing climate conditions and unpredictable seasons as contributing to an increasingly fragile environment and increasing the vulnerability of their livelihoods (Moser and Satterthwaite, 2008).

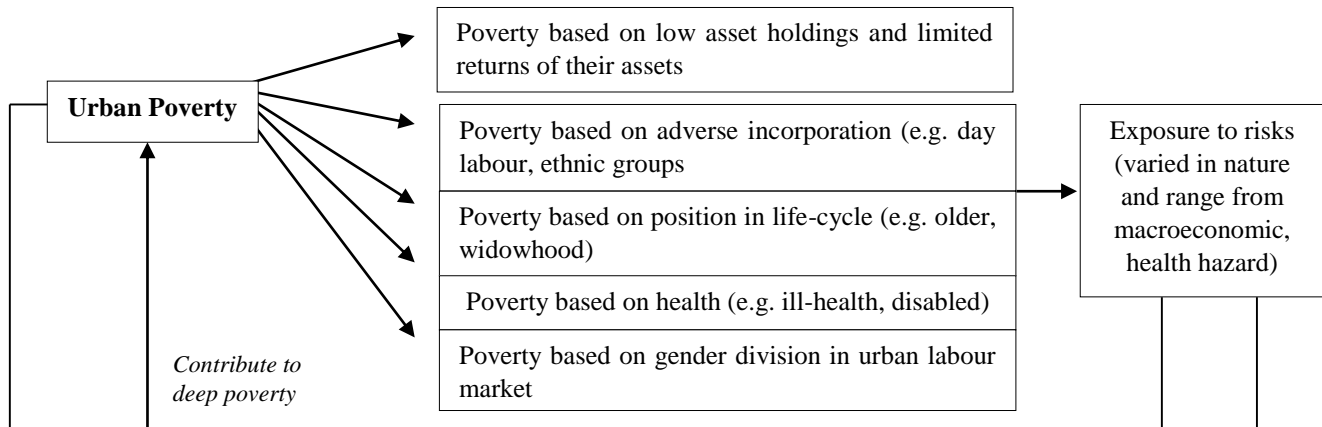
As a result, this special issue highlights the growing interest and importance of climate change adaptation in urban areas. While recent developments have been made in terms of establishing shared terminology and definitions, creating frameworks for identifying and evaluating adaptation actions, and generating metrics to measure and track urban adaptability, many challenges and barriers persist. Further research is needed to understand how best to mainstream adaptation in municipal planning and to understand the tradeoffs and overall impact of both climate change and adaptation on vulnerable populations.

### **Analytical Framework**

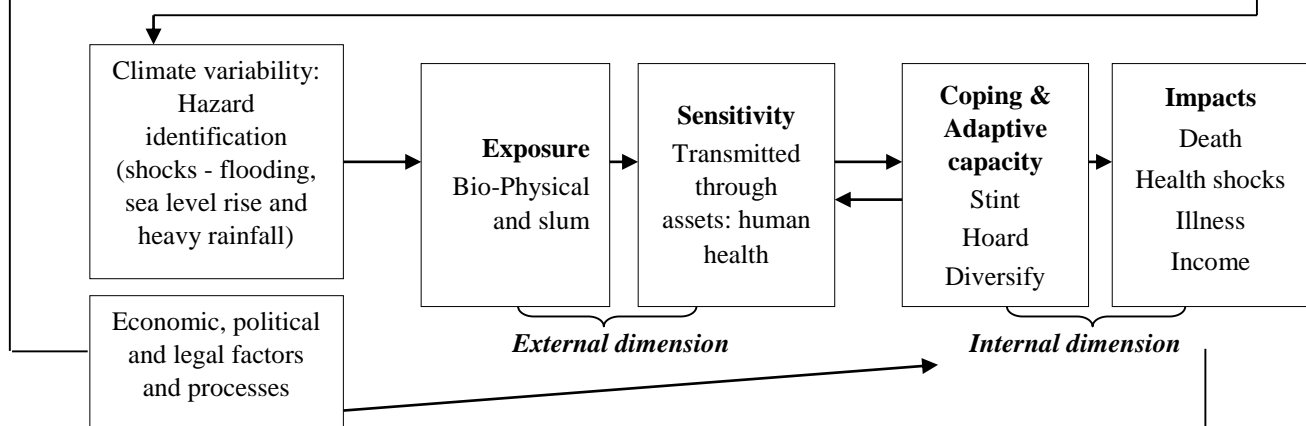
This research analyses the HCMC context from an international perspective. Thus the purpose of the literature review is to explore, from the international perspective, extreme urban poverty and climate change vulnerability, and asset adaptation for the extreme poor. The review, therefore, explores theoretical insights from asset-based, social exclusion/adverse incorporation and vulnerability approaches to explain poverty dynamics and its linkage with risks; an integrated vulnerability framework to identify the main drivers of climate change vulnerability, and the asset adaptation approach to explore and compare adaptation options that could reduce the vulnerability of the urban poor. It is essential to develop an integrated analytical framework for combining theoretical insights of urban poverty, climate change vulnerability, and asset adaptation to assess poor urban adaptation.



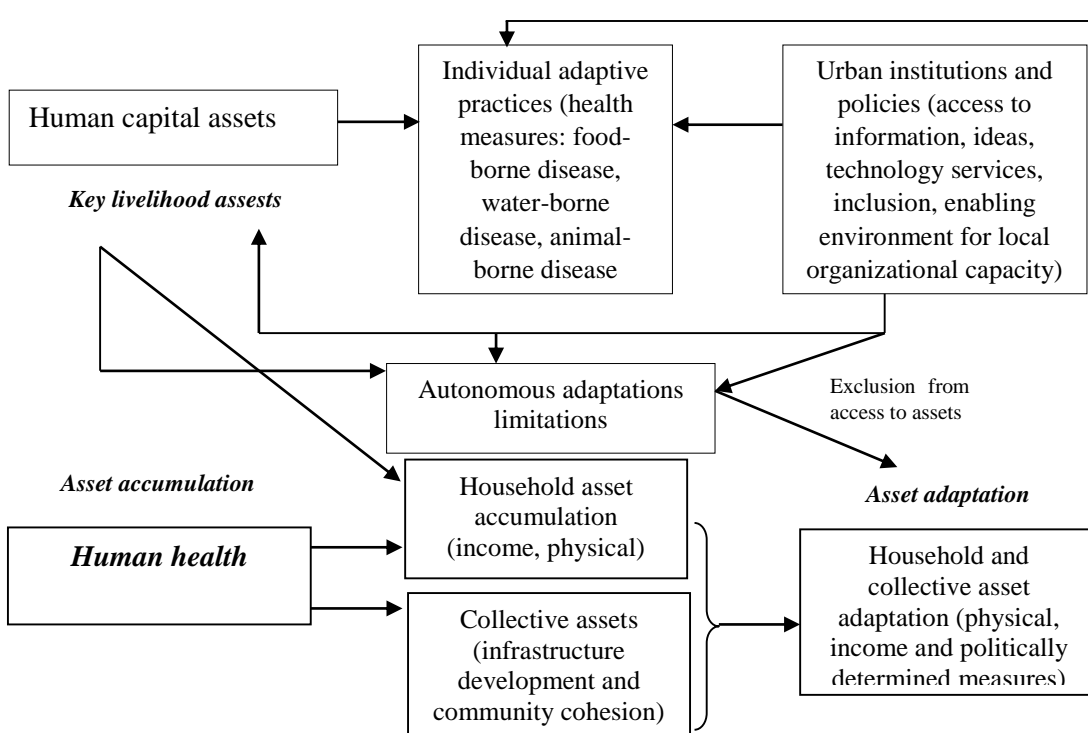
**Step 1: Determine Poverty dynamics and its Interrelationship with Vulnerability**



**Step 2: Explore the Main Drivers of Vulnerability to Climate Change**



**Step 3: Identify Autonomous & Planned Asset - Based Adaptations**



**Figure 1. An Integrated Analytical Framework for Analysing poor urban adaptation**

Source: author

The integrated analytical framework (Figure 5.1) helps to diagnose pro-poor urban adaptation in the HCMC context, following three major steps: (i) determine poverty dynamics and its interrelationship with vulnerability; (ii) the interrelationship between poverty dynamics and vulnerability is taken further to explore the main drivers of climate change vulnerability; and (iii) the urban poor are not just ‘helpless victims,’ but have many resources, even at times of emergency, and these should form the basis for responses (Adger et al., 2003). It is essential to explore asset-based autonomous adaptations and also identify how urban institutions and policies constrain access to assets for adaptation. Also, this step also explores asset-based planned adaptations for the urban extreme poor. More importantly, it identifies how social sector approaches facilitate asset adaptation of the urban extreme poor.

#### **4. Discussion and Conclusion**

The content of this article raises issues related to climate change in Vietnam in general and in the HCM area in particular. Under the impact of climate change, people’s socio-economic life will change significantly. Moreover, for a developing country like Vietnam, the vast majority of people have to find a way to adapt themselves to or cope with the impacts of climate change such as increasing rainfall, rising temperatures and rapid flooding. These problems seriously affect the economy as well as the health of everyone. This paper also opens the next research directions related to climate change and how people and the government will use to limit its impact on human health and socio-economic life. of the country.

Despite the progress above, the discussion of the interlinkages between climate change and inequality, urban poor so far suffers from several deficiencies. The most important of these is the lack of a unified conceptual framework. First, the literature illustrates no single conceptual framework that captures them concurrently (IPCC, 2014). Second, the evidence provided so far is often of complicated and conjectural nature. Prior evidence provided is the location and impact specific, and extrapolations are studied on its basis as well as assumption. Relatively few studies have attempted to examine the effect of climate change on urban poor directly in some specific aspects.

This paper aims at addressing the weaknesses above. In particular, it offers a unifying conceptual framework for capturing and studying the interlinkages between climate change and the livelihood of urban poor. The framework helps to collect, understand, present and discuss the evidence in a more organised, logical, and meaningful way. It helps to identify the gaps that exist in the evidence gathered so far, and thus to point out future directions of research necessary to fill these gaps. Finally, it also helps to discuss the policies needed to address the problems of inequality in the context of climate change.

#### **5. References**

1. Adger, W. N., Agrawala, S., Mirza, M. M. Q., Conde, C., O’Brien, K., Pulhin, J., et al. (2007). Assessment of adaptation practices, options, constraints and capacity. In M. L. Parry, O. F. Canziani, J. P. Palutikof, P. J. van der Linden, & C. E. Hanson (Eds.), *Climate change 2007: Impacts, adaptation and vulnerability. Contribution of working group ii to the fourth assessment report of the intergovernmental panel on climate change*, Cambridge: Cambridge University Press.

2. Ahmed, Syud A., Noah S. Diffenbaugh and Thomas W. Hertel (2009). Climate volatility deepens poverty vulnerability in developing countries. *Environmental Research Letters*, Vol. 4 (3), p. 1-8. DOI: <https://doi.org/10.1088/1748-9326/4/3/034004>.
3. Alam, M. and Rabbani, G., 2007. Vulnerabilities and responses to climate change for Dhaka, *Environment and Urbanisation* (IIED), Vol 19 (1), p. 81-97. DOI: <https://doi.org/10.1177/0956247807076911>.
4. Carew-Reid, J. (2007). *Rapid assessment of the extent and impact of sea level rise in Viet Nam, climate change discussion paper 1*. Brisbane, Australia: ICEM - International Centre for Environmental Management. Retrive on 15<sup>th</sup> May 2020, [http://www.icem.com.au/documents/climatechange/icem\\_slr/ICEM\\_SLR\\_final\\_report.pdf](http://www.icem.com.au/documents/climatechange/icem_slr/ICEM_SLR_final_report.pdf).
5. Douglas, Ian, Kurshid Alam, Maryanne Maghenda, Yasmin Mcdonnell, Louise Mclean and Jack Campbell (2008). Unjust waters: climate change, flooding and the urban poor in Africa. *Environment and Urbanisation*, Vol. 20 (1), p. 187-205. DOI: <https://doi.org/10.1177/0956247808089156>.
6. Eakin, H., Lerner, A., Manuel-Navarrete, D., Aguilar, B., Martínez-Canedo, A., Tellman, B., Charli-Joseph, L., Álvarez, R., Bojórquez-Tapia, L., (2016). Adapting to risk and perpetuating poverty: household's strategies for managing flood risk and water scarcity in Mexico city. *Environmental Science & Policy*, Vol 66 (2016), p. 324-333. DOI: <https://doi.org/10.1016/j.envsci.2016.06.006>.
7. IPCC 2007, *Climate Change 2007: The Physical Science Basis, Working Group I Contribution to the IPCC Fourth Assessment Report*, Presented by R.K. Pachauri, IPCC Chair and Bubu Jallow, W.G. 1 Vice Chair, Nairobi.
8. IPCC 2021, *Climate Change 2021: Climate Change 2021: Impacts, Adaptation and Vulnerability, Working Group I contribution to the IPCC Sixth Assessment Report*, Presented by R.K. Pachauri, IPCC Chair and Bubu Jallow, W.G. 1 Vice Chair, Nairobi.
9. Gentle, Popular and Tek Narayan Maraseni (2012). Climate change, poverty and livelihoods: adaptation practices by rural mountain communities in Nepal. *Environmental Science Policy*, Vol. 21 (2012), p. 24-34. DOI: <https://doi.org/10.1016/j.envsci.2012.03.007>.
10. Gu, R.R., and Li, Y., (2002). River Temperature Sensitivity to Hydraulic and Meteorological Parameters. *Journal of Environmental Management*, Vol 66(1), p. 43-56. DOI: <https://doi.org/10.1006/jema.2002.0565>.
11. Hardoy, Jorgelina and Gustavo Pandiella (2009). Urban poverty and vulnerability to climate change in Latin America. *Environment and Urbanisation*, Vol. 21 (1), p. 203-224. DOI: <https://doi.org/10.1177/0956247809103019>.
12. Hertel, Thomas W., Marshall B. Burke and David B. Lobell (2010). *The Poverty Implications of Climate-Induced Crop Yield Changes by 2030*. Global Trade Analysis Project (GTAP) Working Paper no. 59.

13. Hertel, Thomas W. and Stephanie D. Rosch (2010). *Climate Change, Agriculture and Poverty. World Bank Policy Research Working Paper 5468*. Washington D.C.: World Bank.
14. Hossain, S., (2005). Poverty, Household Strategies and Coping with Urban Life: Examining ‘Livelihood Framework in Dhaka City, Bangladesh. *Bangladesh e-Journal of Sociology*, Vol. 2 (1), p. 1-8.
15. McGranahan, G., Balk, D., & Anderson, B., (2007). The rising tide: Assessing the risks of climate change and human settlements in low elevation coastal zones. *Environment and Urbanisation*, Vol. 19 (1), p. 17-37. DOI: <https://doi.org/10.1177/0956247807076960>.
16. Mohseni, O. and Stefan, H.G., (1999). Stream Temperature/Air Temperature Relationship: A Physical Interpretation. *Journal of Hydrology*, Vol. 218(3), p. 128-141.
17. Moser, C. and Satterthwaite, D., 2008. *Towards pro-poor adaptation to climate change in the urban centres of low- and middle-income countries*. Working Paper in World Bank’s Social Development Department Workshop on the “Social Dimensions of Climate Change”. Washington D.C.: World Bank.
18. Muller, Christoph, Wolfgang Cramer, William L. Hare, and Hermann Lotze-Campen (2011). Climate change risks for African Agriculture. *Proceedings of the National Academy of Sciences*, Vol. 108 (11), p. 4313-4315.
19. Ollila, M., Virta, H. and Hyvärinen V. (2000). Suurtulvaselvitys. Arvio mahdollisen suurtulvan aiheuttamista vahingoista Suomessa [in Finnish, English title: *Report on extreme floods; assessment of the damage caused by a potential extreme flood in Finland*] Suomen Ympäristö. Finland: Finnish Environment Institute.
20. Paavola, Jouni (2008). Livelihoods, Vulnerability and Adaptation to Climate Change in the Monogoro Region, Tanzania. *Environmental Science & Policy*, Vol. 11 (7), p. 642-654.
21. Reilly, J., Hohmann, N. and Kane, S., (1994). Climate Change and Agricultural Trade: Who benefits, who loses?. *Global Environmental Change*, Vol. 4 (1), p. 24-36. DOI: [https://doi.org/10.1016/0959-3780\(94\)90019-1](https://doi.org/10.1016/0959-3780(94)90019-1).
22. Rosenzweig, C. and Parry, M.L., (1994). Potential Impacts of Climate Change on World Food Security. *Nature*, 367.
23. Skoufias, Emmanuel, Mariano Rabassa and Sergio Olivieri (2011). *The Poverty Impacts of Climate Change: A Review of the Evidence*. World Bank Policy Research Working Paper 5622. Washington, D.C.: World Bank.
24. Skoufias, Emmanuel, ed. (2012). *The Poverty and Welfare Impacts of Climate Change: Quantifying the Effects, Identifying the Adaptation Strategies*. Washington, D.C.: World Bank
25. Stern, Nicolas (2006). *Stern Review: The Economics of Climate Change*. London: H.M. Treasury.

26. Somanathan, E. and Rohini Somanathan (2009). Climate Change: Challenges Facing India's Poor. *Economic & Political Weekly*, Vol. 44 (31), p. 51-58.
27. UN-Habitat, 2009. *State of the World Cities 2008/2009: Harmonious Cities*.
28. World Bank, 2011. *Guide to Climate Change Adaptation in Cities*. Retived on 15/02/2012.
29. World Bank, 2012. *Climate Change, Disaster Risks And The Urban Poor - Cities Building Resilience For A Change World, Urban Development Series*. World Bank Washington DC.
30. W.B., 2012b, *A Workbook on Planning for Urban Resilience in the face of Disasters - Adapting Experiences from Vietnam s Cities to Other Cities*. World Bank: Washington D.C.

# INDIGENOUS KNOWLEDGE IN DISASTER RISK REDUCTION IN CAT HAI ISLAND, CAT HAI DISTRICT, HAI PHONG CITY, VIETNAM

*MA. Tran Ngoc Thuy*

*ngocthuytnt@neu.edu.vn*

*MSc. Nguyen Thuy Linh*

*thuylinh@neu.edu.vn*

*Faculty of Environmental, Climate Change and Urban Studies,  
National Economics University, Hanoi, Vietnam*

## **Abstract**

*For centuries, indigenous knowledge has been used by numerous communities around the world in various fields as mechanisms for survival and development. Some of this traditional knowledge has been conserved and still proves its value in modern life. However, since the domination of the West, Indigenous Knowledge has gradually lost value and relevance, particularly among young generations (Hilhorst et al., 2015). During the same period, the effects of global climate change have meant that climate related disasters have been getting increasingly frequent and complicated, causing huge losses and damage to vulnerable communities, particularly those in low-lying coastal areas. Although a wide range of scientific policies and practices have been initiated and implemented, these tend to be top-down and have not always been successful because of a lack of engagement with local communities. It is gradually becoming acknowledged that indigenous knowledge is essential in the development of local climate strategies to ensure that they fit the needs of the community and deliver sustainable impacts (Button, 2010). Since the 90s, there has been an increasing attention and acknowledgment from scientists and global organizations about local knowledge in the fields of climate change adaptation and disaster risk reduction. However, indigenous knowledge is still not always recognized in policies on disaster risk reduction or climate change adaptation. Thus, more efforts have to be made in order to integrate local knowledge into climate related strategies. This paper reports on the application of indigenous knowledge for disaster risk reduction in Cat Hai Island, Hai Phong District, Vietnam.*

**Keywords:** *disaster risk reduction, indigenous knowledge*

## **1. Introduction**

Located in one of the most storm prone areas of the country, Hai Phong is directly affected every year by 1 to 2 typhoons every year. Winds and storms often reach levels of 9-10 (wind speed: 89 - 102 km/h), and sometimes up to 12, accompanied by heavy rainfall,

storm surge and flooding (Table 1). This causes damage and loss of human lives, especially for people living in the extremely vulnerable area of Cat Hai Island.

**Table 1: The history of storms in Cat Hai Island (2005 - 2016)**

Year	Date	Name of storm	Wind speed (km/h)
2005	31 July	Washi	103 - 117
	18 Sep	Vicente	89 - 102
	27 Sep	Damrey	75 - 88
2010	17 Jul	Côn Sơn	118 - 133
2012	28 Oct	Sơn Tinh	118 - 133
2013	23 Jun	Storm No.2	118 - 133
	11 Nov	Haiyan	62 - 74
2014	16 Sep	Kalmaegi	150 - 166
2015	24 Jun	Kujira	134 - 149
2016	26 Jul	Storm No.1	89 - 102
	18 Oct	Sarika	118 - 133

*Source: Hai Phong Center for Environmental and Natural Resources (HACEM, 2016)*

The aim of this paper was to: assess the use of traditional knowledge in natural disaster mitigation in Cat Hai Island community in the context of climate change and to propose recommendations on how to improve the role of indigenous knowledge. This research will contribute to the growing knowledge of the important role that traditional knowledge plays in risk disaster mitigation

## **2. Method**

**a. Household survey:** After determining the area of research, a survey questionnaire was used to collect basic information of households, the livelihood activities of households, the support of local government and the application of their indigenous knowledge when disasters occur. The number of households interviewed was 50, including 25 households in Tien Loc Community, 15 households in Hai Loc, and 10 households in Don Luong. The number of female respondents is 24 people, and the number of male respondents is 26 people. All of the respondents indicated that they used to be affected by storms and floods in the past.

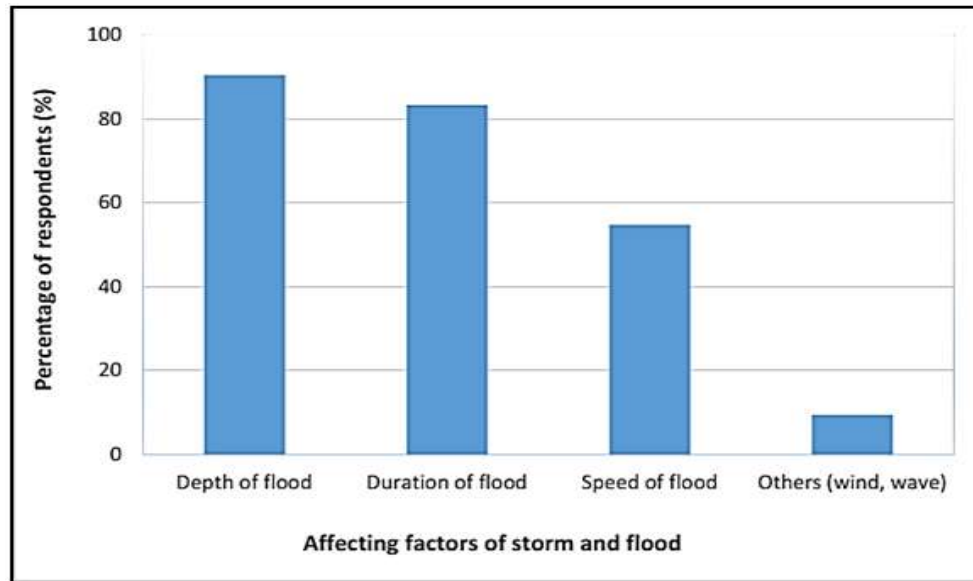
**b. Focus group discussion:** A focus group was held with: Member of Cat Hai Town Steering Committee for Flood and Storm Control - Search and Rescue including Vice Chairman of Cat Hai Town People's Committee, Deputy Head of Cat Hai Town Military Affairs and Deputy Head of Cat Hai Town Veteran Affairs. Participants in the focus groups provide information about the natural disaster status in Cat Hai Island, the common indigenous knowledge among communities, and the application indigenous knowledge to reduce the risk of disaster.

### 3. Results

#### a. Community perception on disaster risk in Cat Hai Island

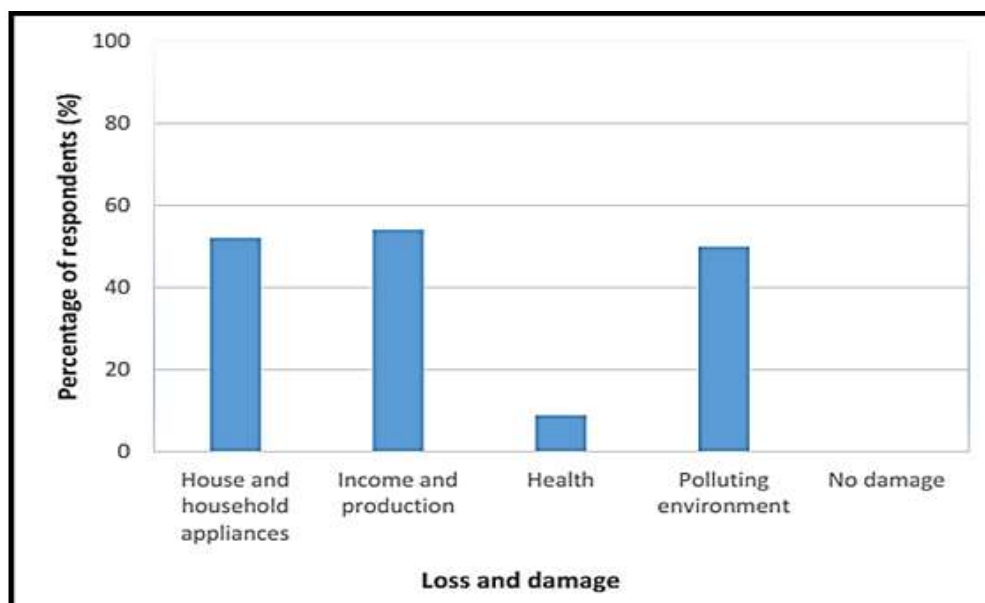
The survey result shows that depth and duration of floods are the two biggest damaging factors of storm and flood. 90% of surveyed households indicated that 2005, 2012, 2013 storms inundated their houses with between 0.8 to 1.5m in the period of at least a half of day.

**Figure 1: The perspective of local people about the most important factors determining the influence of floods and storms**



The heaviest loss that local people suffered from storm and flood was damage to homes, household appliances, and food production (Figure 2). Furthermore, after the floods, the environment was severely polluted with litter, debris and mud.

**Figure 2: The perspective of local people about loss and damage caused by storms and floods.**

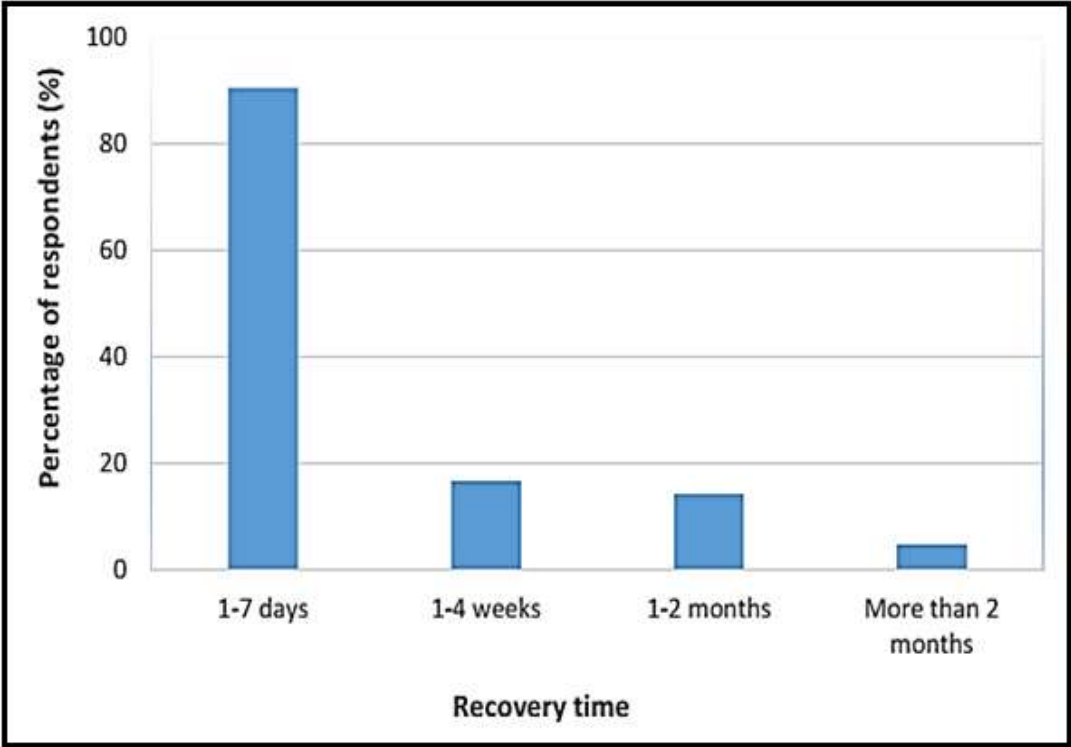




The depth and duration of the floods also ruin water quality, with 90% of surveyed households stating that the quality of water in their houses was seriously affected and cannot be used after floods. The water resources in Cat Hai Island are mainly rainfall water and groundwater, thus, in order to get enough clean water after floods, local people had to use water from administration suppliers or buy water from unaffected areas until the fresh rains come.

The dykes and public buildings were heavily damaged in floods in 2012 and 2013 with the dyke system destroyed on Cat Hai Island, causing dyke stones to roll into local houses. 100% of interviewed households asserted that the transportation system in Cat Hai Island was paralyzed for 2 to 3 days in times of storms and floods, with the entire island totally isolated because the ferries and ships could not sail. Local people hardly moved in the time of flood because most of the roads on the island were inundated, especially, in some low communities such as Tien Loc and Hai Loc where people had to use floats or boats to travel. It usually takes around a week for local people to recover after storms and floods with 90% of respondents indicating that they had to spend 1-7 days to clear debris and arrange their houses (Figure 3). Nevertheless, some families took more than two months to recover from severe storms because their houses were seriously destroyed.

**Figure 3: Recovery time after storm and flood of surveyed households**



**b. Indigenous knowledge in disaster risk reduction of Cat Hai Island community**

Through hundreds of years, local people have gained a lot of experiences in predicting weather and disasters by observing natural phenomena such as the color of the clouds, the moon, stars, rainbows, thunder, lightning, or the activities of insects, animals ... By the time, these experiences and knowledge are turned into songs, poems, folk tales. The most common indigenous knowledge is shown in Table 2 below.

**Table 2: The main types of indigenous knowledge in disaster risk reduction and how they were used in Cat Hai Island community**

No	Indigenous Knowledge	Percentage of Users/ holders	Users/ holders
1	Storm Prediction	10% users 60% holders	Fishermen
2	Flood prediction: Tide calendar	100% users 20% holders	Fishermen
3	Coping Strategies		Fishermen
	Relying on family resources, extended family and other community networks.	100% users	
	Renovating house	18% users	
	Constructing wall in front of doors or around the water tanks and wells	34% users	
	Moving furniture and cattle to higher places in houses/ set up scaffolds float for infrastructure storage.	95% users	
	Moving elderly, children in families to relatives' houses in neighborhood or public shelters	68% users	
	Repairing houses and clearing the debris right after floods	100% users	
	Diversifying livelihoods in family	64% of Fishery households	

Besides the local knowledge, the awareness and perception of the local people about Disaster Risk Reduction has also been enhanced thanks to the efforts of local authorities in recent years. All participants in the focus group claimed that storm and flood prevention in Cat Hai Town in recent years has seen significant improvement, particularly through the mechanism of the “Four on-the-spot” policy applied in the area. This is a policy that provides leadership on-the-spot, human resources on-the-spot, means and materials on-the-spot, and logistics on-the-spot. Based on the “Four on-the-spot” policy, the Town Steering Committee for Flood and Storm Control, Search and Rescue (including all leaders of authorities in local government) have implemented numerous remedies to minimize the loss and damage for the community. These include: organizing disaster prevention activities before storms such as the strengthening of the houses, anchoring of boats, cutting down of trees, trimming branches and evacuation of vulnerable people like elders, pregnant women, and children. In times of flood they rescue injured people and save property during storm and flood; and afterwards

they supply and distribute relief goods. However, because of resources shortages they mainly focus on the most critical areas in times of storm and flood, which means the efficiency of storm and flood prevention and control depends considerably on the efforts of each household in the community. 100% of interviewed households mentioned that local government mainly took charge in early warning, rescuing in sensitive regions, so families primarily countered storms and floods by themselves. The study found that Cat Hai inhabitants have "lived with storms" for many years thanks to their own experience and indigenous knowledge in weather forecasting, agriculture, and marine aquaculture. 100% of respondents also indicated that in order to deal with disasters, they relied on extended family and other community networks. Furthermore, they received medical support, humanitarian emergency relief, and accessed to temporary shelter and clean water from the local government and humanitarian organizations. However, not every affected household received relief from the government, only 10% of surveyed households indicated that their families received grants in the form of food and water supplies.

#### **c. Transmission of Indigenous Knowledge in Disaster Risk Reduction in Cat Hai Island**

74% of respondents indicated that they acquired indigenous knowledge from family members and relatives, primarily from parents and grandparents, 26% of respondents obtained that knowledge from community members. 100% of respondents mentioned that this knowledge was transferred to them by word-of-mouth. According to local people, the traditional knowledge and experience were passed on through a variety of ways, such as folk tales, stories, poetry, teaching, and practical training. This demonstrates that indigenous knowledge has been imparted from generation to generation through oral channel in which the elders in families play a crucial part. 68% indicated that they used to hand down some of this knowledge for their children, relatives, and other community members.

#### **d. Proposal for developing indigenous knowledge in disaster risk reduction of Cat Hai Island community**

100% of respondents indicated that the most necessary work to protect and develop indigenous knowledge and experience is to document the knowledge. In the focus group discussion with the authorities, the necessity of promoting indigenous knowledge in disaster risk reduction in Cat Hai Island was asserted. They suggested that indigenous knowledge can be documented and transferred in Cat Hai Island community by the following approaches. In order to transmit indigenous knowledge in Disaster Risk Reduction to the younger generation, older people should share indigenous knowledge to the younger generation in their families or neighborhood using folktales and storytelling, poems and idioms. They felt that communities could present Indigenous Knowledge in Disaster Risk Reduction in the form of cultural and art performances at the Town Cultural Center. The extended family model ("mô hình dòng họ") is also recommended to preserve and

disseminate indigenous knowledge in Cat Hai Island. That means the indigenous knowledge is encouraged to be collected, documented in paper format and then passed on and developed within generations in the extended family.

It is undeniable that indigenous knowledge is valuable and worthy of recognition, understanding, integration and promotion for future use in communities. In order to apply indigenous knowledge effectively in Disaster Risk Reduction, these following recommendations are suggested: (1) Documentation and preservation of indigenous knowledge in various forms like the extended family model, art and cultural performance, poem, storytelling, digital storytelling (using photos), which are appealing and embedded closely to local people. (2) Development of indigenous knowledge in disaster risk reduction policy in Vietnam, in which the role of stakeholders at local level and copyright issue. (3) Conducting further research in larger sample sizes, different geographical areas, other aspects like documentation, communication, and integration between scientific knowledge and indigenous knowledge in disaster risk reduction. (4) Training community representatives to serve as local researchers.

#### **4. Discussion and Conclusion**

The study site has suffered numerous loss and damage from natural disaster events in recent years. Local residents discern that the best response way to storm and flood is depending on their own resources and experience. From a long history of “living with storms”, Cat Hai Island community has developed a variety of local knowledge beliefs and experiences that can be applied in Disaster Risk Reduction, including knowledge in storms and floods prediction and in coping strategies. The application of tide calendar knowledge in predicting flood is widely used in Cat Hai Island community. The indigenous knowledge in storm prediction is known by local people but is not commonly used these days due to the existence of more accurate forecasting on television and radio. Farmers in Cat Hai Island prefer quick growing vegetables to reduce the effects of storm and flood on their crops. The diversification trend in the livelihood of fishery households to lessen disaster risk impacts is also obvious in the locality. Indigenous knowledge systems have been conserved and passed on through generations in Cat Hai Island mainly through oral communication. Most of the residents in the survey obtained local knowledge from their family members, particularly from their parents and grandparents. Local authorities in Cat Hai Island suggested indigenous knowledge can be documented and preserved by the “extended family model”, storytelling, art and cultural performance.

In conclusion, Cat Hai Island community possesses a rich resource of indigenous knowledge that plays a crucial role in Disaster Risk Reduction. This knowledge needs to be preserved and developed in scientific ways for future use to reduce disaster risk in the context of climate change.

## 5. References

1. Baul, T. K., & McDonald, M. A. (2014). Agro-biodiversity management: Using indigenous knowledge to cope with climate change in the middle-hills of Nepal. *Agricultural Research*, 3(1), 41-52. doi:10.1007/s40003-014-0096-8
2. Bryan, H. (2006). Seth appiah-opoku, the need for indigenous knowledge in environmental impact assessment: The case of Ghana, Edwin Mellen press, New York, NY (2005) ISBN 07734-6151-5 183 pp., \$99.95/£64.95 cloth. *Environmental Impact Assessment Review*, 26(6), 600-601. doi:10.1016/j.eiar.2005.08.001
3. Button, G. (2016). *Disaster culture: Knowledge and uncertainty in the wake of human and environmental catastrophe*. Walnut Creek: Routledge Ltd. doi:10.4324/9781315430379
4. Germanwatch.(2014).Global Climate Risk Index 2014. *Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2012 and 1993 to 2012*. Haque, C. E. (2012). *Disaster risk and vulnerability: Mitigation through mobilizing communities and partnerships*. Montréal: McGill-Queen's University Press.
5. Hilhorst, D., Baart, J., van der Haar, G., & Leefink, F. M. (2015). Is disaster “normal” for indigenous people? Indigenous knowledge and coping practices. *Disaster Prevention and Management*, 24(4), 506-522. doi:10.1108/DPM-02-2015-0027
6. Hiwasaki, L., Luna, E., Syamsidik, & Marçal, J. A. (2015). Local and indigenous knowledge on climate-related hazards of coastal and small island communities in Southeast Asia. *Climatic Change*, 128(1), 35-56. doi:10.1007/s10584-014-1288-8
7. Hiwasaki, L., Luna, E., Syamsidik, Shaw, R. (2014). *Local & indigenous knowledge for community resilience: Hydro-meteorological disaster risk reduction and climate change adaptation in coastal and small island communities*, Jakarta, UNESCO, 66 pp.
8. Huy, H. T. (2009). “Early warning system for storm management in the coastal commune of Hai An: role of information and local institutions”, *Singapore: Economy and climate Program for Southeast Asia Climate Change Technical Reports*, 56 p.

# DEVELOPING THE SUSTAINABILITY INDEX FOR THE COASTAL ZONE OF VIETNAM IN THE CONTEXT OF CLIMATE CHANGE

<sup>1</sup>*Nguyen Dinh Thai*

*nguyendinhthai@gmail.com*

<sup>1,2</sup> *Luu Viet Dung*

*dungluuviet@hus.edu.vn*

<sup>1,2</sup> *Nguyen Tai Tue*

*tuenguyentai@gmail.com*

<sup>1,2</sup> *Tran Dang Quy*

*quytrandang@gmail.com*

<sup>1,2</sup> *Mai Trong Nhuan*

*nhuanmt@vnu.edu.vn*

<sup>1</sup>*Faculty of Geology, University of Science,  
Vietnam National University, Vietnam*

<sup>2</sup>*Key Laboratory of Geoenvironment and Climate change response,  
University of Science, Vietnam National University, Vietnam*

## **Abstract**

*The coastal zone of Vietnam consists of 26 provinces and 2 megacities, which plays critical roles for social-economic development of Vietnam. Numbers of important industrial parks, economic zones, and large urban areas are located in this area. However, the coastal zone of Vietnam is exposed frequently to climate change impacts such as extreme weather events, sea-level rise, and salinity intrusion. This area is also impacted by human activities such as industrialization, commercialization, tourism, and urbanization. Consequently, the coastal zone of Vietnam is highly vulnerable to natural hazards and human activities. Thus, developing the sustainability index is extremely important for sustainable development plans and strategies of Vietnam's coastal zone. In the present study, we analyzed theoretical and practical basis for developing the sustainability index for Vietnam's coastal zone in the context of climate change. The results showed that climate change has caused several hazards such as typhoons, salinity intrusion, drought, erosion, and siltation channels, which are markedly increased in frequency and intensity. The impacts of human activities are also enlarged, which directly caused environmental pollution, environmental accidents, and biodegradation of coastal ecosystems. We also proposed the preliminary coastal sustainability index consisting of natural, social, and human components with 41 indicators for estimating the sustainability level of Vietnam's coastal zone. The sustainability index will contribute significantly to sustainable development strategies, suitable use of natural resources, and integrated management of Vietnam's coastal zone in the context of climate change.*

## **1. Introduction**

The coastal zone of Vietnam consists of 26 provinces and 2 megacities, which covered 42 and 59 percent in total area and population, respectively. This area has rich in mineral resources such as titanium, zircon, quartz, aluminum, iron, manganese, construction materials,... The geosites such as bays, creeks, river mouths, tidal flat, etc. play important roles for social-economic development as well as seaports, transportation, aquaculture, mineral exploitation, tourism... The coastal zone of Vietnam is the most rapidly business development with many economic centers including Ho Chi Minh City, Da Nang, Quang Ninh, Hai Phong,... Consequently, natural resources in this area have been highly exploited under the pressure of population explosion, industrial activities, tourism, services, ... Moreover, this area was also severely impacted by climate change, sea-level rise, and natural disasters such as tropical storms, flooding, earthquake, erosion, sand dune movement, and environmental pollution. Almost coastal districts and urban areas are located in the lower area, which was strongly threatened by global sea-level rise and storm surges. These disasters have caused huge damage to the lives and property of coastal communities. Due to the impacts of climate change, the intensity and frequency of disasters in the coastal zone tend to increase in recent decades. Population and socio-economic development in coastal areas have high levels of vulnerability due to natural or man-made disasters. In the context of rapid climate change, the socio-economic development strategies in the coastal and marine areas of Vietnam need to ensure the maintenance of core functions, values, and services from natural resources, ecosystems, as well as minimize the impacts of climate change, environmental degradation. Therefore, the establishment of the theoretical and scientific basis for establishing a set of criteria for the sustainability assessment of coastal areas in Vietnam is an urgent requirement for monitoring sustainable development, environment, and responding effectively to climate change, while contributing to improving the scientific basis of Vietnam sustainable coastal zone.

## **2. Viewpoints And Objectives Of Sustainability Assessment Of Coastal Zones**

### ***2.1. Concept of sustainability***

“Sustainability” term firstly appeared in the report "Our Common Future" which emphasized that global economic development needs to ensure the maintenance of core ecosystems (Brundtland et al., 1987). Sustainability is often used in interdisciplinary approaches to assess the viability and development of a system or the integration of systems. According to the Sustainability Assessment Framework of the US Environmental Protection Agency, there is a dependence between human society and the natural environment (J. Fiksel, T. Eason, & H. Frederickson, 2012). They emphasized that the development of socio-economic development has been putting pressure on natural resources and the environment, which can threaten the health of people and the prosperity of society. Under the US Environmental Protection Act, sustainability is the ability to maintain conditions where people and nature can live and live in harmony, maintaining a balance of three socio-economic-environment and harmonious combination of these three elements to meet current

needs without threatening the needs of the future, ensuring that future generations still meet all requirements in environmental-economic-social (USEPA, 1969). Sustainability is also determined by the degree of change in the development process, which is the ability of a system to sustain growth at levels close to or greater than the average of the previous period (Lynam & Herdt, 1989). According to the Australian Government's Sustainability Measurement Program, sustainability is the holistic development of the society that combines the livelihood of the community with the stability and assurance of the quality of the environment with ensuring that the economy develops and sustains over time (Australian Government, 2012). In Japan, sustainability is defined as the exploitation of resources, ecosystems, and the environment within the tolerance and restoration of natural ecosystems. The common concern for sustainability includes climate, biodiversity, agriculture, fisheries, forestry, energy and resources, water resources, economic development, health, and culture (Kajikawa, 2008). Thus, it can be seen that the concept of sustainability is linked to sustainable development (SD), but SD has more emphasis on the harmonious development of linkages between the three pillars of socio-economic development-environment; “*Sustainability approaches the long-term sustainability of the functions and values of human resources and the environment*”.

Recent studies showed that population growth will rapidly degrade the natural resources and ecosystems, causing the decreasing level of sustainability in coastal systems. This demonstrates the importance of maintaining the functions and values of ecosystems to ensure the sustainability of systems. Thus, *sustainability can be understood as the level and ability to sustain and develop favorable conditions (natural resources, environment, ecosystem, etc.) for humans and nature can develop harmonically*. In economic terms, sustainability is the ability to maximize economic benefits while maintaining the quality of natural resources over time (Pearce and Turner, 1990). In ecology, sustainability is a harmonious balance between the inputs and outputs of natural ecosystems and the ability to reduce external factors such as climate change and disaster (Fresco & Kroonenberg, 1992). In the aspect of human well-being, sustainability is the degree to which people's longing for human happiness is sustainable, even forever, or the preservation of the resources needed for their human survival (Daly, Cobb, & Cobb, 1994).

In the context of climate change and global change, the sustainability of a natural-social system has the following characteristics: 1) The "value" (V) of a system of interest is maintained over time:  $V (St + 1) \approx V (St)$ ; 2) the extent to which biological systems maintain diversity and productive capacity (in ecology); (3) the tolerance of systems, or the ability of the development process (in general); 4) Maintaining production processes: a) Not causing degradation or danger to biological systems; b) replacing the resources people use with resources of equal or greater value for the same activity without degrading, endangering the natural biological systems; and 5) Improve welfare, ensure social justice for today's and tomorrow's generation, and protect living ecosystems (<https://goo.gl/k1eZOk>).



## ***2.2. Points of view for developing the coastal sustainability index***

1. Vietnam's coastal zone is a complex system of natural conditions, influenced both by the sea and continent; the high impacts of human activities, and the region's pressure and impact from socio-economic development. Maintaining the sustainability of the coastal zone is a common goal, the demand for thorough development and socio-economic development; Maintaining the sustainability of the natural, social and human systems is closely linked and harmonized between economic development, social development and protection of natural resources and environment, and active response to natural disasters, climate change, ensuring national defense, security, social order and safety, and protecting national independence and sovereignty.

2. Human is at the center of sustainability. Maximize the human factor as the subject, the main resource, and the goal of maintaining sustainability. To meet more and more adequately the material and spiritual needs of all people.

3. The social system is developed, maintaining the social equality, cultural and historical values, promoting economic development and modern infrastructure for enhancing regions and countries connection to smart response to climate change;

4. Promoting cooperation among coastal zone and other regions, countries, and the international community, and enhancing solidarity among communities in the coastal zone.

## ***2.3. Goals of sustainability maintenance***

### ***a) Natural systems***

*Goal 1:* Wise use and management of natural resources in the coastal zone;

*Goal 2:* Conservation and sustainable use of the oceans, natural resources in the coastal zone for sustainable development;

*Goal 3:* Protection and restoration of coastal ecosystems, sustainable management of coastal protection forests, reducing desertification, recovering degraded land and ecosystems;

*Goal 4:* Clean coastline and marine environment;

*Goal 5:* Comprehensive assessment of threats from natural disasters and climate change, proposing the effective solution for responding to climate change;

*Goal 6:* Effectively implement natural disasters prevention and climate change response activities.

### ***b) Social system***

*Goal 7:* Suitable use of the unexploited coastal area;

*Goal 8:* Improve economic development with high production and sustainability;

*Goal 9:* Promote and support the dynamic and development of economy in the coastal zone;

*Goal 10:* Promote sustainable industry, enhancing innovation;

*Goal 11:* Building modern infrastructure, favorable for economic development and high resistance for natural disasters and climate change;

*Goal 12:* Develop safe and resilience coastal cities under impacts of natural disasters and climate change;

*Goal 13:* Promote sustainable production and consumption, enhancing solidarity and cooperation among communities in the coastal zone.

**c) Human system**

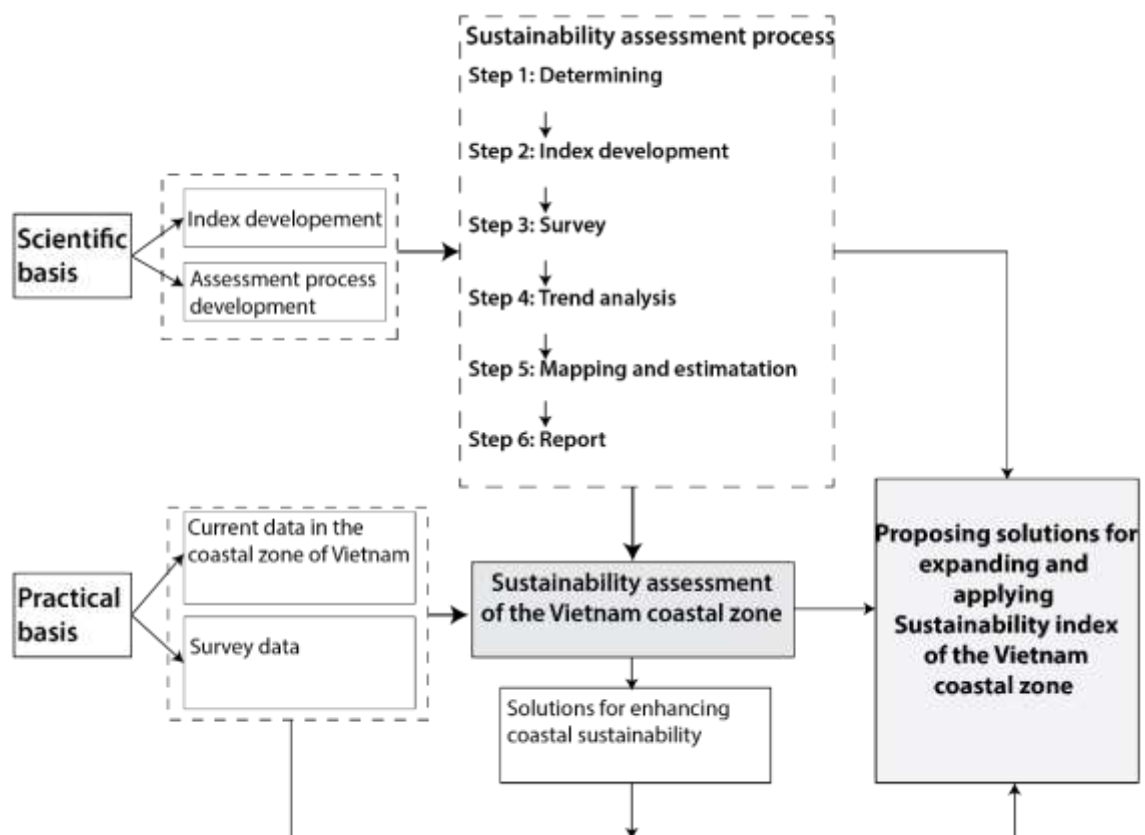
*Goal 14:* Comprehensive human development: Healthy life; Inclusive and rational education, enhancing welfares;

*Goal 15:* Gender equality, empowerment, and opportunities for women and girls.

**3. Method**

**3.1. Approach**

The sustainability assessment approach is based on scientific basis including international and Vietnamese experience. The sustainability criteria and sustainability assessment process required set of measures, indicators and variables which was consistent with the characteristics of Vietnam's coastal zone (Figure ).



**Figure 1. Approach to assess the sustainability of coastal areas of Vietnam**

Furthermore, practical facilities are inherited and established from prior research; additional surveys in study areas will also be integrated using the coastal sustainability assessment. The results of these processes will be used to propose solutions to enhance sustainability and climate change adaptation.

### ***3.2. The process of evaluating the sustainability of coastal areas***

The sustainability assessment process has been developed in many countries around the world. The sustainability assessment in the US describes a five-step process of identifying issues, selecting criteria, defining the scope, collecting data, and exchanging reports on sustainability for the study area (J. R. Fiksel, T. Eason, & H. Frederickson, 2012). The study by the Italian and Dutch authors also proposed a four-step assessment process from the approach, target identification, target selection, and identification of methods to assess sustainability for the selected area (Sala, Ciuffo, & Nijkamp, 2015). Similarly, the sustainability assessment process for Portugal's coastal zone consists of seven steps that derive from goal identification, documentation review, criteria for sustainability, expert opinions, complete the set of criteria and report (Coelho, Mascarenhas, Vaz, Dores, & Ramos, 2010). In general, sustainability assessment procedures are highly homogeneous and can be adapted to Vietnamese conditions.

Based on the documents, the subject has developed the process of assessing sustainability for the coastal zone of Vietnam including 5 specific steps (Figure ) as follows:

Step 1: Identify issues, scope and evaluation plan

Step 2: Develop sets of criteria and indicator for assessing sustainability

Step 3: Research, investigation, and survey to collect data

Step 4: Analysis of trends and characteristics of criteria, indicators

Step 5: Calculate the index, establish a sustainability map

Step 6: Report and propose solutions

The final product of the coastal sustainability assessment process is the Sustainability Assessment Report and Map, which is used as the scientific basis for proposing solutions to enhance sustainability in the coastal area.

### ***3.3. The process of establishing GIS data for coastal sustainability assessment***

The process of building GIS data for coastal sustainability assessment is based on the criteria mentioned in the circulars guiding the development of the database of the Ministry of Natural Resources and Environment such as the Circular 02/2012/TT-BTNMT on "Regulations on the process of building a database on land", Circular No. 10/2017/TT-BTNMT "Regulations on the establishment of thematic maps by remote sensing images at the scale of 1:5,000; 1:10,000; 1:500,000; 1:1.000.000", Circular 48/2016/TT-BTNMT on "Geographical database technical regulation ratio 1:250,000" and other related circulars. Sources for GIS data of natural, social, and human components were collected, synthesized, and analyzed from reference materials, documents, and projects that have been or are being implemented in coastal areas as well as collecting lacking data. These data are analyzed,

characterized, and integrated into GIS data and can be transformed and standardized to fit the data structure of the ArcGIS software. Primary data are entered attribute information, assigning test codes such as province code, district code, criteria code before proceeding the editing process to establish the information layers and thematic maps. Data should be evaluated for structure, data quality, visibility, and data access before submission.

## **4. Discussion and Conclusion**

### ***4.1. Scientific and practical basis for assessing coastal sustainability***

#### ***4.1.1. Demand for coastal sustainability assessment***

Vietnam's coastal zone is a complex system of natural conditions, influenced by both sea and continental processes, human activities, and under pressure from socio-economic development. Maintaining the sustainability of coastal areas is important objectives, the requirements of socio-economic development; Maintaining the sustainability of the natural, social and human systems is closely linked and harmonized between economic development, social development and protection of natural resources and environment, and active response to natural disasters, climate change; Ensuring national defense, security, social order and safety, and protection of national independence and sovereignty. In the context of global change, socio-economic development strategies in coastal and marine areas of Vietnam need to ensure the maintenance of core ecosystem functions, values, and services from natural resources and ecosystems, while mitigating the impacts of climate change, environmental degradation, orientation towards sustainable development.

The Government of Vietnam has identified the implementation of sustainable development goals as important, ensuring socio-economic development in line with the protection of natural resources and environment. The development objectives, strategies, and policies play an important role in action plans in the future. The Government has approved the National Action Plan to implement the Agenda for Sustainable Development until 2030 (21,; 2016; Bộ Kế hoạch và Đầu tư, 2012). Therefore, researches, policies and indicators related to sustainable development in Vietnam have been trying to focus on clarifying the three components economic, social and environmental at the national, regional and economic levels (Nam, 2007; Quyết định 2157/QĐ-TTg 2013; UNDP,; 2016). However, these indicators have revealed limitations such as the overlap between the criteria groups of different components; Values and correlations between components have not been clarified; The core values of natural, social and human systems have not been clarified; Indicators should be developed to address these constraints.

#### ***4.1.2. Recommended criteria for evaluating the sustainability of coastal areas***

The criteria for assessing the sustainability of Vietnam's coastal zone are based on the succession Development Goals of the United Nations(Council,; 2016), European (Partnership,; 2012), Vietnam (Quyết định 2157/QĐ-TTg 2013) and some proposed indicators are added in line with the characteristics of the coastal areas of Vietnam. The criteria for assessing the sustainability of coastal areas in Vietnam are 41 indicators of natural, social, and human components (Table 1):

**Table 1. A set of criteria for assessing the sustainability of coastal areas in Vietnam**

<b>Component / Objective</b>	<b>No</b>	<b>Indicators</b>
<b>A. NATURAL SYSTEM</b>		
<i>A1. Nature</i>		
Goal 1: Wise use and management of natural resources in the coastal zone	1	Sustainable land resources
	2	Sustainable water resources
	3	Sustainable energy resources
	4	Sustainable fisheries resources
	5	Sustainable mineral resources
	6	Sustainable tourism resources
	7	Sustainable resources position
<i>A2. Ecosystem</i>		
Goal 2: Conservation and sustainable use of oceans, natural resources in the coastal zone for sustainable development	8	Degree of change of important species in coastal and marine areas
	9	Area of land and sea is preserved according to state regulations
	10	Management effectiveness in protected areas
Goal 3: Protection and restoration of coastal ecosystems, sustainable management of coastal protection forests, reducing desertification, recovering degraded land and ecosystems	11	Protect the coastal ecosystem
<i>A3. Environment</i>		
Goal 4: Clean coastline and marine environment	12	The quality of the beach environment
	13	Nutrient concentration in coastal waters
	14	Oil concentration
	15	Pollution from toxic substances
	16	Quality of air environment
	17	Wastewater treatment
<i>A4. Disaster, Climate change, Sea level rise</i>		
Goal 5: Comprehensive assessment of threats from natural disasters and climate change, proposing the effective solution for responding to climate change	18	Extreme weather conditions
	19	Sea level rise
	20	Coastal erosion and accretion
	21	The risk of natural, social and human from disaster

<b>Component / Objective</b>	<b>No</b>	<b>Indicators</b>
	22	Number of people affected by the disaster
<i>Goal 6: Effectively implement natural disasters prevention and climate change response activities</i>	23	Action to cope with natural disasters
<b>B. Social system</b>		
<b><i>B1. Population</i></b>		
<i>Goal 7: Suitable use of the unexploited coastal area</i>	24	Population density and age group structure
<b><i>B2. Economics</i></b>		
<i>Goal 8: Improve economic development with high production and sustainability</i>	25	Economic sustainability
<i>Goal 9: Promote and support the dynamic and development of economy in the coastal zone</i>	26	Labor structure in economic sectors
<i>Goal 10: Promote sustainable industry, enhancing innovation</i>	27	Sustainable industrial development
	28	Creative development
<b><i>B3. Infrastructure</i></b>		
<i>Goal 11: Building modern infrastructure, favorable for economic development and high resistance for natural disasters and climate change</i>	29	Resilience infrastructure
<i>Goal 12: Develop safe and resilience coastal cities under impacts of natural disasters and climate change</i>	30	Coastal urban development
	31	Degree of conservation of particular values
<i>Goal 13: Promote sustainable production and consumption, enhancing solidarity and cooperation among communities in the coastal zone</i>	32	Degree of social solidarity
	33	Sustainable production and consumption
	34	Number of offenses
	35	Governance
<b>C. HUMAN SYSTEM</b>		
<i>Goal 14: Comprehensive human development: Healthy life; Inclusive and rational education, enhancing welfares</i>	36	Human development
	37	Human health
	38	Education condition
	39	Access to basic services
	40	Level of social protection
<i>Goal 15: Gender equality, empowerment and bringing opportunities for woman and girls</i>	41	Gender equality

The content of indicators in the criteria for assessing the sustainability of coastal areas in Vietnam is intended to serve 15 objectives of sustainability of three natural, social, and human systems in Vietnam's coastal zone. These objectives include six goals to maintain the sustainability of the social system, seven goals of the natural system, and two goals of the human system.

#### **4.2. GIS data for assessing coastal sustainability**

##### *4.2.1. Scope of building data sets*

The scope of the study is very important for the development of GIS data which assessing the sustainability of coastal areas in Vietnam. The process of editing, analyzing, and evaluating data depends on the primary source and spatial extent of GIS data. In this study, the data construction was limited to coastal district boundaries with the majority of information layers. However, some data characteristics such as the human development index, industry characteristics, etc., is only updated at the provincial level. Besides, due to the administrative divisions depending on many administrative and historical factors, several coastal districts in the central Vietnam extend their distribution to the Vietnam-Laos border.

##### *4.2.2. GIS data sets for assessing coastal sustainability*

GIS data sets for the characteristics and distinctness of the natural system, social systems, and human systems components include the 27 data sets as in Table .

**Table 2. Content of GIS data sets for coastal sustainability assessment**

<b>No</b>	<b>Content data</b>
<b>I.</b>	<b>GIS data sets of the natural system</b>
1.	Topographic
2.	Geomorphology
3.	Geological
4.	Hydrography - Oceanography
5.	Land resources
6.	Water Resources
7.	Mineral resource
8.	Position resource
9.	The value of important marine ecosystems
10.	Current status of danger due to natural disasters, environmental pollution, and hot spots
11.	Impacts of climate change, sea-level rise, and vulnerability

No	Content data
<b>II.</b>	<b>GIS data sets of the social system</b>
1.	Characteristics of industrial development
2.	Characteristics of agroforestry development
3.	Characteristics of aquaculture
4.	Characteristics of tourism and services
5.	Characteristics of finance and investment
6.	Characteristics of economic growth
7.	Characteristics of education, training, and health
8.	Labor, war invalids - social characteristics
9.	Characteristics of culture, information, sports, traditional cultural festivals
10.	Characteristics of government construction, administrative reform
11.	Characteristics of urban governance, urbanization, planning and development orientation
12.	Characteristics of social order and safety
<b>III.</b>	<b>GIS data sets of the human system</b>
7.	Human Development Index
8.	Characteristics and distinctiveness of education
9.	Human health characteristics
10.	Characteristics and distinctiveness of level of understanding, ability to act in environmental protection, response to climate change and sustainable development

The characteristics of GIS datasets for sustainability assessment in the coastal zone of Vietnam are the ability to quickly and highly query information, ready to update for space and time. Besides, the information in these data layers can be transformed and analyzed to serve the integrated zonation of coastal sustainability, socio-economic development in coastal areas. However, in the process of collecting and processing documents for the GIS data set, there are some limitations as follows: 1) The coverage of socio-economic data depends largely on the level of disclosure of administrative units, so there is a degree of variability between regions; 2) Access to some information related to natural, social and human factors is limited due to lack of research, statistics,...



### 4.3. Conclusion

The present study has clarified the scientific basis and practical needs for assessing the sustainability of Vietnam's coastal zone in the context of climate change, sovereignty, and national security in the current period. Based on that, the sustainability assessment process and the criteria for assessing coastal sustainability include 41 indicators, responding to 15 objectives of the natural system, society, and people in the coastal zone. To meet these indicators, GIS data on the core characteristics and differentiation of natural, social, and human components have been developed and collected for entire Vietnam's coastal zone, which meets the need for continuous updating in space and time, is the basis for assessing the evolution of coastal sustainability. These data are important for conducting integrated zoning of natural, social, and human factors that affect the sustainability of coastal areas. The results of the research have considerably contributed to clarifying the theoretical basis and the practical need for developing, supplementing, improving for the set of criteria, evaluation process, and mapping sustainability.

**Acknowledgments:** The present study was supported by the national project BDKH.23/16-20.

### 5. References

1. 21;, V. p. c. t. (2016). Chương trình nghị sự 2030 vì sự phát triển bền vững và cập nhật tình hình triển khai thực hiện ở Việt Nam.
2. Australian Government. (2012). Fact sheet: Measuring sustainability program. [www.environment.gov.au/sustainability/measuring](http://www.environment.gov.au/sustainability/measuring).
3. Bộ Kế hoạch và Đầu tư. (2012). *Thực hiện phát triển bền vững ở Việt Nam: Báo cáo quốc gia tại Hội nghị cấp cao của Liên Hợp Quốc và Phát triển bền vững (RIO+20)*. Retrieved from
4. Brundtland, G., Khalid, M., Agnelli, S., Al-Athel, S., Chidzero, B., Fadika, L., . . . de Botero, M. M. (1987). *Our common future* Retrieved from New York:
5. Coelho, P., Mascarenhas, A., Vaz, P., Dores, A., & Ramos, T. B. (2010). A framework for regional sustainability assessment: developing indicators for a Portuguese region. *Sustainable Development*, 18(4), 211-219.
6. Council;, U. E. a. S. (2016). *Report of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators*. Retrieved from
7. Daly, H. E., Cobb, J. B., & Cobb, C. W. (1994). *For the common good: Redirecting the economy toward community, the environment, and a sustainable future*: Beacon Press.
8. Fiksel, J., Eason, T., & Frederickson, H. (2012). A framework for sustainability indicators at EPA. *Washington DC: United States Environmental Protection Agency*.
9. Fiksel, J. R., Eason, T., & Frederickson, H. (2012). *A framework for sustainability indicators at EPA*: Citeseer.

10. Fresco, L. O., & Kroonenberg, S. B. (1992). Time and spatial scales in ecological sustainability. *Land use policy*, 9(3), 155-168.
11. Kajikawa, Y. (2008). Research core and framework of sustainability science. *Sustainability Science*, 3(2), 215-239.
12. Lynam, J. K., & Herdt, R. W. (1989). Sense and sustainability: sustainability as an objective in international agricultural research. *Agricultural economics*, 3(4), 381-398.
13. Nam, C. t. n. s. c. V. (2007). Dự Thảo lần 3: Bộ chỉ thị Đánh giá tính bền vững về tài nguyên và môi trường. Retrieved from <http://www.agenda21.monre.gov.vn/Default.aspx?tabid=395&ItemID=4228>
14. Partnership, S. (2012). *THE SUSTAIN INDICATOR SET: A set of easily measurable sustainability indicators*. Retrieved from
15. Quyết định 2157/QĐ-TTg (2013). *Ban hành Bộ chỉ tiêu giám sát, đánh giá phát triển bền vững địa phương giai đoạn 2013 - 2020*.
16. Sala, S., Ciuffo, B., & Nijkamp, P. (2015). A systemic framework for sustainability assessment. *Ecological Economics*, 119, 314-325.
17. UNDP, I. v. (2016). *Báo cáo đặc biệt của Việt Nam về quản lý rủi ro thiên tai và các hiện tượng cực đoan nhằm thúc đẩy thích ứng với biến đổi khí hậu* Retrieved from
18. USEPA, U. S. E. P. A. (1969). National Environmental Policy Act 1969.

# **CREDIT POLICY TO SUSTAINABLE DEVELOPMENT OF MARINE ECONOMY CONTRIBUTION TO ENVIRONMENTAL PROTECTION**

*Dr. Le Van Hai*

*nganhangngoai@yahoo.com*

*Banking University of Ho Chi Minh City, HCMC, Vietnam*

## **Abstract**

*Vietnam has great potential for marine economy. But exploiting the development of the marine economy in recent years is causing great concerns about environmental pollution, sustainable development and climate change. The paper focuses on analyzing the policies of investment bank credit capital for the development of Vietnam's marine economy, making comments, assessments and recommendations for relevant solutions.*

**Keywords:** *credit policy, sustainable development, marine economy, environmental protection*

## **1. Introduction**

Resolution No. 09-NQ / TW, dated 9/2/2007 of the Party on "Vietnam Sea Strategy to 2020", [1], which has clearly shown its goals, promoting development of marine economy associated with strengthening strong national defense and security on the seas and islands of the homeland. Along with that, developing the field of aquaculture and exploiting aquatic resources in far sea areas, in association with the protection of national security and defense; quickly develop offshore fishing forces along the direction of investing in equipment and facilities, modern technology, synchronous development of infrastructure, fishery logistics services, storm shelters and anchorage areas according to planning ... This is a major policy and policy that has been paid special attention by the Party and the State in the past as well as now.

## **2. Method**

The paper researches on the practice of developing and operating macroeconomic policies on credit capital, without conditions to use quantitative methods, to survey and calculate the impact level of factors. The author uses qualitative research methods, analysis, synthesis and comparison based on secondary data sources, documents of functional agencies, such as: State Bank of Vietnam, General Statistics Office and a number of other agencies involved in the development and administration of credit policies, exchanging with experts with bank officials and corporate officials to make comments and assessments according to research objectives. of the post.

## **3. Results**

### ***3.1. The Government's credit capital policy promotes marine economic development***

In order to implement the above important policy of the Party, on July 7, 2014, the Government issued Decree No. 67/2014/ND-CP on a number of fisheries development

policies. The Decree has basically met the requirements and aspirations of fishermen. The content of the Decree focuses on encouraging offshore fishing, supporting and creating favorable conditions for fishermen to build steel ships, new materials and large-capacity materials, thereby reorganizing tissue production and application. modern production model, increasing income, improving living standards for people, contributing to promoting the development of marine economy in the whole country in general, in the Central Coastal provinces and the Southern provinces in particular; at the same time also contributes in the cause of national sovereignty and territorial protection. [1]

After Decree 67/2014 / ND-CP was issued, the Government, ministries, central branches, localities and agencies, organizations and units drastically and urgently implemented. Up to now, the Government has issued 2 Decrees, 1 decision and 1 resolution to amend and supplement Decree 67/2014 / ND-CP; has been amended and supplemented as Decree 17/2018 / ND-CP. The Ministry of Agriculture and Rural Development, the Ministry of Finance, and the State Bank have issued many circulars, decisions and guiding documents for the implementation of the Decree. [1]

The localities have set up steering boards and assisting teams; organize propaganda and dissemination of the Decree's provisions and contents to fishermen; inspect, evaluate and promulgate decisions on recognition of establishments that build, upgrade and repair qualified fishing ships. With the drastic and synchronous participation of the Government, ministries, branches and localities, and especially the people's active participation and participation, the implementation of Decree 67; Decree 17, in recent years, has gained many important results. [1]

Regarding investment policies, according to the report of the Ministry of Agriculture and Rural Development, although the requirements have not been met, the State Budget has initially maintained priority to allocate investment capital for targeted support programs in the field. fisheries including storm shelters for fishing ships; investment in aquaculture infrastructure development; aquaculture seed development program. Although the state budget has prioritized the arrangement to implement the goals of Decree 67 and Decree 17, the bigger source of support for fishermen is the credit capital, with the active participation of the system. Bank. [5]

### ***3.2. Results of implementing the capital policy for fishermen developing marine economy***

According to the data of the State Bank of Vietnam (SBV), implementing Decree 67/2014, as of June 30, 2017 (before the amendment and issuance of Decree 17/2018), commercial banks Commercial signed a credit contract to build and upgrade 993 ships (593 wooden ships, 333 steel ships and 67 new material ships), accounting for 92% of the total loan applications. Total committed loan amount is VND 9,814 billion; disbursement of loans according to the progress of ship building and upgrading reached VND 8,928 billion, outstanding loans reached VND 8,762 billion, an increase of 14% compared to December 31, 2016. [1]

If on December 31, 2017, the time to stop signing credit contracts for building and upgrading ships under Decree 67, commercial banks (commercial banks) have signed credit

contracts to build and upgrade ships. granting 1,178 ships with the total committed loan amount of nearly VND 11,700 billion. With a leading role in investing in agriculture, farmers and rural areas, Agribank is considered a pillar bank in implementing this program. As of March 31, 2019, Agribank had loaned 622 newly built ships under Decree 67 in the coastal provinces with a loan balance of VND 5,445 billion. [2]

According to the Ministry of Agriculture and Rural Development, as of July 31, 2017, there were 761 newly built fishing vessels, including 301 steel-shell vessels, 53 composite ships, 407 wooden ships and 105 upgraded fishing vessels. into production activities. [5]

As of mid-2017, 27/28 coastal provinces and cities have approved the list of shipowners eligible for loans to build and upgrade 1,948 / 2,284 ships, including 1,510 new ships, 66.11% (steel ships and new materials are 768 ships, accounting for 51%; wooden ships are 742 ships, accounting for 49%). Number of fishing vessels classified by job group: 85 fishing boats, 420 g net fishing; 427 mesh fishing; 341 units for fishing nets and logistics ships of 237; number of upgraded ships 438. [5]

In addition, commercial banks disbursed working capital loans to 267 customers. In order for fishermen to reassure themselves to reach the sea and minimize the risks occurring during fishing activities, the Government has issued policies to support insurance for ship hulls and fishing nets. The results of this insurance policy are as follows: [2]

In 2015, the total value of insurance was VND 25,169 billion; the total number of vessels participating in insurance for hull and gears is 10,602 fishing vessels; The total number of crew members covered is 102,784 crew members; The total premium is 261.9 billion dong. [2]

In 2016, the total value of insurance was VND 39,722 billion; the total number of vessels participating in insurance for hull and fishing nets is 12,579 fishing vessels; The total number of crew members entitled to insurance is 128,291 crew members; The total premium is 400 billion dong. [2]

Along with the credit support policies, implementing Decree 67, ministries, branches and localities have implemented many other policies such as policies to support training for crew members; policy to support freight ...[1]

The localities have elaborated plans, funding estimates and organized training and guidance for fishing boat crew members to operate new steel and material-shell ships. To date, technical guidance on exploiting and preserving products with new technologies for 2,347 crew members has been spent with a budget of VND 9,409 million. [1]

In the middle of 2017, after nearly 3 years of implementation, Decree 67 has actually come to life and is highly supported by the public opinion, meeting the aspirations of many fishermen; bring efficiency and express the interest of the Party and the State towards fishermen; fishing vessel accidents reduced significantly; actively contribute to protecting national security and sovereignty at sea; fishermen peace of mind to cling to the sea of production, people's lives have been improved, many new production models on the sea have

been formed and developed, contributing to the development of marine economy under the Party's Resolution. [1]

Thanks to the push of Decree 67 which has modernized the fishing fleets of fishermen nationwide, the provinces of the Central Coast and the South reached out to the sea, which fishermen have long dreamed of.

The international organization that came to Vietnam to check clearly noticed the change in Vietnam's fleet developing rapidly and strongly. It is due to the motivation from Decree 67. It is also important to change the perception of fishermen, residents' activities on fishing vessels with a more professional, safer and more efficient working style....

### ***3.3. Evaluation of some limitations, difficulties and implementation of policies to promote the development of marine economy according to Decree 67***

With the above results, it can be affirmed that the effect from this Decree 67 is huge. However, in the process of implementing Decree 67, there were some limitations in the content and organization of implementation; Specifically: [1]

Firstly, the investment policy has not met the actual production requirements. The fishery infrastructure is both low and inconsistent, the investment is not commensurate, and has not created a quality fishery infrastructure to support the development of fisheries. The system of surveillance of fishing vessels at sea is inadequate, not ensuring safety for ship operation at sea. Providing loans for offshore fishing, high-capacity offshore vessels often have high investment value, but lack necessary and effective insurance forms such as ship insurance, crew insurance ... In some cases, the shipowner has bought insurance but when it comes to a risk, he / she will not be paid by the insurance agency for a variety of reasons such as: captain and chief engineer who have not yet been issued with a professional certificate; the ship has not met the technical requirements to set sail ... Thus, the risk of irrevocable loan burden on the bank. [1]

Secondly, the credit policy implemented by commercial banks has not met the requirements of reality, slow disbursement, and procedures still make it difficult for fishermen. Insurance policies still have problems, making implementation not synchronized and effective. Quality control of fishing vessels is an issue that needs serious review. The commercial bank's loan appraisal has many unsolved problems, such as no specific provisions on the norms or value of a ship for a specific profession (829CV steel-shelled ships, net fishing). (drag, netting, etc.) so that commercial banks can use that as a reference when deciding on loan capital. There is no specific regulation on depreciation period of fishing vessels, which can easily lead to conflicts between borrowers and banks. For example, in a customer's business plan, the depreciation is 20 years, but the actual fishing gear, engine ... only use up to 8 years. If the actual depreciation is applied, the high total cost results in low profit and no guarantee of repayment, so it is difficult for banks to make loans. [2]

Besides, another difficulty is that banks have not managed the cash flow of debt repayment of customers. When participating in offshore fishing, ship owners often sell their products immediately to fishing logistics facilities at sea and directly collect money. So banks

can not manage the money and debt collection. The handling of collaterals is also difficult because the ship is operating offshore, even when it is not on the shore, but to other localities.

Although banks are creating favorable conditions for customers, access to loans is facing difficulties. The reason is, according to the credit policy of Decree 67/2014/ND-CP, the borrowers must be operating fisheries effectively, financially, and have specific business and production plans. Provincial People's Committee, cities under central authority's approval. But the specific regulation as to how effective fisheries activities are still left open ...[1]

Third, the professionalism, responsibility, and conscience of some shipbuilding facilities is still poor. In particular, the stage of supervision of construction, registration and shipbuilding is still limited, so many ships in some localities do not meet the quality, causing damage to fishermen and causing annoyance in society.

Fifthly, it is necessary to urgently overcome the problem of damaged steel hull ships in the provinces so that fishermen continue to sail to the sea, which is of both economic and high political and social significance. Besides, checking and inspecting the quality of newly built and converted ships. It is necessary to strictly handle individuals and organizations that have made mistakes in the case of ship building damaged or newly built, not up to quality. It is required to consolidate and review the shipbuilding establishments, bringing them into quality units, removing them from the list of unqualified establishments. Must review the design of fishing vessels, if not appropriate, it should be more appropriate.

Sixthly, the process of registering fishing vessels needs to be done very strictly to ensure the quality of ships shipped. If the ship is not operating properly, the registry is responsible. At the same time it is necessary to strengthen supervision of the shipbuilding process, people and fishermen also need to participate in this process to see which parts the fishing vessel needs, which parts are removed.

Seventhly, coastal localities need to review and re-plan the number of fishing vessels, to see if it is necessary to increase or decrease the number of ships. Review and link with the results of the investigation of aquatic resources to ensure that aquatic resources are at the same time suitable to the exploitation capacity and meet the requirements to participate in the protection of national sovereignty and sea and island sovereignty. .

### ***3.4. Evaluation of the Government's current new policy on capital for marine economic development***

After more than 3 years of implementing the Government's capital policy on marine economic development under Decree 67, on February 2, 2018, the Government issued Decree No. 17/2018 / ND-CP amended and supplemented. a number of articles of the Government's Decree No. 67/2014 / ND-CP on a number of fisheries development policies, including the Ministry of Finance's additional guidance on objective and force majeure causes arising from real In addition, investors can apply the risk management mechanism in accordance with Decree 67/2014 / ND-CP. [3]

The new policy stipulates that the central budget will invest 100% of the funding for the construction of essential items of grade-I fishing ports and regional storm shelters

(including wharves; embankments, breakwater, sand shield; dredging channels into and out of the port; the ship's anchoring works; mooring facilities; sewage treatment system; classification house; operator; yard and internal roads; lighting system; system system of buoys, signals, signal lights; specialized communication system) and investment in building 05 big fishing centers (motive fishing ports). [3]

The central budget shall invest 100% of the funding for the construction of projects under the management of ministries and central branches of central infrastructure areas of concentrated aquaculture; concentrated seed production areas include: water supply and drainage systems (ponds, tanks, drains, canals, water supply and drainage pipelines, pump stations), embankments, embankments, roads, electricity systems, works general wastewater treatment; upgrading the infrastructure of national aquatic breeding centers and regional aquatic breed centers; Center for Monitoring and Warning of Aquaculture Environment, Centers for testing, testing and verifying aquaculture at central and regional levels. [3]

Deploying Decree No. 17/2018/ND-CP, dated December 17, 2018, the Ministry of Finance issued Circular No. 123/2018/TT-BTC amending and supplementing a number of articles of Circular No. 114/2014/TT-BTC dated 20/8/2014 guiding interest rate subsidies due to the implementation of credit policies under Decree No. 67/2014 / ND-CP. [3]

One of the contents of Circular No. 123/2018 / TT-BTC that is of interest to ship owners is the risks due to objective reasons, force majeure, which is supported by the state budget with interest rate support. Objective and force majeure causes prescribed in Circular No. 123/2018 / TT-BTC are determined on the basis of proposals arising from commercial banks in the process of restructuring the debt payment term. for ship owners. [3]

According to Circular No. 123/2018/TT-BTC, the objective and force majeure causes include: Ships damaged by natural disasters must be repaired; ships arrested and detained by foreign countries; The ship is crashed, damaged and must be repaired (not due to the ship owner's fault); Ships of newly built ships of poor quality, damaged, which must be repaired, thus leading to inactive fishing activities due to shipbuilders' faults; The ship owner is sick, has an accident and cannot go to sea (in case the ship owner directly goes to the sea); ship owner died, missing; Conversion of ship owners in accordance with the Government's Decree No. 17/2018/ND-CP of February 2, 2018, amending and supplementing a number of articles of Decree No. 67/2014/ND-CP and the guidance of SBV. [3]

Loans which are subject to risks due to the above objective and force majeure reasons shall be rescheduled by the bank and the ship owners may continue enjoying interest rate support. Circular No. 123/2018/TT-BTC supplements regulations on loans that are overdue partly from principal, customers are not entitled to interest rate subsidy for overdue loan balance from the time of arising. The principal balance which is not overdue under the Credit Contract signed between the bank and customer shall continue to enjoy interest rate support under the Government's Decree No. 67/2014/ND-CP. [3]

Circular No. 123/2018/TT-BTC issued has solved the difficulties encountered in recent years, creating favorable conditions for ship owners to enjoy interest rate subsidies.



These supporting policies will encourage fishermen to rest assured to stay on the sea, contributing to the development of fisheries and the development of the marine economy in the whole country in general and in the Central and Southern Coastal provinces in particular. [3]

#### **4. Discussion and Conclusion**

Aquaculture, fishing and seafood processing are identified as important economic sectors in Vietnam. According to the data of the Ministry of Agriculture and Rural Development, of the 117,000 fishing ships in the country currently, mostly small boats caught near the shore. The number of vessels with a capacity of 90 CV or more that can be offshore fishing is only 28,248 units, although an increase of 42% compared to 2009 but still only accounting for 24.5% of the total number of fishing vessels.

Capital investment in the field of fisheries, development of marine economy in the country in general, in the Central Coastal provinces and the South in particular, poses many risks. For fishing, near-shore resources are in danger of being exhausted, while offshore investment costs require a large amount of money, there are always risks of natural disasters at sea. This new policy book of the Government, the synchronous deployment of the concerned ministries, the banking industry and the coastal localities, certainly the marine economy in general and in the Central and Southern Coastal provinces In particular, it will develop sustainably and effectively in the future.

#### **5. References**

1. Report of the State Bank on the results of the implementation of Decree 67/2014, November 2019.
2. Report on marine economic credit activity by the State Bank of Vietnam, December 2019.
3. The system of legal documents of the Ministry of Finance; visit <http://www.mof.gov.vn>.
4. Agribank Credit Report for aquaculture and fishing, By Agribank, December 2019.
5. Report of the Ministry of Agriculture and Rural Development on the results of the implementation of Decree 67/2014, November 2019.

# STATISTICAL ANALYSIS OF THE IMPACT OF CLIMATE CHANGE ON RICE PRODUCTIVITY IN VIETNAM: USING PANEL DATA MODEL

*MA. Nguyen Dang Khoa*

*khoand@neu.edu.vn*

*MA. Nguyen Huyen Trang*

*trangtk@neu.edu.vn*

*Faculty of Statistics, National Economics University, Hanoi, Vietnam*

## **Abstract**

*This study examines how Vietnam's rice productivity responses to climate change, and estimates the extent to which climate change is influencing Vietnam's rice productivity by incorporating climatic variables such as temperature, precipitation, storm into regression equations by using panel data from 2006 to 2018 in 19 provinces of Vietnam. The results showed that: (i) rice productivity in Vietnam between two main growing seasons and climate change effects on rice yields in these seasons are different; (ii) average temperature increasing is a cause of rice productivity reduction in both main growing seasons in Vietnam; (iii) while increase in minimum temperature has negative impact on rice productivity in the Winter-Spring Season (WSS), that is beneficial for rice productivity in the Summer - Autumn Season (SAS); in addition, maximum temperature rasing in the WSS may lead to increase rice yield; (iv) increasing fluctuation in temperature puts WSS rice production in danger; (v) total rainfall impacts slightly negatively on rice yields in the SAS but not influence on rice productivity in the WSS; and (vi) storm is being a big threat to rice production in the SAS in Vietnam.*

**Key words:** *impact of climate change, rice productivity, panel data*

## **1. Introduction**

Climate change has become a global problem. A number of prior studies have shown that climate change was expected to impact on agricultural production in various countries over the world (Nelson et al, 2014; Burke and Emerick, 2016; Altieri and Nicholl, 2017; Ding, 2019). Therefore, tracing the effects of climate change on agricultural production in different parts of the world and researching the corresponding adaptive strategies to cope with the negative impacts from climate change have already become research topics for several decades (Capalbo and Vo, 2015).

Mendelsohn (2009) has examined the impact of climate change on agriculture for all countries over the world between 1960 and 2000. The research shows temperature and precipitation has negative effects on global agricultural GDP. An interesting finding from the study is that the climate change impact varies across regions. The research result suggests

that the positive effect of climate change is larger in the middle to high latitude countries while the impact is smaller in the low latitude countries. Mendelsohn (2009) also argues that future climate change may be very different from the past climate change and future climate changes are expected to be much more complex.

The impact of climate change in Asian countries has received much interest of scholars. Tao et al. (2008) found that major rice yields were significantly related to growing season climate in the main agricultural regions of China, and growing season temperature had a generally significant warming trend. Zhang et al. (2010) showed that rice yields were positively correlated to solar radiation. On the other hand, rice yields are expected to decline by at least 30% due to the increase in CO<sub>2</sub> level and temperature in south central and southwestern Japan (Matsui and Horie, 1992). For other countries in Asia, Ladha et al. (2003) analyzed yield trends in the long term in Bangladesh, China, India and Nepal. This research result suggests that although decline in yields is not widespread, yields of both rice and wheat are stagnant due to climate change. According to Welch et al. (2010) in a recent study of rice in Southeast Asia, temperature and radiation had statistically significant impacts on both the vegetative and ripening phases of the rice plant. Higher minimum temperature reduced rice yields, whereas higher maximum temperature increased rice yields; and radiation impact varied by growth phase. The result of Lee et al. (2012) shows that higher temperature and more precipitation in summer increase agricultural productivity in some Asian regions but that is harmful to agricultural productivity in South and Southeast Asia countries; besides, some studies also indicates that overall increase in annual temperature decreases agricultural yields in many Asian countries. The research of Kazi and Abu (2014) indicates that long-term changes in mean and standard deviation of the climatic variables has different impacts on rice productivity in Bangladesh and thus the overall impact of climate change on agriculture is uncertain. Kabir (2015) in an analysis of separate level in the South-Western part of Bangladesh, especially Jessore and Sathkhira districts, indicates a significant reduction in yield of both varieties of Boro rice is due to climate change. Kabir (2015) also shows that an increase in maximum, minimum temperature and rainfall have been seen as a primarily cause of rice yields reduction.

In Vietnam, temperature change, fluctuation of rainfall, increasing frequency of disasters and sea level rise (SLR) are clearly visible signals of climate change, which may put Vietnam's agriculture in danger. Vietnam is one of Asian countries most seriously impacted by SLR: up to 16% of its area would be impacted by a 5cm SLR. Almost climate change impacts are seen in two largest coastal deltas of Vietnam: the Mekong Delta and the Red River Delta in which have large percentages of Vietnam's population and economic activity are located (Dasgupta et al., 2007). Rice production is seen as a major agricultural activity in Vietnam. However, it is being severely compromised by climate change Zu et al. (2010). Besides, the research report of Le (2016) demonstrates that temperatures and precipitation have relations with rice yields in both the Winter-Spring and Summer-Atumn crops in Vietnam. Results of Adelaide and Roberto (2018) also show evidences of link

between minimum temperature and Vietnam' rice production. The research result indicates that rise in minimum temperature during the growing season is the cause of reduction in Vietnam' rice yields.

To clarify the response of agricultural output to the climate change, there are different approaches used by scholars; and new empirical models have been developed for recent years. The previous studies virtually approached two main directions: statistical approach and agro-economic model. The former applies regression to model the effect, in which, three prominent methods are cross-sectional analysis (Ricardian), time series analysis and panel data model (using a combination of cross-sectional and time series data). The later estimates a system of equations that amalgamates different biophysical crop models and simulation. However, crop models require many detailed data of crop growth, management and soil conditions (Lobell, 2007; Xiong et al., 2007; Zhang et al., 2008; Schlenker and Lobell, 2010; Tao and Zhang, 2011; Zhang et al., 2010). Thus, recent researches generally follow statistical approach. However, there is a lot of criticism about the estimation using the model with cross-sectional data or the model with time series data due to their limitations. While cross-sectional data cannot show the information about differences over time, time series data cannot provide information about the differences across objects. Lobell and Burke (2010) used panel regression method, and showed the response of crop yield to climate change are more robust than time-series models. Schlenker and Lobell (2010) also found that the error of panel regression method is less than that of time-series model because time-series models have some stationary assumptions (i.e., the relationship between crop yields and climate in the past will not change in the future) (Lobell and Burke, 2010). Thus, panel data models, which combine time series from different locations into one analysis, are efficient remedy for limitations of the two models mentioned above.

The majority of researchers of the climate change impact on Vietnam agriculture mainly applied available scenarios to simulate the impact in the future. Using statistical approaches is practically limited. In our knowledge, there has not any research using panel data model to examine the impact of climate change on crop yields in Vietnam. Thus, a statistical approach using panel data model is really necessary for us to assess more correctly the climate change impact on crop productivity in Vietnam in recent decades.

The remainder of the paper is continued with sections on methodology and empirical results. The article concludes with some discussions of key findings and some implications.

## **2. Methods**

To assess the impact of climate change on rice productivity, we use data about weather and rice productivity of 19 provinces distributed in typically climatic regions in Vietnam. Each climatic region is represented by some respective provinces. The data of rice land area, rice productivity is collected from Statistical Yearbook of Vietnam (SYOV) and Statistical Yearbooks of the Province selected. The data of weather and storm are collected from data base of Ministry of Natural Resources and Environment (MONRE) and from the Statistic Yearbook of province. Data about agricultural producing conditions of province

such as labor, cost and the proportion of watered land collected and computed from Rural, Agricultural and Fishery Census (RAFC); some others are gathered from the Statistical Yearbook of province.

Rice productivity data is collected from SYOV for the period 2006 - 2018. The SYOV presents estimates of area, yield and productivity per rice hectare for 4 popular crops of Vietnam in which rice production data is presented specifically for growing seasons: Winter-Spring season (WSS) and Summer-Autumn season (SAS).

For weather data, there are various arguments in how weather variables should be used to explain properly the change in crop yield due to climate change. Some of authors propose that using annual mean of temperature and precipitation is suitable while others argue that maximum, minimum and standard deviations of these variables are key causes contributing to the change of crop yield. Some researchers set annual weather data (Stafanos et al., 2012; Mahrous, 2019) while some others use weather variables for each growing season of crops (Lobell and Christopher, 2007; Kazi and Abu, 2014; Tokunaga et al., 2015). In previous studies of climate change in Vietnam, researchers have argued that the climate in Vietnam is obviously seasonal and the change in agricultural productivity is also largely dependent on growing season (Dat and Thu, 2019). In addition, the fluctuation and extremes of weather may be also important factors impacting on crop productivity in Vietnam (Dat and Thu, 2019). Therefore, we use a weather data set including mean, maximum and minimum of weather variables and their standard deviations for each rice growing season. We collected and computed mean, maximum and minimum of temperature and rainfall for two main rice growing seasons in Vietnam from 2006 – 2018 since rice production follows a seasonal calendar and the weather varies significantly between these seasons. As mentioned above, not only the average but also the fluctuation of weather variables in each season might have impacts on crop productivity. Thus, we use the standard deviation of the relevant weather variables in order to account for fluctuations. There are various weather stations in Vietnam and hence weather data varies across weather stations. If a province has multiple weather stations, we use a simple average of all stations' data.

The effect of climate change on rice productivity is analyzed by regression model using panel data with 19 objects (provinces) observed in a 13-years period from 2006 to 2018. Change in rice productivity can estimated using the following equation:

$$Y_{it} = \beta_0 + \beta_1 W_{it} + \beta_2 X_{it} + \lambda_i + \gamma_t + \epsilon_{it} \quad (1)$$

where the dependent  $Y_{it}$  represents rice productivity (yield per hectare) of province  $i$  at time  $t$ . Using yield per hectare can allow us assess accurately the effect of climatic factors on rice production (not need to concern to change in prices cross time or location). The main variable  $W_{it}$  denotes weather variables such as temperature, precipitation (in max, min, average, standard deviations), and storm...  $X_{it}$  is control variables incorporated in the model. They consist of observable characteristics about rice producing conditions such as rice land

area, proportion of rice land watered, average cost per hectare of rice land and labor size per hectare of rice land.

Here we use  $\lambda_i$  to represent unobserved time-invariant heterogeneity and  $\gamma_t$  to represent unobserved time-variant heterogeneity. It can easily see that the unobserved time-invariant characteristics might explain to difference in rice productivity between regions. Time-invariant specific characteristics such as distance, water and soil characteristics can lead the difference in rice productivity between provinces. If such influences are not controlled for, it can put estimate  $\beta_i$  under bias. This makes inaccurate inference about the impact of weather variables in the equation (1). The important problem of estimate (1) is to control  $\lambda_i$  because if hypothesis that  $\text{Cov}(X_i, \lambda_i)$  is equal to zero is rejected, estimate (1) is bias. Another problem is that the results of rice yield increases can largely from technique improvements or management, so the contributions of climate change are hardly to identify from the raw yield data. Therefore, we need to remove the yield trend caused by non-climatic factors. To solved problems above we use Difference in Difference method (DID) to remove  $\lambda_i$  and control trend. An advantage of this method is that it can reduce long-term trend of technique progress because it focuses on year to year variations. Applying DID to equation (1) leads to the following result:

$$\Delta Y_{it} = \beta_1 \Delta W_{it} + \beta_2 \Delta X_{it} + \Delta \gamma_t + \Delta \epsilon_{it} \quad (2)$$

where variables  $\Delta Y_{it}$ ,  $\Delta W_{it}$ ,  $\Delta X_{it}$  are first-difference of original variables (they are generated by taking the value difference of a variable over two consecutive times.) With the equation (2), unobserved time-invariant characteristics are controlled. However, unobserved time-variant heterogeneity may remain, and unobserved time-variant factors may be correlated with the change in rice productivity. Thus, we apply the random effects model for equation (2) to solve the problem of potential time effects.

In our study, we assume that the difference in rice productivity between rice types is not significant. The fact is that the authorities of provinces in Vietnam recommend farmers to plant optimal rice type, consistent with the soil characteristics of the region. In our sample, we attempt to choose provinces which plant same rice types or the type of rice with the same productivity.

As mentioned above, rice production in Vietnam follows agricultural seasonal calendars. The weather characteristics in each season vary significantly. Thus, we estimate the equation (2) with data for two main rice growing seasons in Vietnam: Winter-Spring season (WSS) and Summer-Autumn season (SAS).

### 3. Results

First of all, we calculate statistics for variables used in analytical framework. As mentioned above, rice production in Vietnam has two main seasons (WSS and SAS) so we present descriptive results into 2 separate tables: Table 1 shows statistics summary of variables in WSS model and Table 2 illustrates that in SAS model.

**Table 1. Statistics summary of variables used in the WSS model**

<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>Sd</b>	<b>Min</b>	<b>Max</b>
Prod_wss ( <i>quinta/ha</i> )	247	56.23	7.544	34.10	70.60
Land_wss ( <i>thous. ha</i> )	247	37.83	31.14	2.800	103.2
Land_watered_wss (%)	247	72.02	12.62	48	92
Labour_perHa_wss ( <i>persons/ha</i> )	247	58.90	62.98	3.325	266
Cost_perHa_wss ( <i>thous.VND/ha</i> )	247	25,945	21,129	2,174	72,147
Rain_max_wss ( <i>mm</i> )	247	168.4	181.1	12.50	1,336
Temp_max_wss ( $^{\circ}C$ )	247	25.86	2.689	18.60	28.70
Rain_min_wss ( <i>mm</i> )	247	9.830	12.97	0	74
Temp_min_wss ( $^{\circ}C$ )	247	19.78	4.408	11	24.60
Rain_total_wss ( <i>mm</i> )	247	304.8	239.7	13.10	1,490
Temp_mean_wss ( $^{\circ}C$ )	247	22.41	3.497	16.32	28.22
Sd_temp_wss ( $^{\circ}C$ )	247	2.184	0.965	0.609	4.552
Sd_rain_wss ( <i>mm</i> )	247	60.35	69.58	4.309	529.6

(Source: author' calculation and process by Stata14)

The variable *Prod* represents rice productivity. Land area used for rice production is denoted by the variable *Land*. Other control variables such as *Land\_watered* (the percentage of rice land area watered), *Labour\_perHa* (the average agricultural labor size per 1 rice hectare), *Cost\_perHa* (average expenses per 1 rice hectare) are also added in the model to control. In the WSS, there are rarely any storms so we do not incorporate the variable in WSS model. It is unfortunate that we do not have data about climate extremes such as drought, flood, bitter cold, rime or tornado but we argue that the weather variables used in the model partly involve to such climate phenomenon. Thus, these weather variables can generally explain to the influence of climate change on rice productivity in the WSS in Vietnam.

**Table 2. Statistics summary of variables used in the SAS model**

<b>Variables</b>	<b>N</b>	<b>Mean</b>	<b>Sd</b>	<b>Min</b>	<b>Max</b>
Prod_sas ( <i>quinta/ha</i> )	247	40.14	11.77	7.800	60
Land_sas ( <i>thous. ha</i> )	247	34.89	30.92	0.500	105.5
Land_watered_sas (%)	247	72.26	12.66	48.20	92
Labour_perha_sas ( <i>persons/ha</i> )	247	56.83	62.82	2.832	263.7
Cost_perha_sas ( <i>thous.VND/ha</i> )	247	25,933	21,094	2,179	70,133
Temp_max_sas ( $^{\circ}C$ )	247	28.09	2.846	20.70	33.70
Temp_min_sas ( $^{\circ}C$ )	247	25.18	2.432	17.70	27
Rain_max_sas ( <i>mm</i> )	247	481.5	255.8	83	1,738
Rain_min_sas ( <i>mm</i> )	247	96.93	73.45	1.200	372.9
Temp_mean_sas ( $^{\circ}C$ )	247	26.91	2.584	18.34	30.34
Rain_total_sas ( <i>mm</i> )	247	1,287	475.4	296.6	3,081
Storm	247	0.721	1.100	0	5
Sd_temp_sas ( $^{\circ}C$ )	247	0.885	0.534	0.100	2.209
Sd_rain_sas ( <i>mm</i> )	247	144.5	110.1	3.631	620.7

(Source: author' calculation and process by Stata14)

Descriptive statistics show an interesting feature that although rice production conditions such as rice land area, the percentage of rice land area watered enough, the average agricultural labor size per 1 rice hectare and average expenses per 1 rice hectare are quite similar between two rice crops, rice productivity of these two crops varies a lot. This also urges us to ask whether the difference in rice productivity between these two crops is due to climatic characteristics? And the fact that climatic characteristics of these two rice growing seasons are very different in both degree and their fluctuation.

The regression results for the WSS and SAS model is illustrated in **Table 3**. The P\_value of the Wald test confirms that given function forms has overall statistical significance. Thus, they can be used to analyze the impact of climate change on rice productivity.

**Table 3. Random effect model:  $\Delta$ Rice\_productivity (dependent variable: *dprod*)**

VARIABLES	WSS			SAS		
	Model 1A	Model 2A	Model 3A	Model 1B	Model 2B	Model 3B
<i>dland_wss1</i>	-0.574*** (0.1910)	-0.590*** (0.1960)	-0.580*** (0.1920)	0.101*** (0.0346)	0.0969*** (0.0216)	0.0994*** (0.0209)
<i>dland_watered</i>	0.363*** (0.128)	0.313** (0.133)	0.356*** (0.129)	0.229** (0.0916)	0.244*** (0.0797)	0.211** (0.0841)
<i>dlabour_perHa</i>	0.0296* (0.0162)	0.0360** (0.0166)	0.0296* (0.0164)	-0.00013 (0.00013)	-0.00016 (0.00011)	-0.00014 (0.00011)
<i>dCost_perHa</i>	0.0008*** (0.000257)	0.0009*** (0.00026)	0.0008*** (0.0003)	0.0035 (0.0159)	0.0030 (0.0152)	0.0010 (0.0161)
Dstorm				-2.670*** (0.213)	-2.527*** (0.551)	-2.576*** (0.547)
dtemp_max	1.254*** (0.460)		1.179** (0.466)	0.737 (0.578)		0.857 (0.680)
dtemp_min	-1.041** (0.477)		-1.029** (0.482)	1.471* (0.836)		1.699** (0.727)
dtemp_mean	-0.604* (0.348)		-0.590* (0.352)	-2.358* (1.232)		-2.928** (1.160)
dstd_temp	-2.922** (1.259)		-2.836** (1.269)	1.865 (1.823)		2.547* (1.464)
drain_max		0.000361 (0.00266)	0.000969 (0.00261)		0.00494* (0.00285)	0.00522 (0.00369)
drain_min		-0.0152 (0.0175)	-0.0108 (0.0171)		-0.000594 (0.00343)	-0.00158 (0.00375)



VARIABLES	WSS			SAS		
	Model 1A	Model 2A	Model 3A	Model 1B	Model 2B	Model 3B
drain_total		-0.00100 (0.00237)	-0.00142 (0.00233)		-0.002*** (0.00049)	-0.002*** (0.00055)
dstd_rain					-0.00848 (0.00530)	-0.00979 (0.00711)
Constant	0.301 (0.225)	0.323 (0.234)	0.316 (0.227)	0.489** (0.221)	0.520*** (0.127)	0.489*** (0.128)
<i>Observations</i>	228	228	228	228	228	228
<i>R-square</i>	0.3659	0.3149	0.3700	0.4703	0.4767	0.4904
<i>Prob&gt;Chi-sq</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

(Note: Standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ )

Regression results for the WSS show that the effect of temperature on rice productivity in the WSS is statistically significant while the relationship between precipitation and rice productivity is not significant. However, the impact of temperature variables on rice productivity is quite different. While the maximum temperature affects positively on rice productivity, the minimum temperature, the mean of temperature and standard deviation of temperature have negative impacts on rice productivity.

For the SAS, regression results indicate that storm is key factor threatening rice productivity in the SAS. The coefficient of this variable is negative and statistically significant in all specifications. The regression result shows if frequency of storm increases 1 times compared with the previous year, average rice productivity may drop by 2.6 quinta.ha<sup>-1</sup>. Empirical results from SAS models also show that both temperature and rainfall impact significantly on rice productivity in the SAS. To detail, while the minimum temperature has positive effect on rice productivity in the SAS, the mean of temperature in the SAS has a significant adverse effect on rice productivity. It means that an increase trend in the minimum temperature in SAS may be beneficial for rice production. However, if the mean of temperature in the whole growing season has an upward trend, it is a catalyst for deterioration in rice productivity in the SAS. Another interesting feature is that total precipitation has a negative effect on rice productivity in the SAS. From models 2B and 3B, if the change in total precipitation compared with the previous season goes up by 100mm, the change in average rice productivity may drop by 0.2 quinta.ha<sup>-1</sup>.

However, the model has multi-collinearity between some weather variables for WSS if we incorporate them together, so we considered to remove some variables. After considering, the variable *dstd\_rain* is removed from WSS models. Other model problems such as heteroskedasticity and serial correlation were also dealt with.

#### 4. Discussion and Conclusion

In this research we found that the minimum temperature has different effects on rice productivity in the two rice growing season. While rise in minimum temperature causes significant decrease in rice productivity in the WSS, this leads to increase in rice productivity in the SAS. A special feature from our results is that an upwards trend of maximum temperature may be beneficial to rice production in the WSS while this impact is not seen at the SAS. This implies that warming trend in Winter and Spring is not a disadvantage in rice production in the WSS.

Another interesting result is that the fluctuation of temperature is seriously damaging rice production in WSS. However, this impact is not seen in the SAS which the dispersion of temperature is quite low (not have significant difference between the minimum and maximum temperature). This finding implies inconsistency of temperature in growing season may be a reason for deterioration in rice yield in the WSS. When relooking erratic developments of Winter and Spring climate in Vietnam in recent years, we propose that adaption strategies or interventions in rice production need to be conducted immediately to deter the adverse effect.

For precipitation impacts on rice productivity, research findings show that change in rainfall does not influence on rice productivity in the WSS, but its impact on rice productivity in SAS is present. An upwards trend of total rainfall in the SAS may result in a slight decrease in rice productivity. One of our remarkable findings is that the frequency of storms significantly impacts the rice yields in the SAS. And the fact in Vietnam is that storms frequently occur in the SAS (from June to October every year). This implies that storm is a greatest climatic threat to rice productivity in the SAS.

In conclusion, rice productivity in Vietnam is different between two main rice growing seasons; and climate change impacts on rice productivity also vary among these rice growing seasons. Generally, increase in the mean of temperature might cause to decline in rice productivity in both main rice growing seasons in Vietnam. However, we also found in our empirical result that if irrigation is performed better, this it may enhance rice productivity. This implies that improvement in irrigation can reduce adverse impacts of temperature due to climate change.

However, there are some limitations in this study. First, productivity difference between types of rice is not considered. Secondly, the analysis was based on the assumption that the impacts of agricultural management practices on crop yields did not change with yearly climate and crop growing conditions. If farmers adapt their management practices to yearly climate and crop growing conditions, the estimated beneficial impacts from climate variables may be exaggerated, while the estimated harmful impacts may be underestimated. Finally, we do not have the data of all provinces of Vietnam, so we still cannot explain fully the difference in the impact of climate change among regions in Vietnam. For the further research, we want to expand our observations to the whole country scale in order to explain clearly regional differences in the effect of climate change on rice productivity in Vietnam.

## 5. References

1. Adelaide Baronchelli & Roberto Ricciuti, (2018), *Climate change, rice production, and migration in Vietnamese households*, WIDER Working Paper Series wp-2018-86, World Institute for Development Economic Research (UNU-WIDER).
2. Altieri, M.A., and Nicholl, C.I., (2017), *The adaptation and mitigation potential of traditional agriculture in a changing climate*, *Climate Change* 2017, 140, pp.33-45.
3. Burke, M. and Emerick, K., (2016), *Adaptation to climate change: Evidence from US agriculture*, *Am. Econ. J. Econ. Policy*, 8, pp.106 -140.
4. Capalbo, S.M. and Vo, T.T, (2015), *A review of the evidence on agricultural productivity*, *Agricultural Productivity Measurements Explanation*. 4, pp.96-129.
5. Dasgupta, S., Laplante, B., Meisner, C., Wheeler, D. and Yan, J. (2007), *The Impact of Sea Level Rise on Developing Countries: A Comparative Analysis*, Policy Research Working Paper 4136. World Bank, Washington DC.
6. Dat, T.T and Thu, V.T.H, (2019), *Climate change an Agriculture: Status, Impact, Adaptation, Insurance in the Mekong River Delta in Vietnam*, National Economics University Press, Hanoi.
7. Ding S., (2019), *A novel discrete grey multivariable model and its application in forecasting the output value of China' high -tech industries*. *Comput. Ind .Eng.* 127, pp.749-760.
8. Huang M., Zhang W., Jiang L., Zou Y., (2013), *Impact of Temperature Changes on Early-Rice Productivity in a Subtropical Environment of China*, *Field Crops Research*, 146, pp.10–15.
9. Kabir., H, (2015), *Impacts of climate change on rice yied and variability: an analysis of disaggregate level in the Southwestern part of Bangladesh especially Jesore and Sathkhira Districs*, *Journal of Geography and Natural Disasters*, 5 (3).
10. Kazi I. and Abu S., (2014), *The impact of climate change on agricultural productivity: Evidence from panel data of Bangladesh*, *Economics discussion papers*, University of Western Australia.
11. Ladha, Jagdish & Dawe, David & Pathak, Dr Surendra & Padre, Agnes & Yadav, R. & Singh, Bijay & Yadvinder, Singh & Singh, Yadvinder-Singh & Singh, Pushpa & Kundu, AL & R, Sakal & Ram, Nand & Regmi, AP & Gami, Sanjay & Bhandari, AL & R, Amin & CR, Yadav & EM, Bhattarai & S, Das & Hobbs, Peter, (2003), *How extensive are yield declines in long-term rice-wheat experiments in Asia?* *Field Crops Research*, Doi:81.159-180. 10.1016/S0378-4290(02)00219-8.
12. Le, T. (2016), *Effects of climate change on rice yield and rice market in Vietnam*, *Journal of Agricultural and Applied Economics*, 48(4), pp.366-382.
13. Lee J., Nadolnyak D. and Hartarska V., (02/2012), *Impact of climate change on agricultural production in Asian*, Southern Agricultural Economics Association Annual Meeting, Birmingham, AL.

14. Lobell .D.B and Bruke M.B, (2010). *On the use of statistical models to predict crop yield responses to climate change*. Agricultural an Forest Meteorology, 150(11), pp.1443-1452.
15. Massetti, E. and Mendelsohn, R., (2017), *The use of cross-sectional analysis to measure climate impacts on agriculture: Theory and Evidence*, Review of Environmental Economics and Policy, 11(2), pp.280-298.
16. Mendelsohn, R., (2009). *The impact of climate change on agriculture in developing countries*, Journal of Natural Resources Policy Research, Vol 1 No 1, pp.5-19.
17. Nelson, G.C., Valin, H., Sands, R.D., Havlik, P., Ahammad, H., Deryng, D., Kyle, P., (2014), *Climate change effects on agriculture: Economic responses to biophysical shocks*, Proc. Natl. Acad. Sci. USA, 111, pp.3274 – 3279.
18. Nelson, G.C., Mensbrugge, D., Ahammad, H., Blanc, E., Calvin, K., Hasegawa, T., Havlik , P., Heyhoe, E., Kyle, P., Lotze-Campen, H., Muller, C., Reily, J., Takahashi, K., Valin, H. and Willenbockel, D., (2014), *Agriculture and climate change in global scenarios: Why don't the models agree*, Agricultural Economics 45, pp.85-101.
19. Schlenker, Wolfram & Lobell, David, (2010), *Robust negative impacts of climate change on African agriculture*, Environmental Research Letters. 5. 014010. 10.1088/1748-9326/5/1/014010.
20. Stafanos, N., Anastasios, M. and Fotios, C., (2012), *Climate change and agricultural productivity*, African Journal of Agricultural Research, vol 7(35), pp.4885-4893.
21. Tao F., Yokozawa M., Liu J., and Zhang Z., (2008), *Climate-crop Yield Relationships at Provincial Scales in China and the Impacts of Recent Climate Trends*. Climate Research, 38(1), pp.83-94.
22. Tao, F. and Zhang, Z. ,(2011), *Impacts of climate change as a function of global mean temperature: maize productivity and water use in China*, Climatic Change 105, pp.409-432.
23. Tokunaga S., Okiyama M. and Ikegawa M., (2015). *Dynamic panel data analysis of impacts of climate change on agricultural production in Japan*, JARQ. 49(2), pp.149-157.
24. Xiong, Wei & Lin, E. & Ju, Hui & Xu, Yinlong, (2007), *Climate change and critical thresholds in China's food security*, Climatic Change 81. 205-221. 10.1007/s10584-006-9123-5.
25. 25. Zhang, T., Zhu, J., and Wassmann, R., (2010). *Responses of Rice Yields to Recent Climate Change in China: An Empirical Assessment Based on Long-Term Observations at Different Spatial Scales (1981–2005)*, Agricultural and Forest Meteorology, 150(7), pp.1128-1137.
26. 26. Matsui, T. and Horie, T., (1992). *Effects of evaluated CO<sub>2</sub> and high temperature on growth and yield of rice: sensitive period and pollen germination rate and high temperature sterility of rice spikelets at flowering*, Japan Journal of Crop Science 61(1), pp.148 -149.

27. 27. Welch, J., Vincent, J., Auffhammer, M., Moya, P., Dobermann, A. and Dawe, D., (2010). *Rice yield in topical/ sub-topical Asia exhibit large but opposing sensitivities to minimum and maximum temperature*. Proc Natl Acad Sci, USA, 107(33), pp. 145-162.
28. 28. Lobell, D. B., (2007), *Changes in diurnal temperature range and national cereal yields*, Agricultural for Meteorology, 145, pp. 229-238.
29. 29. Lobell, D.B. and Christopher, B.F., (2007). *Global scale climate-crop yield relationship and the impacts of recent warming*, Environmental Research Letters, Doi: 10.1088/1748-9326/2/1/014002.

# NATURAL DISASTER INSURANCE IN VIETNAM: A REVIEW

*Assoc. Prof. Dr. Dinh Duc Truong*

*truongdd@neu.edu.vn*

*Dr. Nguyen Dieu Hang*

*hangnd@neu.edu.vn*

*Faculty of Environmental, Climate Change and Urban Studies,  
National Economics University, Hanoi, Vietnam*

## **Abstract**

*Disaster risk insurance companies pay for when a disaster occurs. In Vietnam, the application of disaster insurance is limited. This report assesses the current status of disaster risk insurance and related operations in Vietnam, including agricultural insurance and public property insurance. Based on the existing challenges and difficulties, the report demonstrates recommendations to promote the development of disaster risk insurance as follows: From the Government, it is necessary to complete the legal and institutional framework related to disaster risk insurance, support farmers to participate in agricultural insurance, provide guide in detail and standardize the process related to public property insurance; strengthen human capacity and technical support. The Government also needs to develop a disaster risk quantification model and build up a database on natural disaster risks and public assets as a basis for calculating risks and premiums, etc.; towards setting up a disaster risk insurance fund; develop investment mechanism, using disaster risk bonds. Finally, the Government needs to raise people's awareness about the importance of insurance. From the insurance companies, it is necessary to collaborate closely with localities to develop appropriate agricultural insurance products, research and provide more disaster risk insurance products for public and private property; choose the appropriate distribution channel; actively collect and build up databases on weather and natural disasters; Design and implement marketing programs to provide full information to customers.*

**Keywords:** *natural disaster insurance, agriculture insurance, property insurance, Vietnam*

## **1. Introduction**

Disaster risk management and capacity building to respond to Climate Change are important issues that need to be addressed in Vietnam. Vietnam is one of the countries most threatened by climate risks in the East Asia Pacific region. With a long coastline of 3.260 km Vietnam is subject to frequent storms, floods, drought, coastal erosion and landslides. In the context of current climate change, the frequency and severity of weather events is also increasing. Extreme weather events and catastrophes have made serious socio-economic consequences, causing serious economic losses, with losses of approximately 1% of GDP. In 2017, the Government, with the World Bank's technical assistance, also conducted a risk

assessment estimated that the current assets of up to 1,3 trillion USD are being threatened by risk but only about 5% of total domestic assets are insured (World Bank, 2018).

To this moment, despite many efforts, the construction and implementation of financial solutions have not met the requirements of effective support for natural disaster prevention and mitigation. Most of the currently applied solutions still rely heavily on the Government budget but a few risk transfers measures. Therefore, the long-term solution that Vietnam needs to consider is insurance for disaster risks.

This article is to assess the implementation of insurance related to disaster risks in Vietnam with these main types of insurance: disaster risk insurance, agricultural insurance and property insurance. The applied research method is secondary review on existing data, research and analysis to make an assessment. The object of the study is the insurance related to disaster risk in Vietnam. From the current situation assessment, difficulties and challenges in insurance implementation related to disaster risks will be drawn and proposed some recommendations to develop disaster risk insurance in the future.

## 2. Current situation of disaster risk insurance in Vietnam

Vietnam is frequently affected by natural disasters. Over the years, Vietnam has suffered from most kinds of natural disasters except for tsunamis, causing great losses of people, properties, infrastructure, adversely affecting the environment, production and business. According to the Global Climate Risk report, Vietnam is one of the most threatened countries in the world by natural disaster risks. These natural disasters that Vietnam often faces with include: floods, storms, tornadoes, landslides and drought. In 2016, natural disasters caused an economic loss of about VND 40.000 billion to Vietnam and in 2017 the damage was estimated at VND 60.000 billion (General Department of Disaster Prevention and Control, 2019).

**Table 1. Economic losses caused by natural disasters in 2009-2018 period (unit: VND billion)**

<b>Year</b>	<b>Economic losses caused by natural disasters</b>
2009	23.667
2010	11.700
2011	12.703
2012	16.000
2013	28.000
2014	2.830
2015	8.167
2016	39.726
2017	60.000
2018	20.000

*Source: General Department of Natural Disaster Prevention and Control (2019)*

Insurance is one of the tools for disaster risk transfer. According to ADB (2015), tools for disaster risk transfer include capital market products, credit and insurance. Insurance and capital market products involve the transfer of risk (means transferring risk to another party for a compensation). Contingency credits, disaster reserves, and contingency budgets allocate costs for disaster response over time with the government in the position of a risk taker. Although the government has invested in strengthening planning, there is a financial shortage after each disaster. Vietnam's current financial capacity only meets about 21% of the need for emergency reconstruction and recovery (World Bank, 2018). In the context of increasingly limited public finance, solutions in the insurance market need to be taken into account to mobilize more resources from the private sector and reduce the burden on the Government budget. However, there are very few disaster risk insurance products in Vietnam. Disaster risks are commonly deployed by insurance companies as an expanded risk content in property, personal insurance and agricultural insurance (Table 2).

**Table 2: Disaster risks in insurance operations**

<b>Insurance operations</b>	<b>Subjects</b>	<b>Disaster risks</b>
<b>1. Life insurance</b>		
<ul style="list-style-type: none"> <li>- Endowment insurance with term of 5 years and 10 years;</li> <li>- Education insurance;</li> <li>- Life insurance for a limited term;</li> <li>- Life insurance and savings.</li> </ul>	Human	Storms, floods, earthquakes, volcanoes, lightning
<b>2. Human insurance</b>		
<ul style="list-style-type: none"> <li>- Passenger accident insurance;</li> <li>- Labor accident insurance;</li> <li>- Visitor insurance;</li> <li>- Crew members accident insurance;</li> <li>- Student accident insurance;</li> <li>- Human accident insurance;</li> <li>- Driver accident insurance;</li> <li>- Life insurance.</li> </ul>	Human	All disaster risks except earthquake and volcanic
<b>3. Property insurance and damage insurance</b>		
<ul style="list-style-type: none"> <li>- Construction and installation insurance;</li> <li>- Oil and gas insurance.</li> </ul>	Property	Storms, earthquakes, volcanoes, floods, lightning
<b>4. Cargo insurance</b>		
<ul style="list-style-type: none"> <li>- Import cargo insurance;</li> <li>- Export cargo insurance;</li> </ul>	Property	Earthquakes, volcanoes, storms, floods



<b>Insurance operations</b>	<b>Subjects</b>	<b>Disaster risks</b>
- Inland cargo insurance.		
<b>5. Hull insurance and property damage liability</b>		
- Hull insurances; - Property damage liability.	Property	Storms, floods, earthquakes, volcanoes, tsunamis, fog
<b>6. Aviation insurance</b>		
Fuselage insurance;	Property	Storm, lightning, fog
<b>7. Motor vehicle insurance</b>		
Motor property insurance;	Property	Storms, floods, lightning, earthquakes, hail
<b>8. Business interruption insurance</b>		
Business interruption insurance.	Measured benefits by money	Storms, floods, lightning, earthquakes, hail
<b>9. Agricultural insurance</b>		
Insurance of livestock and plants	Livestock and plants	Storms, floods, floods, droughts, pests, cold spells

*Source: National institute for finance (2016).*

## **2.1. Disaster risk insurances in Vietnam**

### **i. Specialized disaster risk insurance**

Disaster risk insurance is a form of insurance that insurance companies will pay for when a disaster occurs. The compensation reduces the financial impact of external shocks (disaster events), so that the insured's livelihood and business are not put at risk by natural disasters or extreme weather events. Disaster risk insurance covers hazards arising from geological, meteorological, hydrological, climate, ocean, and biological events and their combination. Natural hazards include earthquakes, floods, storms, tsunamis, droughts, snow and ice, etc.

In 2017, specialized insurance products for natural disaster risks began to appear in the insurance market. Bao Viet Insurance Corporation and Munich Reinsurance Company offer One Storm parametric insurance, the first tropical storm insurance in Vietnam. This product protects certain types of fixed assets during construction and operation determined by specific, precise coverage locations (latitude, longitude) both on land and offshore. The insurance company check the compensation immediately after the storm at the site: onestorm.munichre.com, the data is determined and checked by an independent third party which is the Japanese Meteorology Agency (JMA). This insurance product is targeted at large organizations and corporation, power plants, industrial plants and government

agencies. Companies and organizations that buy this insurance not only obtain the insured fixed assets but can also claim for non-physical losses such as reduced profits due to business interruptions, storm prevention costs, expenses for overtime work, expenses for handling losses caused by storms.

ii. Agricultural insurance

Agricultural insurance targets to subjects which are risks arising in the field of agricultural production and rural, including risks associated with crops, livestock and supplies, factory goods and materials. Agricultural insurance in Vietnam has been first operated since 1982, but there was some interruption. On March 1, 2011, the Prime Minister issued Decision No. 315/QĐ-TTg on piloting the agricultural insurance for the period of 2011-2013. This agricultural insurance was implemented on a limited scale in 20 provinces and cities with the insured subjects include crops (rice), livestock (buffaloes, cows, poultry) and aquatic products (shrimp and catfish). There were 236.396 farmer households participating in crop insurance (including: 76,5% of poor households; 16,8% of near-poor households; 6,7% of ordinary households). For the products of livestock insurance, there were also 60.133 farmer households participating (including: 84,1% of poor households; 9,8% of near-poor households; 6,1% of ordinary households). Fishery insurance has attracted 7.487 farmer households (including: 27,4% poor households, 4% near poor households, 68,6% ordinary households) (Vu Thi Hoai Thu, 2019).

**Table 3. Pilot results of agricultural insurance in 2011-2013**

<b>Insurance</b>	<b>Number of households and household groups participating</b>	<b>Amount</b>	<b>Insurance value (VND billion)</b>	<b>Insurance premium (VND billion)</b>	<b>Compensation amount (VND billion)</b>	<b>Compensation rate (%)</b>
Rice	236.396 (78%)	65.297 ha	2.151 (28%)	91,919 (24%)	18,9 (3%)	20,6%
Livestock	60.133 (20%)	1.246.714 con	2.713,2 (35%)	83,906 (21%)	13,3 (2%)	19,9%
Fisheries	7.487 (2%)	5.803 ha	2.883,7 (37%)	218,175 (55%)	669,5 (95%)	306%
Total	304.016(100%)		7.747,9 (100%)	394 (100%)	701,8 (100%)	178

*Source: Ministry of Finance (2014), cited by Vu Thi Hoai Thu (2019).*

The pilot phase of agricultural insurance encountered some difficulties in advocacy, monitoring compliance with production processes, compliance with regulations, technical standards and risk control in the agricultural production process, lack of data management tools. In addition, large insurance values increase the insurance premium, making it difficult

for both parties to participate in insurance. Besides, the risks in agricultural production are very large and frequent, with the increasing density and intensity of natural disasters, insurance companies face with the risk of high losses and encounter difficulties in reinsurance contracts.

After the pilot period, from 2014-2018, insurance companies continue to research and deploy agricultural insurance. By mid-2016, 304.017 farmer households/organizations participated in agricultural insurance with a total insured value of VND 7.747,9 billion (Nguyen Viet Loi, 2018). On that basis, the Government issued Decree No. 58/2018 / ND-CP dated April 18, 2018 on agricultural insurance. On June 26, 2019, the Prime Minister issued Decision No. 22/2019/QD-TTg on the implementation of agricultural insurance policies. Decree 58 applies the principle of voluntariness, not limited to organizations and individuals participating in insurance, subject of insurance, insured risks and geographical areas. The Decree specifies that the insurance beneficiaries will be supported by the agricultural insurance premiums including rice, buffaloes, cows, aquatic products (black tiger shrimp and white leg shrimp) in 20 provinces and cities in Vietnam.

### iii. Property insurance

Property insurance covers all operations for which the subject is property or benefits related to the property. In Vietnam, disaster risk insurance for public properties is often provided as part of a package because there is not enough volume and capacity to guarantee risk independently. The fact shows that, for the commercial assets, only large organizations and enterprises participate in property insurance. For the other assets, they mostly are insured by compulsory fire and explosion insurance as prescribed, accounting for a very small percentage of total assets. According to the Insurance Supervisory Authority (2015), the total value of public assets is estimated at nearly 1 million billion VND (excluding infrastructure and other assets of defense and security bodies), managed by all socio-economic sector nationwide. In particular, public assets managed by ministries and central agencies are more than 263,4 trillion VND, accounting for 26,35% in value and 12,44% in quantity. Public assets managed by localities are more than 736 trillion VND, accounting for 73,75% in value and 87,56% in quantity (Insurance Supervisory Authority, 2015).

About 1.000 organizations in Vietnam have purchased public property insurance with a total premium of VND 180 billion (Nguyen Viet Loi, 2018), covering large assets such as satellite Vinasat 1 and Vinasat 2 ( 1.034 million USD), Son La hydroelectricity (15.066 billion dong), Dung Quat oil refinery (3.300 million USD). However, the proportion of organizations purchasing new public property insurance accounts for nearly 1% of the total organizations managing and using public properties. The insured public property includes buildings, machinery, and infrastructure with a total insured value of 46% (Kim Lan, 2015). Infrastructure works (bridges, roads, dykes, embankments, ditches) have just been insured during the construction period, not yet completed and activated in use.

## *2.2. Challenges of disaster risk insurance in Vietnam*

Although many disaster risk insurance policies have been issued, there are still some issues during the implementation. For agricultural insurance, first, natural disasters are very complicated and difficult to forecast. When they happen, natural disasters have a wide range of impacts, causing great losses to farmers. Consequently, the insurer cannot afford to pay the compensation, especially in aquaculture insurance.

Second, the proportion of individuals participated in insurance is still low, the majority of the participants is poor. The target market for insurance is usually large-scale agricultural production households, but the agricultural production households in Vietnam are small and fragmented, leading to very low capacity to participate in insurance. This explains why the potential of the insurance market is huge but the rate of participation is still low.

Third, taking advantage of poor supervision, some farmers have behaviors of increasing damage to profiteer. For example, they can reduce production costs such as reducing investment in irrigation system, pesticides or not strictly managing production systems. When a natural disaster occurs, insurance companies face with huge amounts of compensation, even beyond their ability to pay. In addition, non-mandatory insurance leads to adverse selection, i.e. people with high risk of damage are more willing to buy insurance than low-risk ones, while insurance companies prefer selling insurance to individuals at lower risk. Therefore, the number of insurance companies willing to participate in the disaster risk insurance market is low.

Fourth, awareness and understanding of farmers on insurance are low. They do not understand the insurance terms, their rights and obligations when participating in the insurance but only care about the conditions and the process of claiming when risks happened. If the premium is high, the farmer will not want to join the insurance. Or if they did buy insurance but not meet the risk at the first year, they would not renew the contract for the following year.

Regarding property insurance, although public property insurance is compulsory, the insured value of public asset is not high; the coverage is not comprehensive; and it does not cover natural disaster risk while this is the type of risk most often causes great damage to public assets. It is apparent that the role of insurance for public property is extremely necessary, because these assets often face with lots of objective risks such as natural disasters, technical risks, fire, collision, etc.

The first reason is that the list of insured public assets tends to be specific to each insurance company, based on the field of the major shareholder being a state-owned enterprise that contributes capital to that insurance company (postage, petroleum, military). Therefore, it is difficult for the beyond insurance companies to access and provide services for these potential customers. Meanwhile, the insurance buyers do not have full information to choose the appropriate insurance product.

Second, in Vietnam, reinsurance companies set a proportional risk limit or provide contracts to eliminate the risk of natural disasters, hindering the domestic insurance market.

The level of penetration of disaster insurance in Vietnam is still low for public, commercial and residential properties as most insurance buyers is large organizations. On the other hand, based on regulation, many properties are not required to be insured (the civil liability of motor vehicle's owner and fire insurance is mandatory), so nearly all public offices have not been insured by property insurance.

Third, on the supplier side, insurance companies still face with difficulties in valuing and determining assets being insured. The risk forecasting and expense estimation for risk prevention and mitigation are still limited due to poor capacity. Therefore, the insurance premium of public property compared to the total asset value is still low, not well-proportioned with the asset value itself. Also, it does not accurately reflect the risks and costs of related damage. Meanwhile, the abnormal changes of the weather put increasing pressure on the insurance industry, causing the burden of compensation to rise unexpectedly.

### **3. Recommendations for disaster risk insurance in Vietnam**

#### ***3.1. From the Government***

##### *3.1.1. Finalizing the institution on disaster risk insurance*

*With agricultural insurance, the Government needs to improve the legal framework and policies related to support individuals, businesses, organizations (credit, export). Also, the Government supports the reinsurance for agricultural insurance business. The legal environment and regulations for enforcing insurance contracts are a prerequisite for the development of agricultural insurance. In a clear and transparent regulatory environment, both insurance companies and farmers are assured of participating in insurance. Relevant laws and regulations also need to be in line with international standards, in order to improve opportunities for domestic agricultural insurance companies to access the international market to reinsure and transfer risks.*

At the same time, in the first phase, it is necessary to research the level of risk for each object, each region to build up appropriate insurance development policy. Accordingly, the Government should focus on the motto from easy to difficult, select objects with homogeneous and moderate level of risk, simple insurance products which is easy to operate, taking risks easy to control, etc.

With property insurance, it is necessary to provide documents in the field of construction and installation, which specify the types of disaster risk covered. It is possible to buy compulsory insurance for natural disaster risks together with fire insurance such as in France, Turkey, etc. Terms of insurance contracts related to disaster risks should be standardized based on international experience.

In addition, one of the things that needs to be done to improve legal environment is to build human capacity and technical support. The government should issue insurance guidelines or provide technical assistance for individuals and public property management agencies. For example, Australia, Canada, Indonesia, Mexico, New Zealand and the Philippines issued standardized guidelines for public property insurance. The Mexican

government also actively assists local authorities in obtaining appropriate public property insurance. With public property managers, they need training so that they can understand, choose the most updated insurance terms and provide accurate information for the insurance sellers, reducing insurers' uncertainty, thereby providing better insurance terms and conditions or reduced premiums.

### *3.1.3. Building infrastructure and data systems*

Disaster risk insurance requires a reliable infrastructure, especially for weather index insurance. Infrastructure and data are important factors to improve disaster forecasting capacity. It is necessary to develop a quantitative model of natural disaster risks and build a database of natural disaster risks and public assets in order to determine the frequency of natural disasters and the extent of damage, which are all basis of risk calculation and insurance pricing. Also, it is important to collect, maintain, store data and provide data promptly related to covered events. These data should be placed in the public domain because they could be use in different ways by multiple users. Also, data should be made available to everyone, including commercial interests who want to develop weather insurance products or seasonal weather forecasts.

### *3.1.4. Establishing a disaster risk insurance fund*

In the long term, it is necessary to set up a disaster risk insurance fund; building investment mechanism, using disaster risk bonds (Cat Bond) and considering disaster risk insurance as a specialized insurance. During the process of setting up a disaster risk insurance fund, attention should be paid to legal conditions, insurance coverage, loss assessment, risk management, and transparent risk sharing mechanism among the stakeholders.

Regarding the research and development of investment mechanisms and the use of disaster risk bonds (Cat Bond) in Vietnam's insurance market, international experience shows that it is necessary to have a specialized body (like Fonden of Mexico) issues valuable papers, each of which corresponds to different risk categories priced by S&P, Moody's or Fitch, which will be sold to investors in the capital market. Investors of the above valuable papers are hedge funds, disaster funds and asset managers. If a disaster occurs, the participants will receive compensation from the sale of bonds. Disaster-risk bonds have floating interest rates and apply specific conditions related to the main disasters, which is used as an alternative to traditional disaster reinsurance. The advantage of this investment is that the capital market has a larger financial capacity than the insurance market. Besides, some other advantages such as this investment diversify sources of protection over the years; more independent from reinsurance market and prices guaranteed for years; reducing capital costs in some cases (World Bank Group, 2017).

### *3.1.5. Raising people's awareness of disaster risk insurance*

*The next recommendation is to raise people's awareness about the importance of insurance, especially for farmers participating agricultural disaster risk insurance. In fact, in many countries including Vietnam, one of the causes of underdeveloped agricultural*

*insurance is that farmers do not fully understand the mechanisms and the importance of agricultural insurance. Therefore, providing comprehensive information for farmers on agricultural insurance is essential. Although private insurance companies also invest in marketing strategies, they are unlikely to invest at the socially optimal level of providing farmers in general about insurance. In addition, the information that the insurance company provide on the basic and mechanism of insurance will be more subjective and incomplete. Therefore, in order to increase the ability of information to be presented in an equal, objective and comprehensive manner, raising the farmer's awareness about the basis and mechanism of agricultural insurance, thereby helping them understand the importance of insurance to their livelihood and production, it is necessary to have adequate and methodical investment in training and propagating. In order to replicate raising awareness for such insurance products, resources from the government, sponsors and experts are required. With property insurance, it is necessary to provide technical assistance and training to property managers about the roles, types, rights and obligations of participants.*

### **3.2. From the insurance companies**

#### *3.2.1. Designing appropriate insurance products*

In principle, general insurance products and specialized disaster risk insurance must be clear, transparent and objective; ensuring benefits among involved parties; easily participating and compensating; constantly improving the terms and conditions for the product to match the actual conditions. Especially, insurance companies need to coordinate closely with localities to develop agricultural insurance products. With specialized disaster risk insurance products, it is necessary to continue to promote parametric insurance to both agricultural and property insurance. However, disaster risk needs to be assessed thoroughly to be in line with the extent and scale of risks. In addition, it is necessary to strengthen financial capacity, reinsurance program for disaster risk, along with the development of effective risk management processes and compensation.

#### *3.2.2. Developing insurance distribution channels*

Developing insurance distribution channels is an important content to approach the market. The main distribution channels include (a) insurance retail through an intermediary, such as a credit institution (bank, credit fund, etc.) or a material supplier; or (b) directly distributed by the certified agents by the insurance companies. The appropriate channel depends on local conditions and business interests of different stakeholders. It is necessary to choose which channels have an extensive retail network, able to reach a large number of customers to facilitate insurance distribution. For example, credit institutions can link insurance service with their lending operations to reduce default interest rates due to adverse weather events, while material suppliers consider insurance as a competitive advantage for

the products they sell to farmers. If insurance companies have large coverage in rural areas, they should plan direct retail sales of insurance products. In this case, consideration should be given to assessing the ability of farmers to purchase disaster risk insurance products independently, as experience has shown that it is easier to sell disaster risk insurance when linked to a loans or input materials.

Regardless of the retail model, the insurance company must be able to access reinsurance services, usually at an appropriate international level. The transactions in index-based insurance are very likely to be covariate risk and in the event of a natural event triggered, the amount of compensation payments tends to be very large.

### *3.2.3. Collecting weather data and building a data transfer process*

With disaster risk insurance, especially parametric insurance products (based on weather indicators), insurance companies need local weather data. Data used to build basic weather indicators must comply with these requirements:

- Reliable daily collection and reporting procedures;
- Periodic inspection and quality control;
- An independent data source for verification (for example, surrounding weather stations, WMO Global Telecommunications System). For instance, Bao Viet has activated the compensation right after the occurrence of a natural disaster event with data verified and checked by an independent third party, JMA (Japan Meteorological Agency).

### *3.2.4. Implementing marketing strategies*

Marketing strategies to approach potential customers, end users and intermediaries must be designed in detail. In marketing strategy, it is important to transfer complete information about disaster risk insurance to customers even if they do not buy insurance directly from the insurance company. Especially with agricultural insurance, farmers are often unfamiliar with insurance. They need to be exposed to the basic concepts of insurance and specific features of insurance to fully understand the contract such as the claim process and payments. The process of transferring information promotes general financial knowledge and awareness of risk reduction for insurance buyers.

## **4. Conclusion**

Disaster risk insurance in Vietnam is still limited which there is only one specialized product and other traditional insurances integrated the content of disaster risk insurance. Although the application of agricultural and property insurance in Vietnam has been for many years, it still has many limitations. Therefore, it is necessary to implement some solutions both by the Government and insurance companies to boost the disaster risk insurance market in Vietnam, meeting the requirements of effective support for prevention and mitigation of natural disaster risks.



## 5. References

1. ADB (2015). *Strengthening city disaster risk financing in Vietnam*. Asian Development Bank, accessed 13 May 2020 from <https://openaccess.adb.org>.
2. Insurance Supervisory Authority (2015). Presentation in Workshop Public Property Insurance: Mobilizing resources from the insurance market to financial protection, State Budget, July 18, 2015. Hanoi.
3. Kim Lan (2015). Insurance gaps for high value public assets, Stock Investments, accessed 15 May 2020 from <https://tinnhanhchungkhoan.vn/bao-hiem/khoang-trong-bao-hiem-cho-cac-tai-san-cong-co-gia-tri-lon-127014.html>
4. Nguyen Viet Loi (2018). Financial policy and disaster risk insurance in Vietnam. Financial magazine, accessed 15 May 2020 from <http://tapchitaichinh.vn/nghien-cuu-trao-doi/trao-doi-binh-luan/chinh-sach-tai-chinh-va-bao-hiem-rui-ro-thien-tai-o-viet-nam-134137.html>
5. Financial magazine (2017). *The necessity of special disaster risk insurance*, accessed 13 May 2020 from <https://www.pjico.com.vn/rui-ro-thien-tai-can-mot-loai-hinh-bao-hiem-rieng-biet.html>
6. General Department of Disaster Prevention and Control (2019). *Damage statistics*, accessed 20 March 2020 from <http://phongchongthientai.mard.gov.vn/Pages/Thong-ke-thiet-hai.aspx>.
7. Vu Thi Hoai Thu (2019). Chapter 8: Agricultural Insurance in the Mekong River Delta in Vietnam, in Tran Tho Dat & Vu Thi Hoai Thu (eds). *Climate Change and Agriculture: Status, Impact, Adaptation and Insurance in the Mekong River Delta in Vietnam*. Publisher of National Economics University. Hanoi.
8. World Bank Group (2017). *Financial Risk Management of Public Assets Against Natural Disasters in APEC Economies*. Report submitted for consideration. 24th Finance Ministers' Meeting, Hoi An, Viet Nam.
9. World Bank (2018). Speech at the National Conference on Disaster Risk Management, 3/2018. Hanoi.

## Acknowledgment

This research is implemented in the framework of the Project “Valuation of economic losses caused by extreme hydro-meteorological phenomena in the context of climate change and proposed risk management solutions for coastal provinces of Central Vietnam” (Code BDKH 22/16-20) funded by the National Program on Science and Technology to Respond to Climate Change, Management of Natural Resources and Environment during 2016-2020 for the National Economics University.



**PART 7:  
DIGITAL ECONOMY AND  
INFORMATION TECHNOLOGY**



# USER ACCEPTANCE OF E-BOOKS: THE EFFECT OF PERCEIVED BARRIERS, READING HABIT AND ENVIRONMENTAL CONSCIOUSNESS

*Le Bao Ngoc*

*lebaongoc.tuti@gmail.com*

*Le Huyen Trang*

*mona.le143@gmail.com*

*Faculty of Marketing, Economic Research Institute of Posts and Telecommunications,  
Posts and Telecommunications Institute of Technology, Hanoi, Vietnam*

## **Abstract**

*Reading habits and reading material access have changed dramatically in a digital world. The intention to use e-book has been widely explored. This study proposes a casual model that explores how perceived barriers and reading habit influence users' intention to use e-books. This study extends previous theories: The Technology Acceptance Model and Theory of Planned Behavior by adding environmental consciousness, reading habit and perceived barriers to helps one to better understand what factors affect usage of e-books. The expected findings will outline and describe how dominant factors affect attitudes towards e-book usage, and in turn, affecting intention to use e-books. By considering factors such as perceived ease of use, perceived usefulness, reading habit, etc. practitioners can enhance e-book experience to attract customers. To the best knowledge of the author, this study adds value to the existing literature as it is the first study which examines how perceived barriers affect users' acceptance. It also extends limited literature of e-book usage in developing countries.*

**Keywords:** *E-book usage, user acceptance, Technology Acceptance Model, Theory of Planned Behavior*

## **1. Introduction**

This section introduces the background, research gap, and objectives of the study.

### **1.1. Research background**

E-book are defined as electronic versions of books that can be viewed on a computer screen or on hand-held devices such as personal digital assistants (PDA), tablets and mobile phones (Lam and McNaught, 2009). Although e-books were first introduced to the market in the 1990s, its market received little attention until 2005. It started booming from 2007 onwards. Gaurav et al. (2011) classified into e-books into hardware dependent (such as Kindle, Nook) and hardware independent e-books which can be accessed via any computer using an Internet browser. Embong et al. (2012) further clarified this concept by claiming

there are three basic components of e-books: hardware or reader, software and the e-book files. Hardware based e-book readers are portable electronic devices designed mainly for the aim of reading e-books or any forms of publications. Software based e-book readers are programs that support the display of an e-book on the device, for example, Adobe Acrobat Reader, Foxit Reader. Software e-book readers enable the access on personal computers or any latest computer technologies (Pereus, 2000). E-books, regardless of hardware or software based provide a novel way of reading for people. It is appealing because of the seven unique characteristics: (1) adjustable format and text size, (2) purchases can be completed in a few minutes, (3) quick search functions, (4) a built-in dictionary that can facilitate connection to other information, (5) marketing and editing tools which can also act as a bookmark, (6) adjustable backlighting; and (7) high portability (Burk, 2001). Gunter (2005) postulated some difficulties of moving from paper based to e-book. This includes a limited sense of one's place in the book, absence of highlight and/or bookmark tools as well as eye fatigue associated with reading texts on screen for an extended period of time. The two former obstacles have been solved by advanced features of e-book while the latter remains debatable.

In Vietnam, the digital publishing industry is far from taking off. According to industry statistics, in 2017, 26,000 books were published in forms of hardcovers and paperbacks but only 137 of them were converted to appropriate e-book. Although Vietnamese people have a high Internet and smartphone penetration rate, none of publishers and book distributors have launched reading app where people can purchase and read e-books (Kozlowski, 2018). The number of published e-books has seen a downward trend for the period 2015 - 2017 (Waka, 2017). However, the number of copyrighted e-book increases by 106.1%, faster than non-copyrighted e-book (15.4%), showing those readers are more conscious of reading copyrighted e-books.

### ***1.2. Research gap***

Studies on intentions to use e-book could be split into two streams in which one focused on e-book reading devices (Lai and Chang, 2011; Park et al., 2015) and the other one revolved around e-book in general (Gaurav, 2011; Cumaoglu, 2013). Several theoretical models were employed to understand the acceptance of new technology, namely, the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), the Technology Acceptance Model (TAM), Technology Acceptance Model 2 and Unified theory of acceptance and use of technology (UTAT) (Maduku, 2015). Previous literature has established the link between intention to use e-book and technological factors (Cumaoglu et al., 2013; Lai and Chang, 2011), social factors (Maduku, 2015) and human factors (Gaurav, 2011). Some researchers studied e-book usage in a specific setting such as e-library (Hoang and Nguyen, 2018), e-book store (Huang et al., 2016). Although some studies acknowledged intention to use e-book can vary from type to type of e-book, most of studies chose to focus on e-textbook and approach e-book from students' point of view with regards to reading for study only (Mohammed, 2014).

In spite of the considerable amount of volume of research in this area, much remains to be understood the relationship between motivators to use e-book and other types of e-book, such as leisure reading. Although students' perception of e-book usage side effects and preference for e-book have been researched (Jeong, 2010), none statistical studies have been done to examine the effect of perceived barriers on intention to use e-book. Recent studies have attempted to relate e-book usage to users' experience but these are done separately in experimental design. The effect of habit has been proved to be positively associated with the intention to use technological products (Mutambayashata, S., and Makanyeza, C., 2017; Venkatesh et al., 2012). However current literature has neglected the influence of habit to use the alternative on behavioral intention to accept an innovative product. Also, previous research on the influence of habit on e-book usage has focused on prior one - time experience rather than an automatic learning process (Gaurav, 2011).

### ***1.3. Theoretical background***

Of the conceptual framework to study the adoption of information technology, the TAMs (Davis, 1989; 1993) is a widely used and fairly successful research model. TAM explains the behavior of an individual adopting information technology will be determined by two specific beliefs: perceived usefulness (PU) and perceived ease of use (PEO). Perceived usefulness refers to the potential user's subjective likelihood that the use of a certain system will improve his/her action. Perceived ease of use is defined as the degree to which the potential user expects the adoption of technology is effortless. TAM was developed based on Theory of Planned Behavior, proposed by Ajzen (1985) which explains behavioral intention and actual behavior adoption are determined by three main factors, namely, attitude, subjective norms and perceived behavioral control. This study focuses on purchase intention rather than behavior, because intention has wider implications and will often have a positive impact on an individual's action.

### ***1.4. Study objectives***

The study aims to use the TAM and TPB as the basis for its model of user acceptance of e-book, and expands it by including the following specific factors:

- Habit to read print - book, as proposed by Venkatesh et al., 2012
- Perceived barriers, as operationalized from perceived control behavioral component of TPB
- Environmental consciousness, as proposed by Dunlap et al., 2000

Another aim of this study is to examine whether intention to use e-book would be different among main types of e-book.

## **2. Method**

This section describes the methodology of the study, which covers the development and approach of Research model and hypotheses.

## **2.1. Research model and hypotheses development**

### *Perceived usefulness, perceived ease of use, attitude and intention to use e-book*

The influence of perceived usefulness and perceived ease of use on intention to use advanced technology has been tested with regards to a wide variety of digital products, for instance, e-commerce (Gefen et al., 2003), mobile plastic money (Mutambayashata, 2017), broadband internet (Oh et al., 2003). E-book readings can be compared with physical book readings, revealing that e-books accommodate readers with more advantages than physical books, for example, portability, readability and accessibility. Readers can enjoy convenience of accessing to their desired books anytime and anywhere (Chen, 2015). Existing literature has provided empirical support for the influence of perceived usefulness and perceived ease of use on intention to adopt e-book (Maduku, 2015; Lai and Chang, 2011). Nicholas et al., (2010) claimed that convenience and ease of access are two main reasons accounting for the increasing popularity of e-book. Readers can intuitively use their mice or fingers to turn pages on computer monitors or tablets, reducing the complexity of e-book readings. Chen (2015) in his study concluded that technological factors of e-book positively increased attitude towards reading e-book. Thus, we propose the following hypotheses:

$H_1$ : Perceived usefulness of e-book is positively correlated with attitude towards using e-book

$H_2$ : Perceived ease of use of e-book is positively correlated with attitude towards using e-book

Triandis (1971) defines attitude as individual characteristics which portrait either positive or negative behavior or reflection of feeling and knowledge to certain concept or subject. Attitudes consist of three components, such as affect, cognition and behavior which refer to people preferences level, person's knowledge about the attitudinal object and reactions and intention regarding the object respectively. According to the Theory of Planned Behavior, positive attitude strengthens consumers' intention to use. This has been confirmed in a wide range of technology related studies (Rupak et al., 2014; Hussein, 2015). We propose a similar hypothesis in the context of e-book reading as follows:

$H_3$ : Attitude towards using e-book is positively correlated with intention to use e-book

### *Environmental consciousness, attitude and intention to use e-book*

Environmental consciousness is the attitudinal dimension of environmental friendly behavior. People with a high level of environmental consciousness are more willing to take measures to prevent the exploitation of the environment, and actively look for ways for the environmental continuity (Bansal, 2011). Most of the papers are made up by tree fibers. Thus, e-book usage could be seen as an action to prevent the exploitation of the environment because it saves trees and eco-friendly (Chu et al., 2003; Jamali et al., 2009). Gaurav (2011) found that consumers with a high level of environmental consciousness will have a positive preference for printed books and positively associated with the perceived positive

navigational design of e-books. They, therefore, would have a positive attitude towards the use of e-book. Thus, the following hypothesis is proposed:

*H<sub>4</sub>: Environmental consciousness is positively correlated with attitude towards e-book usage*

*Social influence and attitude towards e-book usage*

Social influence is defined as “the degree to which an individual believes he or she should use the new system” (Venkatesh et al., 2003). It is comparable to subjective norm in Theory of Planned Behavior. Current literature on the topic suggests that social influence will positively influence attitude towards e-book usage. In a collectivistic country like Vietnam, consumers’ attitudes towards a behavior are likely to be influenced by members in their social groups. Stone and Baker (2013) reported that students are likely to be influenced by their parents, classmates and professors’ perspective on their usage of e-book in term of verbal advices. Thus, the following hypothesis is proposed:

*H<sub>5</sub>: Social influence is positively correlated with attitude towards e-book usage*

*Habit to read print book and attitude towards e-book usage*

Habit is defined as the degree to which an individual behaves in a certain manner automatically as a result of unaware learning process (Venkatesh et al., 2012). The influence of habit on consumer behavior regarding e-book usage has been studied with regards to actual previous usage of e-book for reading in the past. Holak and Lehman (1990) argued that when the innovative products are consistent with the previous usage habit of consumers, consumers will then are more willing to accept and adopt innovative product. Past use is used as a proxy for habit. Harsono and Suryana (2014) in their study on the adoption of plastic money proposed that the level of familiarity of customers with a product positively affects their behavioral intention. Gaurav (2011) attempted to study the effect of habit on e-book preference in form of one time prior usage only. Past repeated usage habit is left unexplored. As consumers will face the choice between print book and e-book, those with a high level of print - book reading habit will be more likely to reject e-book usage. Thus, we propose the hypothesis:

*H<sub>6</sub>: Habit to read print book is negatively correlated with attitude towards e-book usage*

*Perceived barriers and attitude towards e-book usage*

Existing literature has debated on the effect of the display technology on visual fatigue (Benedetto et al., 2013). Reading habit is usually investigated with a focus on processing of words, visibility, legibility and other comprehension level. Jeong (2010) in his study on sixth - grade students found that students performed better with print books than with e-books. A possible explanation for this is reading on a screen may require more concentration than on paper, and e-book reading is more prone to error than print book reading. The relationship between reading comprehension, eye fatigue and perception of e-books in this study remains pure conjecture, calling for a more comprehensive view of perceived difficulties associated with e-book reading. Perceived barriers are introduced as



operationalized from perceived behavioral control but with a wider meaning. Perceived behavioral control refers to the person's belief that a particular behavior is under his or her control. Perceived behavioral control is usually assessed by the ease or difficulty of the behavior. Perceived barriers refer to the difficulties in the control of behavior that may discourage people to engage in e-book usage. Based on the result of an explorative qualitative interview, perceived barriers have three sub-constructs:

- (1) Hedonic feelings from physical touch with print book,
- (2) Perceived distraction because readers may jump from meme to meme and link to link, checking social media notifications constantly,
- (3) Perceived health concern which is not only limited to eye fatigue but also includes a higher level of stress, a disruption of sleep patterns

As these barriers demotivate people from using e-book, the following hypothesis is built:

$H_7$ : Perceived barriers are negatively correlated with e-book usage

## **2.2. Research Approach**

This study will use the quantitative approach to study the effect of habit to read print book, environmental consciousness and perceived barriers on e-book usage on the basis of Technology acceptance model and Theory of planned behavior.

### *Data collection and sampling*

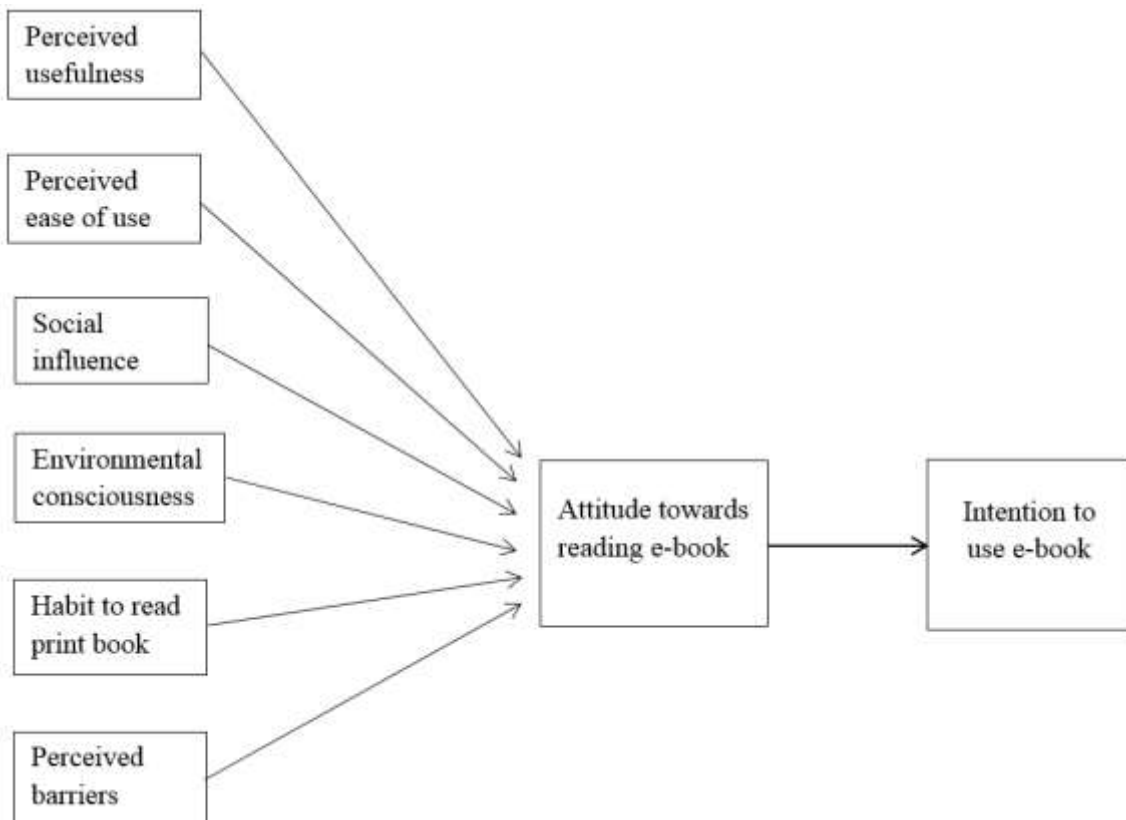
This study will form a sample of students based on convenience sampling. The study aims to reach real e-book user in order to generate reliable results. The quantitative survey will be conducted in both online and offline setting. In the online setting, students who agree to participate in the study will be given a link with the instruction to participate in the survey. The survey will ask students what kind of e-book they usually read, their demographic information, their perception of e-book and intention to use e-book. The type of e-book will be divided into three types: textbook, soft-skill, and romance/comics because these are three most read types of e-book in Vietnam (Waka, 2017).

### *Measurements*

This study recasts items selected for measuring the constructs from previous inventories. The dimension of perceived usefulness and perceived ease of use were referenced from Davis et al. (1989) for the e-book context. Items for measuring environmental consciousness were derived from prior research (Gaurav, 2011) with a minor adjustment to see whether students are aware of environmental benefits associated with the use of e-book. Habit to read print book is measured by previous literature from Venkatesh et al. (2012). The dimension of social influence is reference from Al Imarah et al. (2013) and Venkatesh et al. (2011). Scale items to measure perceived barriers are developed from prior explorative qualitative interview, including: hedonic feelings associated with physical touch with print book, perceived distraction, perceived health concerns.

### 3. Results

Based on the rationale of these above hypotheses, a potential model can be established as the following to test all mentioned hypotheses:



$H_1$ : Perceived usefulness of e-book is positively correlated with attitude towards using e-book

$H_2$ : Perceived ease of use of e-book is positively correlated with attitude towards using e-book

$H_3$ : Attitude towards using e-book is positively correlated with intention to use e-book

$H_4$ : Environmental consciousness is positively correlated with attitude towards e-book usage

$H_5$ : Social influence is positively correlated with attitude towards e-book usage

$H_6$ : Habit to read print book is negatively correlated with attitude towards e-book usage

$H_7$ : Perceived barriers are negatively correlated with e-book usage

### 4. Discussion and Conclusion

#### 4.1. Discussion

##### *Significance of the study*

Identification of factors affecting e-book usage behaviors will enable a more robust understanding of attitudes toward e-book and will be helpful to publishers in making

decision whether they can produce e-book hardware and software which can meet what customers are looking for. By focusing on e-book adoption characterized by type of e-book, results of the research may help to fill a gap on this under-researched field.

#### *Implication*

The study also has a practical implication because it will provide insight into students' perception of e-book and give recommendations to digital product designers or publishers, educators on what can do to promote e-book usage.

#### **4.2. Conclusion**

To conclude, the purpose of this study is to examine the effect of environmental consciousness, habit to read print book and perceived barriers on user acceptance of e-book. Theory of planned behavior and technology acceptance model are deployed to test seven hypotheses.

This research contributes to the current literature in two ways. First, to the author's best knowledge, it is the first research to study the perceived barriers which influence students' intention to use e-book. Second, it complements existing literature by examining whether readers' intention to use e-book differs among type of e-book.

#### **5. References**

1. Al-Suqri, M.N. (2013), *Perceived usefulness, perceived ease - of - use and faculty acceptance of electronic books. An empirical investigation of Sultan Qaboos University, Oman*, Library Review, 63(4/5), pp. 276 - 294.
2. Bansal, G. (2011), *E-book usage: role of environmental consciousness, Personality and past usage*, Journal of Computer Information Systems, 52(2), pp. 93 - 104.
3. Cumaoglu, G., Sacici, E., and Torun, K. (2013) *E-book versus Printed materials: Preferences of university students*, 4(2), pp. 121 - 135.
4. Embong, A.M., Noor, A.M., Hashim, H.M., Ali, R.M., and Shaari, Z.H. (2012), *E-books as textbooks in the classroom*, Procedia - Social and Behavioral Sciences, 47(2012), pp. 1802 - 1809.
5. Gaurav, B. (2011), *E-book usage: Role of environmental consciousness. Personality and past usage*, Journal of Computer Information Systems, 52(2), pp. 93 - 104.
6. Huang, Li - Chun (2016), *What factors satisfy e-book store customers? Development of a model to evaluate e-book user behavior and satisfaction*, Internet Research, 27(3), pp. 563 - 585.
7. Kumbhar, R. (2012), *E-books: review of research and writing during 2010*, The Electronic Library, 30(6), pp. 777 - 795.
8. Lai, P.C. (2017), *The literature review of technology adoption models and theories for the novelty technology*, Journal of Information Systems and Technology Management, 14 (1), pp. 21 - 38.

9. Lai, J.Y., and Chang, C.Y. (2011), *User attitudes toward dedicated e-book readers for reading - The effects of convenience, compatibility and media richness*, *Online Information Review*, 35(4), pp. 558 - 580.
10. Lam P., Lam S.L., Lam J., & McNaught C. (2009), *Usability and usefulness eBooks on PPCs: How students' opinions vary over time*, *Australasian Journal of Educational Technology*, 25(1), 30-44.
11. Lee, Chang Boon Patrick and Wan, Guohua (2010), *Including Subjective Norm and Technology Trust in the Technology Acceptance Model: A Case of E-Ticketing in China*, *Database for Advances in Information System*, 41(4), pp. 40-51.
12. Maduku, D.K. (2015), *An empirical investigation of students' behavioural intention to use e-books*, *Management Dynamics*, 24(3).
13. Mutambayashata, S., and Makanyeza, C. (2017), *Consumers' acceptance and use of plastic money in Harare, Zimbabwe. Application of the UTAT2*, *International Journal of Bank marketing*, 36(2), pp. 379 - 392.
14. Stone, R., and Baker - Eveleth, L.J. (2013), *Students' intentions to purchase electronic textbooks*, *Journal of Computer Higher Education*, 25, pp. 27 - 47.

# **BUILDING DIGITAL GOVERNMENT FOR ENVIRONMENT MANAGEMENT AND SUSTAINABLE DEVELOPMENT**

*Dr Nguyen Trung Tuan*

*tuannt@neu.edu.vn*

*School of Information Technology and Digital Economics, National Economics  
University, Hanoi, Viet Nam*

*Dr Truong Dinh Duc*

*ductd@neu.edu.vn*

*Department of Media, National Economics University, Hanoi, Viet Nam*

*MSc Dao Thien Quoc*

*quocdt@neu.edu.vn*

*Library Information Centre, National Economics University, Hanoi, Viet Nam*

## **Abstract**

*Nowadays, the environment pollution situation in Vietnam has become much more seriously. Residents of big cities have faced the most serious air pollution. In rural areas, using the pesticides without scientific guidance has caused the pollution of soil, water source and air as well as affected health of people. The domestic and industrial wastewater which is untreated or treated but not corresponded with the Vietnam wastewater standards is discharged directly into the surrounding environment. Besides, along with the globalization, there are various types of invasive alien species in Vietnam due to the lack of knowledge in control of alien species. Since 2016, It has occurred in a series of environmental pollution causing annoyance in public opinion. This urges us how to manage effectively the environment problems and how to simultaneously mobilize all the resources of society to participate in environmental protection. To solve these problems, the need to quickly build the digital government in environment management is for all residents to contribute quickly, quality and transparency to help environment officers having sufficient information to serve the sustainable development in Vietnam.*

**Keywords:** *digital government, environment management, sustainable development.*

## **1. Introduction**

Vietnam is one of the most densely populated countries in the world, with the third largest population in Southeast Asia and the 14th in the world. The population increase entails increasing demand for living, education, training, health care, transportation, housing, jobs ... therefore increasing pressure on the natural and social environment. The load capacity of the natural environment is limited. The self-cleaning ability of the natural environment

will be exceeded because the population increases rapidly and untreated waste discharges into the surrounding environment (MONRE, 2017).

As of December 2015, the urban population (including the inner city and township) was about 31 million people with an urbanization rate of about 35.7%, an increase of 1.2% compared to 2014 (MONRE, 2015). In many areas with rapid urbanization, green belts to protect the environment have not been planned and protected. The target of land for planting green trees in urban areas is too low, only about  $2\text{m}^2$  / person. In general, the green tree system is only formed and concentrated in big and medium cities. In the two biggest cities of Hanoi and Ho Chi Minh City, this figure is about  $2\text{m}^2$  / person, does not meet the Vietnamese standards and only 1/10 of the target of green trees of advanced cities in the world. Along with the rapid urbanization process, the living environment is under serious pressure from issues such as: domestic wastewater, solid waste, water pollution, noise pollution, air pollution... According to statistics in 2015, in 787 cities of Vietnam, there are 40 cities of which have waste water treatment facilities followed Vietnam standards. In which, these projects are mainly in special-class urban areas (2/2), grade-I ones (8/15), grade-II ones (10/25), grade-III ones (7/42) and Class V ones (13/628) with a total capacity of handling  $800,000\text{ m}^3$  / day. The rate of treated domestic wastewater is 10 - 11% of the total amount of urban wastewater, increasing 4 - 5% compared to 2010. Along with rapid urbanization, the increase in the number of personal transports continues to put pressure on the air environment in urban areas, especially in big cities like Hanoi and Ho Chi Minh City. Dust and emissions from urban traffic remain one of the major pollution sources to the air in these areas. At the same time, the quality of vehicles in traffic is limited (old cars and motobikes, not regularly maintained) has significantly increased the concentration of pollutants in the air (MONRE, 2015).

The air environment in Hanoi (Ngoc Ha, 2016; Van Chuong and Quang Anh, 2017; Nguyen Hoai, 2019), Ho Chi Minh City and other major cities are also in serious pollution levels (Nguyen Tien, Yen Trinh & Ha Nhan, 2016). According to the UNEP study in 2015, 98% of the Vietnamese population is directly affected by suspended dust pollution PM2.5 beyond the WHO's permitted level. The vehicles caused 70% of suspended dust pollution and 95% of volatile organic matter in the air. Activities considered to be major sources of air pollution such as: coal mining and processing; steel production; producing construction materials (cement) and thermal power, especially coal-fired power plants.

Air pollution caused by coal-fired power plants has caused social unrest such as in Vinh Tan 2, Binh Thuan (Viet Quoc, 2015); Pha Lai, Hai Duong (Nguyen Hoai, 2017), Cao Ngan Thermal Power Plant, Thai Nguyen (Tran Son - Le Duc Anh, 2018) ... and many other coal-fired power plants. Steel factories also contributed to making air pollution worse such as steel factories in Da Nang (Doan Nguyen, 2018); in Ba Ria - Vung Tau (Linh Nga, 2018); in Hai Duong (Thuy Chi - Tien Manh, 2018)... Air environment is also polluted due to the production activities of cement plants such as factories in Ninh Binh (Minh Tham - Quang Huy, 2016); in Quang Ninh (Nguyen Hung, 2018); in Quang Ngai (Minh Hoang, 2018); in Tuyen Quang (Thanh Han, 2019)...

According to IQAir's air quality report 2018, Hanoi city ranked 12th in the level of suspended dust pollution PM2.5 in the air.

In addition, urban domestic solid waste currently accounts for more than 50% of the total domestic solid waste of the country every year. Urban domestic solid waste arises mainly from households, public areas (streets, markets, offices, schools ...). Not only that, domestic solid waste also has hazardous solid wastes such as batteries, tube lights, mercury thermometers, pesticide shells, insect sprays ... That are discharged into domestic solid waste and bring to landfill. Besides, in recent years, Vietnam has developed coal thermoelectricity. According to statistics of the Ministry of Industry and Trade, there are currently 20 coal-fired power plants, consuming 45 million tons of coal per year, with a generation capacity of nearly 13,110MW, discharging about 15.8 million tons of ash every year and must use a total area of about 700 ha of waste dumps. Coal-fired power plants are mainly concentrated in the northern region (Quang Ninh, Ninh Binh, Hai Duong...) and the southern region (Ba Ria - Vung Tau, Can Tho, Ho Chi Minh City). Most of the old coal-fired power plants mainly use thermal condensate to stop steam, natural circulating boilers, low capacity, failing to meet Vietnam environmental standards. The distribution of coal-fired power plants mainly concentrated in big cities along with outdated technology has been putting considerable pressure on the air environment of these areas (MONRE, 2017).

In 2016, a series of serious water pollution occurred in our country, affecting not only the health, property and beliefs of the people but also the economic growth, attraction of foreign direct investment and images of Vietnamese tourism... The series of fish deaths in Vietnam in 2016 started with the incident of Formosa (Vo Hai & Hoai Thu, 2016) with the phenomenon of mass mortality in Vung Ang sea (Ha Tinh) then the phenomenon of fish deaths discovered in the waters of Quang Binh, Quang Tri and Thua Thien - Hue; Da Nang (Ha Nam, 2018). The dead fish event occurred in Van Ninh sea, Khanh Hoa province (Hai Lang & Van Giang, 2016).

In addition, the phenomenon of dead fish due to water pollution also occurs in rivers and lakes across three regions of Vietnam such as Buoi river, Thanh Hoa (Le Hoang, 2016); Hinh river, Phu Yen (Hong Anh, 2016); Dong Nai river, Bien Hoa (Hung Anh - Le Van, 2016); Sa Lung river, Quang Tri (Hung Tho, 2016); Cha Va river, Ba Ria - Vung Tau (Nguyen Long, 2016); West Lake, Hanoi (Vo Hai & Anh Minh, 2016; Pham Truong and Ngoc Tan, 2018); Cho Hom river, Thua Thien Hue (Dien Quang, 2017); Hoang Mai river, Nghe An (Nguyen Phe, 2017). Most of the causes of fish death have not been determined correctly but water pollution and toxins can still be one of the main causes.

The continuous occurrence of serious environmental pollution cases in Vietnam is alarming because most of these cases are discovered and reflected by the local people, independent research and press agencies. State agencies on environment management are hardly able to detect the above environmental pollution cases. The environment management agencies only really get involved when things have happened. This requires breakthrough

changes in the state management of natural resources and environment in Vietnam. In this report, we propose solutions to build and use the digital government in environment management to serve the sustainable development in Vietnam. The solutions for environment management proposed by the authors focus on digital government model in terms of technology and core applications to early detection, warning and decreasing the environment damage.

## **2. Results**

### ***2.1. Introduction of digital government strategy***

In the OECD comparative study (OECD, 2016), the Recommendation of OECD on Digital Government Strategies was adopted in mid-2014 (“the Recommendation”). The Recommendation is the first international legal instrument on digital government. This document offers approach of a whole-of-government that solves the potential cross-cutting role of digital technologies in the process of design and implementation of public policies, and in achieving policy outcomes. The whole direction for the digital transformation of public services was outlined in the Recommendation, including a change from the ICT use to support better public sector operations, to combining strategic decisions on digital technologies in the building of overarching strategies and agendas for modernisation of public sectors, and the management of digital government strategies. The Recommendation also shows some principles to support this culture change within the public sector. There are three pillars in these principles: engaging citizens and open government to maintain public trust, improve governance for better collaboration and results, and strengthen capabilities to achieve return on ICT investments (see in Box 1).

#### **Box 1. OECD Recommendation of the Council on Digital Government Strategies**

##### *Engage citizens and open government to maintain public trust*

1. Ensure greater transparency, openness and inclusiveness of government processes and operations;
2. Encourage engagement and participation of public, private and civil society stakeholders in policy making and public service design and delivery;
3. Create a data-driven culture in the public sector; Improve governance for better collaboration and results
4. Reflect a risk management approach to addressing digital security and privacy issues, and include the adoption of effective and appropriate security measures, so as to increase confidence on government services;
5. Secure leadership and political commitment to the strategy, through a combination of efforts aimed to promote inter-ministerial co-ordination and collaboration, set priorities and facilitate engagement and co-ordination of relevant agencies across levels of government in pursuing the digital government agenda.



6. Ensure coherent use of digital technologies across policy areas and levels of government;
7. Establish effective organisational and governance frameworks to co-ordinate the implementation of the digital strategy within and across levels of government;
8. Strengthen international co-operation with other governments to better serve citizens and businesses across borders, and maximise the benefits that can emerge from early knowledge sharing and coordination of digital strategies internationally; Strengthen capabilities to achieve return on ICT investments
9. Develop clear business cases to sustain the funding and focused implementation of digital technologies projects;
10. Reinforce institutional capacities to manage and monitor projects' implementation;
11. Procure digital technologies based on assessment of existing assets including digital skills, job profiles, technologies, contracts, inter-agency agreements to increase efficiency, support innovation, and best sustain objectives stated in the overall public sector modernisation agenda;
12. Ensure that general and sector-specific legal and regulatory frameworks allow digital opportunities to be seized.

*Source: OECD (2014d), Recommendation of the Council on Digital Government strategies.*

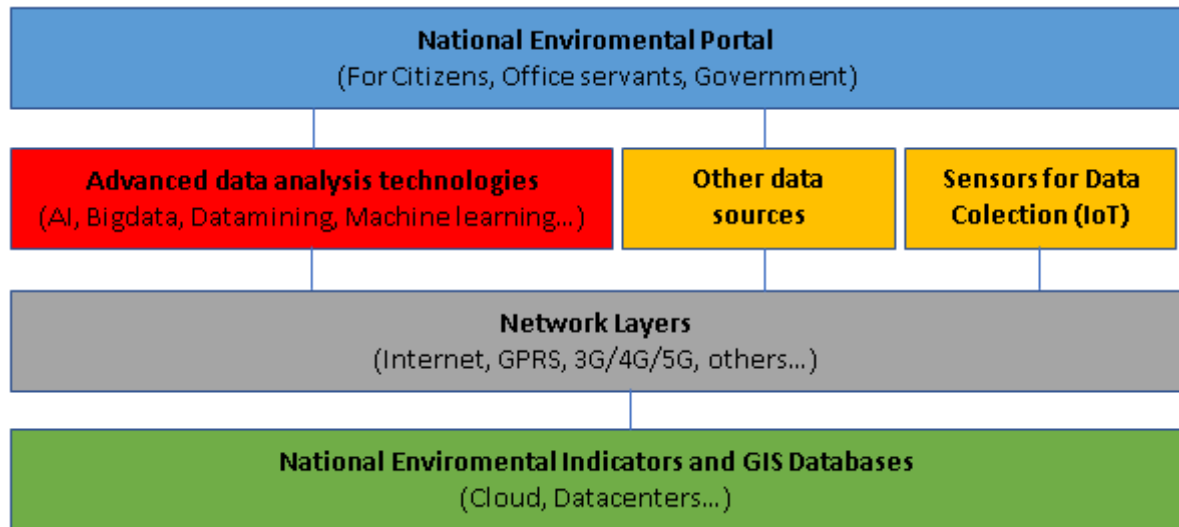
According to Digital Government Strategy of US Department of State, a comprehensive Digital Government Strategy aimed at delivering better digital services to the American people was launched on May 23, 2012. This strategy establishes on several initiatives, including Executive Order 13571, Streamlining Service Delivery and Improving Customer Service, and Executive Order 13576, Delivering an Efficient, Effective, and Accountable Government. U.S. Government agencies are demanded to “build a 21<sup>st</sup> century digital Government that delivers better digital services to the American people.”

Open data is one of the components of the digital strategy which was further promoted through Memorandum M-13-13, Open Data Policy-Managing Information as an Asset. The goals of the Open Data Policy are to increase operational efficiencies at reduced costs, improve services and support mission needs, to safeguard personal information and to increase public access to valuable government information.

Achieving efficiency, transparency, and innovation through reusable and open source software as described in Memorandum M-16-21 Federal Source Code Policy (FSCP) is another component of the digital strategy. An inter-bureau working group within the State Department has drafted policy to address the technical implementation of the FSCP mandates in order to comply with the FSCP.

## 2.2 Some solutions to promote digital government development in environmental management and sustainable development

### 2.2.1 Building environmental information system based on the industrial revolution 4.0



**Figure 1. National Environmental Information System Solution**

- **Developing a national database on environment.** The national database is centrally managed, distributed according to administrative maps based on multi-layer GIS technology, reflecting updated information on the status of each geographical position being used with the function What, the legal entity is using ... For each region, the geographical location will be associated with the corresponding environmental indicators. For example: urban areas: indicators such as temperature, noise, suspended dust, CO<sub>2</sub>, Nox, HC and other environmental indicators. The national environmental database will be a shared data source for different applications for the purpose of managing, researching, evaluating and predicting issues related to environmental change and fluctuations. National database of environment can be stored with cloud computing technology (Cloud Computing) to serve anytime, anywhere with a large number of visitors.

- **Establishing automatically systems for collecting environmental indicators.** With the development of science today, especially the development of the sensor and connection technology (IoT), technology allows us to collect environmental indicators automatically, through the sensor system, that is connected to the database server in real time. Environmental observers and researchers can analyze data as quickly as possible through the collected software systems and databases. Here, environmental indicators are not only observed independently but can be linked to other data to be able to find the characteristics of the positions to be managed.

- **Applying the modern tools of Information Technology in analysis and forecasting.** With the national database of environment, researchers and managers can use advanced technologies for data processing and management such as Big data, artificial intelligence in analyzing, forecasting and early warning of environmental problems. In

addition to dealing with immediate situations, software systems can allow for early forecasting, building models and simulating environmental states under different conditions for alerting. Early, these systems can also minimize risks and damages when environmental incidents occur.

- **Developing a national environmental portal - Digital government portal on the environment.** This is a software system that allows managers to access real-time information about the state of the environment anywhere from a national database. At the same time, with the integration of modern data analysis technologies as mentioned above, it is possible to capture instant information to take appropriate management measures. The system will also be decentralized to be able to capture or receive early warning of environmental phenomena based on collected data. In addition to serving managers, the national portal on the environment also serves people. People can monitor and capture environmental information through this portal, and this is also the channel that people reflect and update the environmental status directly to managers. Applications on smart devices also need to be developed to meet the needs of government, regulatory agencies and people corresponding to the national environmental portal.

#### *2.2.2. Developing a digital legal framework for environmental management and sustainable development*

In order to be able to manage and protect the environment in a proactive and effective way, it is necessary to develop and improve the digital government, including the interaction between people who act as co-supervisors together with the government agencies. In addition to technological solutions, there is a legal corridor for environmental management and sustainable development based on the help of technology.

- It is necessary to have legal documents, regulating the functions and powers of state administrative units on environment in the exploitation, use and updating of the national database on environment as well as the update environmental information in the national database.

- There should be regulations for any legal entity when developing facilities for production and construction of factories and buildings... there must be environmental sensor systems connected to the national system, gradually taking shape forming cities, smart regions. It is also a useful source of information for national databases.

- There are processes to receive and respond to citizens' opinions and information when people update environmental information on the portal.

- Ministry of Natural Resources and Environment is the focal point to manage and supervise the updating of the national database on environment, through client / citizen feedback data to direct and establish plan, handle to minimize and timely monitor abnormal environmental developments.

- Granted the right to update data for sub-admin is the Department of Natural Resources and Environment of provinces and cities under central authority. Local

Departments of Natural Resources and Environment are the main focal points for updating databases in their localities. Responsible for responding through specific measures to minimize negative environmental impacts. Promptly preventing situations can lead to bad scenarios for the environment.

- Law on regulations for topics, projects, scientific research projects ... related, using or having output products related to environmental situation in the territory of Vietnam must be update to the national database system on environment. Data, parameters of surface water quality, groundwater, sediment, soil, air, noise... must specify the date and time of sampling, weather, taking photos of the sampling area, sampling coordinates and sample analysis results can be convenient for assessing the evolution of the environment. This will be useful for forecasting future developments in the environment, as well as a scientific basis for making policy recommendations for management levels.

### **3. Discussion and Conclusion**

Currently, we are entering the 4th industrial revolution, the design, construction and use of digital government in environmental management is the most necessary and urgent job in the context of Vietnam is facing a wide range of challenges in managing land, water and air environments. The inclusion of modern technology in the process of building the government is no longer an insurmountable challenge. The problem is that we need to have a team of experts in many fields to study together, find the best solution for building a number of governments, including a special service module for environmental management. In addition, functional units in charge of environmental management also need to propose mechanisms and policies so that people can participate actively, responsibly and transparently on management issues environment.

In this article, the authors have proposed building a digital government on environmental management through a model of environmental information system solutions that apply advanced technologies to serve management and early warning us against serious environmental issues. In addition to the construction of a digital government on the environment, we also need to create a legal framework, legalize the regulations for updating environmental parameters in sensitive areas. Clear and specific provisions for organizations and individuals on environmental responsibility. In subsequent articles, the authors will delve into each information system in the overall solution of the information system for digital transformation in environmental management.

### **4. References**

1. Dien Quang (2017), *Dead fish in mass, people suspected by industrial zones discharge*. Retrieved from <https://news.zing.vn/ca-chet-hang-loat-nguoi-dan-nghi-do-khu-cong-nghiep-xa-thai-post807217.html>
2. Doan Nguyen (2018), *Da Nang inspected 2 steel factories causing pollution*. Retrieved from <https://news.zing.vn/da-nang-thanh-tra-2-nha-may-thep-gay-o-nhiem-post853821.html>

3. Ha Nam (2018), *Dead fish mass in Da Nang beach, people do not dare to bathe*. Retrieved from <http://kenh14.vn/ca-chet-hang-loat-tai-bien-da-nang-nguoi-dan-khong-dam-xuong-tam-20181110180406175.chn>
4. Hai Lang & Van Giang (2016), *Van Ninh: White dead fish in Sim pool*. Retrieved from <http://baokhanhhoa.com.vn/xa-hoi/201611/van-ninh-ca-chet-trang-o-vung-sim-2461817/>
5. Hong Anh (2016), *Phu Yen: The appearance of dead fish on the Hinh river*. Retrieved from <http://nld.com.vn/thoi-su-trong-nuoc/phu-yen-xuat-hien-ca-chet-tren-song-hinh-20160517155029207.htm>
6. Hung Anh - Le Van (2016), *Cause of 200 tons of fish died in Dong Nai river*. Retrieved from <http://vietnamnet.vn/vn/thoi-su/nguyen-nhan-200-tan-ca-chet-kin-song-dong-nai-283460.html>
7. Hung Tho (2016), *Quang Tri: Sa Lung river water smells, dead fish exposed belly*. Retrieved from <http://laodong.com.vn/thoi-su-xa-hoi/quang-tri-nuoc-song-sa-lung-boc-mui-ca-chet-phoi-bung-590359.bld>
8. Le Hoang (2016), *Fish on the Buoi river continue to die in a series*. Retrieved from <http://vnexpress.net/tin-tuc/thoi-su/ca-tren-song-buoi-tiep-tuc-chet-hang-loat-3403631.html>
9. Linh Nga (2018), *Pomina 3 steel factory discharges untreated emissions into the environment*. Retrieved from <https://baomoi.com/nha-may-thep-pomina-3-xa-khi-thai-chua-qua-xu-ly-thai-ra-moi-truong/c/27931667.epi>
10. Minh Tham - Quang Huy (2016), *SOS: Tam Diep Cement Plant causes environmental pollution*. Retrieved from <http://giadinhvaphapluat.vn/sos-nha-may-xi-mang-tam-diep-gay-o-nhiem-moi-truong-p40258.html>
11. Minh Hoang (2018), *Quang Ngai decided to close the cement plant causing pollution*. Retrieved from <https://news.zing.vn/quang-ngai-quyet-dong-cua-nha-may-xi-mang-gay-o-nhiem-post860163.html>
12. MONRE - Vietnam (2015), *Report on the current state of the environment in 2011\_2015 period*.
13. MONRE - Vietnam (2016), *Report on current state of the national environment 2016. Topic: Urban environment*.
14. MONRE - Vietnam (2017), *National environment report 2017. Topic: Waste management*.
15. Nguyen Hung, (2018), *Cement dust attacked an urban area on Cua Luc bay*. Retrieved from <https://laodong.vn/moi-truong/bui-ximang-tan-cong-khu-do-thi-ben-bo-vinh-cua-luc-594088.ldo>
16. Nguyen Long (2016), *Fish dead bodies pile up along Cha Va river*. Retrieved from <http://thanhnien.vn/doi-song/xac-ca-chet-chat-thanh-dong-ven-song-cha-va-754536.html>

17. Nguyen Hoai (2019), *The air in Hanoi hits dangerous threshold*. Retrieved from <https://www.tienphong.vn/cong-nghe/khong-khi-ha-noi-cham-nguong-nguy-hai-1372153.tpo>
18. Ngoc Ha (2016), *The air in Hanoi in this morning was the second highest pollution in the world*. Retrieved from <http://www.vtc.vn/sang-nay-khong-khi-o-ha-noi-o-nhiem-thu-nhi-the-gioi-d279845.html>
19. Nguyen Tien, Yen Trinh & Ha Nhan (2016), *Air pollution in Ho Chi Minh City*. Retrieved from <http://thanhvien.vn/thoi-su/bao-dong-khong-khi-o-nhiem-tai-tphcm-754318.html>
20. Nguyen Phe (2017), *People insecure because the fish suddenly died in the river*. Retrieved from <https://dantri.com.vn/xa-hoi/dan-bat-an-vi-ca-bong-nhien-chet-hang-loat-tren-song-20170926142656808.htm>
21. Nguyen Hoai (2017), *Coal thermal power causes pollution: Still investing in development?*. Retrieved from <https://baomoi.com/nhiem-dien-than-gay-o-nhiem-van-dau-tu-phat-trien/c/22574513.epi>
22. OECD (2016), *Digital Government Strategies for Transforming Public Services in the Welfare Areas*. Retrieved from <http://www.oecd.org/gov/digital-government/Digital-Government-Strategies-Welfare-Service.pdf>
23. Pham Truong & Ngoc Tan (2018), *More than 20 tons of dead fish in West Lake were collected*. Retrieved from <https://news.zing.vn/hon-20-tan-ca-chet-o-ho-tay-da-duoc-thu-gom-het-post858982.html>
24. Thanh Han (2019), *Tuyen Quang Cement factory discharges 'stealthily' dust causing environmental pollution?*. Retrieved from <https://baomoi.com/nha-may-xi-mang-tuyen-quang-xa-trom-khoi-bui-gay-o-nhiem-moi-truong/c/29730100.epi>
25. Tran Son, Le Duc Anh (2018), *Cao Ngan Thermal Power Plant causes environmental pollution*. Retrieved from <https://baomoi.com/nha-may-nhiem-dien-cao-ngan-gay-o-nhiem-moi-truong/c/27787211.epi>
26. Thuy Chi - Tien Manh (2018), *Hai Duong: People live 'in misery' because the steel factory discharge and cause pollution environment?*. Retrieved from <http://www.vnmedia.vn/ban-doc/201804/hai-duong-nguoi-dan-khon-don-vi-nha-may-thep-xa-thai-gay-o-nhiem-599163/>
27. Van Chuong & Quang Anh (2017), *Air pollution in Hanoi is at a red alert*. Retrieved from <https://news.zing.vn/o-nhiem-khong-khi-tai-ha-noi-dang-o-muc-bao-dong-do-post721598.html>
28. Vo Hai & Anh Minh (2016), *Hanoi has gathered 200 tons of dead fish in the West Lake*. Retrieved from <http://vnexpress.net/tin-tuc/thoi-su/ha-noi-da-gom-200-tan-ca-chet-o-ho-tay-3478697.html>

29. Vo Hai & Hoai Thu (2016), Minister of Natural Resources: *Treatment of Formosa's pollution sources*. Retrieved from <http://vnexpress.net/tin-tuc/thoi-su/bo-truong-tai-nguyen-xu-ly-tan-goc-nguon-gay-o-nhiem-cua-formosa-3499476.html>
30. OECD. Retrieved from <http://www.oecd.org/gov/digital-government/>.
31. UNEP (2015). Retrieved from <https://wedocs.unep.org/bitstream/handle/20.500.11822/17144/VietNam.pdf?sequence=1&isAllowed=y>
32. Viet Quoc (2015), *Vinh Tan 2 Thermal Power Plant causes serious environmental pollution*. Retrieved from <https://vov.vn/xa-hoi/nha-may-nhiet-dien-vinh-tan-2-gay-o-nhiem-moi-truong-nghiem-trong-389019.vov>
33. <https://www.airvisual.com/vietnam/hanoi>
34. US Department of State, *Digital Government Strategy*. Retrieved from <https://www.state.gov/digitalstrategy/>

# SMART LOCKER - A SUSTAINABLE URBAN LAST-MILE DELIVERY SOLUTION: BENEFITS AND CHALLENGES IN IMPLEMENTING IN VIETNAM

*Dr. Tran Thi Huong*

*huong.tranthy@hust.edu.vn*

*Bui Ngoc Thiet*

*thiet.bn176340@sis.hust.edu.vn*

*School of Economics and Management,*

*Hanoi University of Science and Technology Hanoi, Vietnam*

## **Abstract**

*The booming of e-commerce has led to a significant increase in freight traffic levels, especially in urban areas. As a result, managers in the e-commerce and parcel logistics fields have to face a lot of challenges in the last-mile delivery system, such as the pressure on delivery time, the service-level expectation of customers, transportation cost, and environmental impact. Smart locker (or automated reception box, parcel locker) is a sustainable alternative solution for home delivery in the last-mile delivery system. This paper used both secondary and empirical research methods to get insights into the application of smart lockers in urban areas around the world and the benefits and challenges to apply this measure to the last-mile delivery system in Vietnam.*

**Keywords:** *Smart locker, parcel locker, last-mile delivery, urban logistics system*

## **1. Introduction**

### **1.1. E-commerce and last-mile delivery system**

In recent years, e-commerce and urbanization have been flourished across the globe. It is forecasted that the number of people living in cities will reach approximately 70% of the world's population in 2050 (Dolati Neghabadi et al., 2019; Lee, 2014). In 2019, retail e-commerce sales worldwide reached approximately 3.53 trillion US dollars, and this number is forecasted to be 6.54 trillion US dollars in 2022 (Statista, 2020a). In Vietnam, the revenues of e-commerce in 2017 and 2018 increased impressively, with a growth rate of over 30% (VECOM, 2019). To meet the increasing demand (in transporting freight amount and delivery time of consumers) in the e-commerce era in urbanized cities, the urban logistics and last-mile delivery system have to suffer great pressure in fostering effectiveness and competitiveness of logistics service providers and simultaneously ensure the sustainable development of cities (Taniguchi, 2014). *Last-mile delivery*, the most expensive logistics activity (Van Duin et al., 2020), is defined as the final step of order fulfillment, including online shopping orders. Last-mile delivery carries goods from a regional parcel hub (or the



storage center, firm's warehouse, the warehouse at the airport, ICD, transportation center, or a distribution center...) to the destination (usually is the consumer's address).

Last-mile delivery is a critical phase but the least efficiency in the supply chain (account for approximately 28% of the total delivery cost) and e-commerce activity (Ranieri et al., 2018; Wang et al., 2016). In literature, there are five main types of innovation to dealing with the emerging issues in this field, including (i) new vehicles, (ii) stations or points, (iii) collaborative and cooperative urban logistics and optimization of transport management and (v) routing (Ranieri et al., 2018). Regarding the innovative solution group of "stations or points", smart locker, which is the alternative mode of home delivery, has received much attention in academia and industry.

### ***1.2. Home delivery and smart locker***

Home delivery or attended home delivery is the most usual last-mile delivery method (Agatz et al., 2008; Zhang & Lee, 2016). However, recently, practitioners and researchers have criticized home delivery as an inefficient and inflexible method due to the following reasons. *Firstly*, the lack of flexibility, customers have to be at home/ prearranged place during a prearranged period. *Secondly*, delivery failure rate, there is a risk that the receiver is not home, making it necessary to perform a second or even third delivery trial (Zhang & Lee, 2016). That not only leads to late delivery, unsatisfactory of e-commerce sellers, consumers, and logistics operators but also exacerbates air/noise emission and traffic congestion in cities. *Thirdly*, high shipping cost, according to Statista (2020), in 2018, the average cost consumers are willing to pay is only 1.4 US dollars; however, they have to pay 8.08 US dollars and the average cost incurred to organizations is 10.1 US dollars (Statista, 2020b). There is another choice to change the receiving place from home to the workplace in order to decrease delivery failure rates. However, the deliveries to the workplace cause traffic problems in office buildings, especially on special days such as Christmas, and have a negative impact on the productivity of employees. As a result, more and more companies are now banning their employees from receiving personal deliveries at the workplace (Allen et al., 2018; Assembly, 2017).

***Smart locker***, which is also named as automated locker, parcel locker, smart/intelligent box, delivery box, and (shared) reception box, has been argued as a sustainable alternative solution for home delivery to deal with the above challenges. Smart locker can be defined as an unstaffed, automated box, which is fixed to a wall outside the customer's home in a secure place (for example ground floor of buildings, apartment blocks, workplaces, car parks, railway stations), can be accessed by a key or an electronic code; the final consumer can be notified of the delivery via mobile phone or email (Lemke et al., 2016; Okholm et al., 2013). The smart locker is used mostly for parcels, but it can contain food with temperature control equipment. According to Zenezini et al., (2018) and Van Duin et al., (2020), the solution "parcel locker" provides better vehicle routing, decreases the delivery cost for logistics operators, and reduce drivers' pressure of wrong addresses and

missed delivery. In addition, from the customer perspective, studies in Poland, Amsterdam, and other cities proved that customer appreciate smart locker and satisfied with the service because of its benefits such as the ability to reducing shipping cost for consumers, the convenience and proactiveness in delivery and return services (Bilik, 2014; Iwan et al., 2016; Van Duin et al., 2020). Regarding the environmental impact, the use of smart lockers in relation to (attended) home delivery can save up to two-thirds of the emissions (Giuffrida et al., 2012; Van Duin et al., 2020).

### ***1.3. Research questions***

Although smart locker is proved to be a green and efficient option for the last-mile delivery system in many countries, the application of smart lockers in Vietnam is at the very initial step with the pilot of Lazada Express Vietnam and Ilogic in 2019. To the best of our knowledge, there is no research paper to investigate the implementation of smart locker in urban areas in Vietnam. Therefore, this paper aims to explore two main questions: (i) How has the solution “smart locker” been implemented in cities around the world and (ii) What is the potential (opportunities and challenges) to apply this sustainable solution in urban areas of Vietnam in general and Hanoi in particular.

## **2. Method**

This paper used both secondary and primary data to answer the research questions. Authors gathered the secondary data such as high-quality research papers and industry reports about city logistics, urban logistics, last-mile delivery, parcel locker/ smart locker/ smartbox solution. Primary data are sharing of managers of logistics service providers/ parcel logistics operators, collected through in-depth interviews in the year of 2020. There are four representatives for four logistics companies joined the interview, including Lazada Express Vietnam, VNPost, ViettelPost, and J&T Express. After collecting data, authors used the qualitative content analysis method to analyzed gathered data in a systematic approach in order to get insight into the research problem.

## **3. Results**

### ***3.1. Application of smart locker in cities around the world***

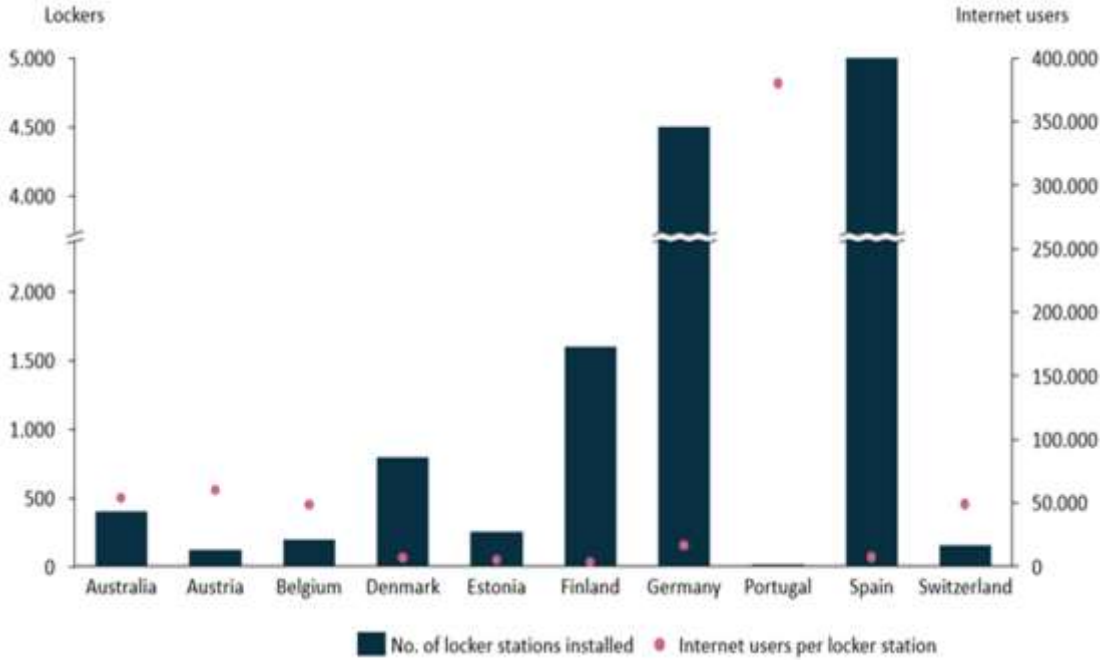
The report of Apex Insight (2019) stated that there are over 1.2 million smart lockers (parcel shop and locker location) and 254 networks in the world in 2019. These sustainable networks have effectively operated in Europe (especially in Germany, Netherlands, Poland, and France) for a long time, grow quickly in Asia, notably in China, and emerge in North America (Faugère & Montreuil, 2020). This solution is most prevalent in Finland (43%), Denmark (41%), and China (33%) (International Post Corporation, 2018).

According to Iwan et al., (2016), the smart locker is popular in the whole of Europe and operated by both national postal operators (NPO) and their competitors. In some countries, national postal service operators are the first firms furnishing smart lockers, for example, Deutsche Post (Germany), Austrian Post (Austria), PostNL (Netherlands).

Whereas, in Poland and Ireland, competitors of NPOs (InPost and Nightline, respectively) launched smart lockers earlier. Currently, there are 48 well-known logistics companies providing the smart locker service (Hive Box, InPost, and DHL Pakstation) and 13 trademarks manufacturing smart lockers (KEBA, TZ, and Zhilai...) (Apex Insight, 2019). Table 1 shows the brief info about the parcel/ smart locker operators/ networks in cities around the world.

**In Europe**

The Deutsche Post DHL’s Packstation locker was first introduced in Germany in 2003. Figure 1 shows an overview of parcel locker stations in Europe, national postal operators only, in 2020.



**Figure 1. Parcel locker stations overview, national postal operators only, 2020**

*Source: (International Post Corporation, 2020)*

Report of International Post Corporation (2020) indicated the following information about the solution parcel locker in Europe: (i) parcel lockers are the most popular in Estonia, Finland, Poland and Lithuania are the most popular; (ii) Posti (parcel locker operator in Finland) installed its 1000th parcel locker at Helsinki Central Railway Station by the end of 2018, the company planned to expand their network to 4000 Posti parcel lockers in Finland; (iii) Currently, over 4,500 parcel lockers of Deutsche Post DHL are operated across Germany (iv) the Belgian postal group and Dutch partner De Buren have combined and served more than 250 parcel locker terminals in Belgium and the Netherlands; (v) InPost and their partners have about 1200 fully automated parcel lockers in the UK; and (vi) Croatia planned to installed its first lockers by the end of 2020. In Vienna - capital of Austria, the Austrian Post company has launched fully automatic 24/7 Smart Lockers since November 2006 then

expand to other cities. Post & Parcel (2019) reported that InPost, a Polish company installed and deployed up to 1000 smart lockers service at Salzburg city (Austria), in 2019. According to a survey of Post & Parcel (2019), smart lockers save about 30% delivery costs and be rated as environmentally friendly; the speed of order completion in 24 hours is very fast, even reaching 98% of orders.

### **In the US**

Since 2011, Amazon had launched in the US to speed shipments and support one-day Prime shipping (Rubin, 2019). Currently, UPS, FedEx, Amazon-lockers have launched parcel lockers in almost states of the US (International Post Corporation, 2018). In 2019, Amazon had more than 2,800 lockers which were located across 70+ major metropolitan areas in the US (International Post Corporation, 2019)

### **In Australia**

In 2014, Australia Post started to launch a parcel locker system together with MyPost Deliveries. In May 2020, Australia Post and their partnership, InPost, had over 400 parcel locker stations (International Post Corporation, 2020).

### **In China**





China is the largest smart locker market, with more than half of the total quantity of smart lockers. Hivebox only, among other competitors, operates more than 150 thousand parcel lockers with 12 million boxes in communities/ business-buildings/ schools/ government-units, located in more than 100 cities, and delivers more than 9 million parcels per day (Dongxiao et al., 2019). Besides that, Cainiao network also planned to set up about 100 thousand self-pickup locker stations in China by mid-2021 (International Post Corporation, 2020).

### **In Japan**

Yamato Transport, Amazon Japan, Japan Post Holdings, Sagawa Express, and DHL Japan have launched thousands of parcel lockers in major cities in recent years. Yamato Transport, the No.1 delivery operator in Japan, has set up 4300 smart lockers in 2019 (Nikkei Asian Review, 2019) and used parcel locker for 20% parcel deliveries in 2016 (Norman, 2016).

### **In ASEAN**

In Thailand, WashBox24 has launched smart cabinets in 2013 and now has about 100 smart lockers in 2017 and planned to cooperate with Thai Post to increase the number of smart lockers to 3000 (PopBox Asia, 2017). InPost had launched the parcel locker solution in Malaysia since 2015, with 30 lockers in Klang Valley (Ecinsider.my, 2015). The Infocomm Media Development Authority (IMDA) launched the first successful trial in 2018 then worked with 18 companies to deploy 62 locker stations and delivery around 200000 parcels daily in Singapore (The Straits Times, 2020).

Operator	Name of smart locker solution	Market	Capabilities
Deutsche Post And DHL	Packstation  Source: <a href="https://www.logistik-watchblog.de/">https://www.logistik-watchblog.de/</a>	 Germany Finland Austria	“Deutsche Post DHL’s Packstation locker network in Germany is the oldest and most successful parcel locker network in the world. It is also the largest locker network in Europe” (Apex Insight, 2019). The Packstation service was first introduced in German in 2003 and now consists of 4.000 Packstations and 24.000 postal outlets or DHL parcel shops”, serves 12 million online shoppers (DHL, 2019)
SF Express Co., Ltd.	Hive box  Source: <a href="http://www.chinamoneynetwork.com">www.chinamoneynetwork.com</a>	 China	HiveBox, the largest smart locker network in promoting efficiency of the last-mile delivery system in China, operates more than 150.000 parcel lockers with 12.000.000 boxes in communities/ business-buildings/ schools/ government-units, located in more than 100 cities, and delivers more than 9.000.000 parcels per day (Dongxiao et al., 2019).
Amazon	Amazon-locker  Source: <a href="https://commons.wikimedia.org">commons.wikimedia.org</a>	 Multiple countries	Amazon is rapidly expanding its lockers location networks, as well as its parcel locker networks in the US, Europe, Japan, and India. Its locker network locations in the US and the UK have increased by 50% (Apex Insight, 2019). At present, Amazon has had nearly 10000 lockers in the US and about 300 lockers in the UK (Rubin, 2019)
InPost	Inpost  Source: <a href="http://www.saga.co.uk">www.saga.co.uk</a>	 Multiple countries	InPost has provided service and parcel lockers to operators in Poland, France, United Arab Emirates, Estonia, Lithuania, Latvia, Czech Republic, Slovakia, Slovenia, Iceland, Ireland, Colombia, Brazil, Austria (2006) Australia, Malaysia (2015), and the UK (Post & Parcel, 2019)

**Table 1. The typical smart locker operators in the world**

### 3.2. Application of smart locker in Vietnam

Realizing the enormous benefits of the smart locker, logistics operators in Vietnam has launched and/or planned to implement the smart locker solution in their last-mile delivery system. Parcel lockers are gradually implemented in big cities like Hanoi and Ho Chi Minh City. To help buyers at their e-commerce site be more convenient and proactive in the process of receiving goods and saving the cost of carrying goods to customers, Lazada has launched alternative solutions for home delivery such as "Collection point" and "iLogic SmartBox". The "iLogic Smartbox", a form of smart locker solution, has been launched in 2019 by Lazada Express Vietnam incorporating with iLogic joint-stock company. The iLogic company, which was established in 2017, has built a comprehensive solution with modern technology for sending and receiving flows, simplifying the process, shortening waiting time, thereby optimizing user experience and reducing costs for the entire delivery chain. Until May 2020, Lazada Express Vietnam is the first and the only one company that provides iLogic smart locker solution with 31 stations, mainly densely populated areas in 3 provinces: Hanoi, Ho Chi Minh City, and Hung Yen. The number is quite small when it is compared to other cities presented above. VNPost and ViettelPost also asserted that they have planned to implement smart lockers for their nation-wide last-mile delivery system.

### 3.3. Benefits and challenges to apply smart locker in urban areas in Vietnam

The following table summarizes benefits (advantages/ strengths) and challenges (threats) of the implementation of smart lockers in urban areas in Vietnam. That is the result of the content analysis of literature and expert interviews (managers in four logistics operators stated in section 2).

**Table 2. Benefits and challenges in implementing smart lockers in Vietnamese cities**

Strengths/ Benefits	Challenges/ Threats
<ul style="list-style-type: none"> <li>• Automated and Availability 24/7, increasing convenience and flexibility for customers</li> <li>• Reducing pressures on logistics operators about the distance of the transportation process, failed delivery times, and peak season.</li> <li>• Decrease cost and enhance competitive advantages</li> <li>• Improving the performance of logistics companies.</li> <li>• Enabling sustainable development by reducing air pollution, noise pollution, traffic congestion, and saving energy.</li> </ul>	<ul style="list-style-type: none"> <li>• Preferences of customers</li> <li>• Require unattended payment, while ship COD is the most popular payment mode in Vietnam</li> <li>• Installation and operation cost (low-labor cost markets)</li> <li>• Security issues</li> <li>• Large-size parcels</li> <li>• Worries about prohibited goods transportation</li> </ul>

### 3.3.1. Benefits

Smart lockers confer huge benefits to all stakeholders such as logistics operators, users (online sellers and buyers), society, and the environment (Yuen et al., 2019).

**Regarding the customer perspectives**, this solution provides the convenience, flexibility, lower delivery costs, and time involved in shopping activities (Zarei et al., 2020). As an interviewee stated, smart lockers enhance customer experience and cut down the probability that customers have to wait for transporter or operators at the normal collection point.

**Regarding the sustainability aspect to logistics operators**, the solution enables the sustainable development through fostering economic efficiency (the increase in the number of parcels and kilometers daily per one courier) and reducing socio-environmental impacts (the significant decrease in the number of transportation vehicles, number of delivery times, fuel consumption and CO<sub>2</sub> emission per parcel) (Bilik, 2014; Van Duin et al., 2020). According to the informant from Lazada Express Vietnam, the usage of smart locker also helps them to (i) eliminate operation mistakes and (ii) reduce pressures on about distance of transportation process, failed delivery times, and unclear home address. One more advantage of this solution is that it can solve the problem of high demand and lack of drivers/ shippers during peak season, i.e, Tet holidays, 8-3, 20-10, sale-off season (as stated by interviewed experts). **About returnability**, facilitating return purchased products through registered lockers is another strength of smart lockers for both consumers and online sellers. The implementation of smart lockers also fosters the competitive advantage for logistics operators and e-commerce businesses by showing their innovative thinking and customer orientation.

**Regarding community/ society perspectives**, the smart locker solution contributes to “bring 4.0 technologies into the normal human life” in Vietnam (as a saying of our interviewee). The problem of traffic congestion, noise, and air pollution will be eliminated, owing to the decrease in the number of vehicles, distance traveled, and delivery times. That helps to enhance the life quality of urban areas in Vietnam.

### 3.3.2. Challenges

Besides the above benefit, there are quite a few challenges to implement the solution.

**Customer preferences:** Findings from the research of Joerss et al., (2016) shows that, despite the variety of advantages of parcel lockers, customers still prefer home delivery if the case of delivery cost less than 3€. Therefore, the smart locker is only the alternative/ add-ins option not completely replace for home delivery mode, if not, logistics operators have to pay the “expense of losing potential customers who do not agree to travel for picking up the merchandise” (Ren et al., 2020). Our interviewed expert also stated that almost Vietnamese senders and receivers prefer to send and receive directly from couriers and/or check product before paying to ensure the authenticity and quality of products.

**The requirement of unattended payment:** Although the emergence of various online payment methods e-cash, e-checks, and e-wallets, in recent years, however, the use of cash-on-delivery (COD) has still increased (Halaweh, 2018). As asserted by all interviewed

experts, the majority of e-commerce transactions chose ship COD (Cash-On-Delivery) payment mode (due to the habit of using cash), which does not allow to use of unattended delivery mode as smart locker.

**Information infrastructure, installation cost, securities, and laws:** According to Lachapelle et al. (2018), there are increasing difficulties in finding suitable locations and partners. Currently, there are three typical models to implement/ install smart lockers: (i) Logistics operators build parcel lockers by themselves (like other countries, the national postal operators are the pioneers in applying smart lockers), (ii) A third-party company provides the service of Smart Lockers (Ilogic, Locker and Lock, ...), users have to pay for each time they use as delivery cost, and (iii) Smart lockers are set up by workplace or living buildings. The stable internet connection and securities are prerequisite requirements to choose locations to install smart lockers. As determined by our interviewee, the risk of losing goods/ parcels or hacking smart lockers is unavoidable, while the legal procedure to solve those problems is very complicated.

**Large-size parcel:** Another challenge is that there is a lack of large-size lockers (as stated by our two key informants). Normally, smart lockers are designed in the following typical sizes: XS (200x300x200 mm), S (400x300x200mm), M (400x600x200mm), L (800x600x200mm), and XL (800x600x400mm) (Harald et al., 2016).

**Prohibited goods:** Logistics operators also worry about the possibility that evildoers will take (unfair) advantages of smart lockers to deliver prohibited goods.

### **3.4. Implications for stakeholders of the Vietnamese urban last-mile delivery system**

In order to make to best and minimize threats of the smart lockers, authors propose the following suggestion for policymaker and stakeholders of the city logistics system: (i) promoting the unattended payment modes such as scanning QR codes, payment via Internet Banking or e-wallets... ; (ii) logistics operators can combine different models to set up and operate to (a) expand their distribution networks, (b) maximize the utility of smart lockers, and (c) increase accessibility to consumers then enhance willing to use this delivery mode; (iii) E-commerce and online stores need to be committed to product quality and offer incentives or support for buyers in return of goods, gradually bringing the trust to customers; (iv) "Installing a surveillance camera system, fingerprint module to improve the safety of mailers at the cabinet" (proposed by our informants); and (v) Our interviewees also have the idea of installing a cash collection system right at the electronic parcel lockers to serve customers who pay via the traditional cash payment, like a vending machine.

## **4. Discussion and Conclusion**

The boom of e-commerce and the growth of urbanization have made the demand for logistics activities, particularly delivery activities in urban areas, increase dramatically with the vast amount of goods that need to be delivered to the final consumers at the fastest speed. According to World Economic Forum (2020), demand for last-mile delivery in urban areas is forecasted to increase by 78% by 2030, resulting in 36% more delivery vehicles in about



100 cities around the world. Smart locker is proved to be a sustainable and cost-efficient solution for the last-mile delivery system (Van Duin et al., 2020). This paper took advantage of both desk research and empirical research to investigate the implementation on a global scale and the opportunities as well as the challenges to implement the smart locker solution to develop the last-mile delivery system in Vietnam, especially, in urban areas, towards sustainability. Our findings provided an overview of the application of smart lockers in cities in Europe, the US, Australia, South East Asia, and Vietnam. The opportunities and benefits of the smart locker from the perspectives of consumers, operators, and communities are clearly presented and discussed. We also analyzed the primary challenges (such as consumer preferences, payment methods, installing fee, law, size of parcel, and prohibited goods) and proposed suggestions to overcome these challenges. Future research can investigate (i) methods and/or model to choose the optimal quantity, locations, and sizes of parcel lockers facilities (ii) impact and intention of using smart lockers in Vietnamese e-commerce stakeholders, and (iii) countermeasures to deal with challenges arising when implementing this green solution.

### **Acknowledgement**

This research is funded by Hanoi University of Science and Technology (Grant number T-2018-PC-111).

### **5. References**

1. Agatz, N., Campbell, A. M., Fleischmann, M., & Savels, M. (2008). Challenges and opportunities in attended home delivery. In *The vehicle routing problem: Latest advances and new challenges* (pp. 379-396). Springer.
2. Allen, J., Piecyk, M., Piotrowska, M., McLeod, F., Cherrett, T., Ghali, K., Nguyen, T., Bektas, T., Bates, O., & Friday, A. (2018). Understanding the impact of e-commerce on last-mile light goods vehicle activity in urban areas: The case of London. *Transportation Research Part D: Transport and Environment*, 61, 325-338.
3. Apex Insight. (2019). *Global Parcel Shops and Locker Networks Market Insight 2019*. //apex-insight.com/product/global-parcel-shops-and-locker-networks-market-insight-report/
4. Assembly, L. (2017). *London Stalling: Reducing Traffic Congestion in London, London Assembly*.
5. Bilik, J. (2014). Parcel machines-green solution for green cities. *Presentation at 1st International Conference „Green Logistics for Greener Cities, Szczecin*.
6. DHL. (2019). *DPDHL Group Plans Significant Expansion of Its DHL Packstation Network to 7,000 Self-service Machines by 2021*. DHL. <https://www.dhl.com/global-en/home/press/press-archive/2019/dpdhl-group-plans-significant-expansion-of-its-dhl-packstation-network-to-7000-self-service-machines-by-2021.html>
7. Dolati Neghabadi, P., Evrard Samuel, K., & Espinouse, M.-L. (2019). Systematic literature review on city logistics: Overview, classification and analysis. *International Journal of Production Research*, 57(3), 865-887. <https://doi.org/10.1080/00207543.2018.1489153>

8. Dongxiao, J., Ming, H., Zhao, J., & Wuguo, M. (2019). A Dynamic Price Inference Approach HIVE BOX. *Proceedings of the 2019 3rd International Conference on Computer Science and Artificial Intelligence*, 338-342.
9. Ecinsider.my. (2015). *How parcel lockers can improve the delivery efficiency and boost your online business*. <https://www.ecinsider.my/2015/08/how-parcel-lockers-improve-delivery-efficiency.html>
10. Faugère, L., & Montreuil, B. (2020). Smart locker bank design optimization for urban omnichannel logistics: Assessing monolithic vs. modular configurations. *Computers & Industrial Engineering*, 139, 105544.
11. Giuffrida, M., Mangiaracina, R., & Tumino, A. (2012). Home Delivery vs Parcel Lockers: An economic and environmental assessment. *Proceedings of XXI Summer School "Francesco Turco"-Industrial Systems Engineering*, 225-230.
12. Halaweh, M. (2018). Cash on delivery (cod) as an alternative payment method for e-commerce transactions: Analysis and implications. *International Journal of Sociotechnology and Knowledge Development (IJSKD)*, 10(4), 1-12.
13. Harald, K., Graf, H., Hoertenhuber, S., Widmann, R., & Stadlmann, B. (2016). SmartBox-An Austrian PI solution leading to small loads mobility 4.0. *3rd International Physical Internconference*.
14. International Post Corporation. (2018). *Delivery choice—Parcel lockers*. International Post Corporation. <https://www.ipc.be/sector-data/e-commerce/articles/parcel-lockers>
15. International Post Corporation. (2019). *Delivery choice—Parcel lockers*. International Post Corporation. [https://www.ipc.be/services/markets-and-regulations/e-commerce-market-insights/e-commerce-articles/2019\\_parcel-lockers](https://www.ipc.be/services/markets-and-regulations/e-commerce-market-insights/e-commerce-articles/2019_parcel-lockers)
16. International Post Corporation. (2020). *Delivery choice—Parcel lockers*. International Post Corporation. <https://www.ipc.be/services/markets-and-regulations/e-commerce-market-insights/e-commerce-articles/2020-parcel-lockers>
17. Iwan, S., Kijewska, K., & Lemke, J. (2016). Analysis of parcel lockers' efficiency as the last mile delivery solution-the results of the research in Poland. *Transportation Research Procedia*, 12, 644-655.
18. Joerss, M., Schröder, J., Neuhaus, F., Klink, C., & Mann, F. (2016). Parcel delivery: The future of last mile. *McKinsey & Company*.
19. Lachapelle, U., Burke, M., Brotherton, A., & Leung, A. (2018). Parcel locker systems in a car dominant city: Location, characterisation and potential impacts on city planning and consumer travel access. *Journal of Transport Geography*, 71, 1-14. <https://doi.org/10.1016/j.jtrangeo.2018.06.022>
20. Lee, H. (2014). Urbanisation proceeding on unprecedented scale. *World Cities Summit, Marina Bay Sands, Singapore*.

21. Lemke, J., Iwan, S., & Korczak, J. (2016). Usability of the parcel lockers from the customer perspective-the research in Polish Cities. *Transportation Research Procedia*, *16*, 272-287.
22. Nikkei Asian Review. (2019). *Amazon lockers headed for Japanese retailers and train stations*. Nikkei Asian Review. <https://asia.nikkei.com/Business/Services/Amazon-lockers-headed-for-Japanese-retailers-and-train-stations2>
23. Norman, H. (2016, May 10). Neopost and Yamato Transport form parcel locker partnership. *Parcel and Postal Technology International*. <https://www.parcelandpostaltechnologyinternational.com/news/lockers-pudo/neopost-and-yamato-transport-form-parcel-locker-partnership.html>
24. Okholm, H. B., Thelle, M. H., Möller, A., Basalisco, B., & Rolmer, S. (2013). E-commerce and delivery. *A Study of the State of Play of EU Parcel Markets with Particular Emphasis on E-Commerce. Study for the European Commission, DG Internal Market and Services*.
25. PopBox Asia. (2017). *Southeast Asian electricity business to pay a trick*. <https://popbox.asia/article/20170725/parcel-locker-south-asia/95>
26. Post & Parcel. (2019). *InPost set to deliver 1,000 parcel lockers in Austria*. Post & Parcel. <https://postandparcel.info/107926/news/e-commerce/inpost-set-to-deliver-1000-parcel-lockers-in-austria/>
27. Ranieri, L., Digiesi, S., Silvestri, B., & Roccotelli, M. (2018). A review of last mile logistics innovations in an externalities cost reduction vision. *Sustainability*, *10*(3), 782.
28. Ren, S., Choi, T.-M., Lee, K.-M., & Lin, L. (2020). Intelligent service capacity allocation for cross-border-E-commerce related third-party-forwarding logistics operations: A deep learning approach. *Transportation Research Part E: Logistics and Transportation Review*, *134*, 101834.
29. Rubin, B. F. (2019). *Amazon wants to double its Locker program over the next year*. CNET. <https://www.cnet.com/news/amazon-wants-to-double-its-locker-program-over-the-next-year/>
30. Statista. (2020a). *Global retail e-commerce sales 2014-2023*. <https://www.statista.com/statistics/379046/worldwide-retail-e-commerce-sales/>
31. Statista. (2020b). *Last mile delivery: Average cost 2018*. Statista. <https://www.statista.com/statistics/973182/last-mile-delivery-average-cost/>
32. Taniguchi, E. (2014). Concepts of city logistics for sustainable and liveable cities. *Procedia-Social and Behavioral Sciences*, *151*, 310-317.
33. The Straits Times. (2020, March 4). *1,000 parcel locker stations to be rolled out nationwide by end-2022* [Text]. The Straits Times. <https://www.straitstimes.com/singapore/1000-parcel-locker-stations-to-be-rolled-out-nationwide-by-end-2022>

34. Van Duin, J. H. R., Wiegmans, B. W., van Arem, B., & van Amstel, Y. (2020). From home delivery to parcel lockers: A case study in Amsterdam. *Transportation Research Procedia*, 46, 37-44.
35. VECOM. (2019). *E-commerce Annual Report of Vietnam*.
36. Wang, Y., Zhang, D., Liu, Q., Shen, F., & Lee, L. H. (2016). Towards enhancing the last-mile delivery: An effective crowd-tasking model with scalable solutions. *Transportation Research Part E: Logistics and Transportation Review*, 93, 279-293.
37. World Economic Forum. (2020). *Online shopping is polluting the planet—But it's not too late*. World Economic Forum. <https://www.weforum.org/agenda/2020/01/carbon-emissions-online-shopping-solutions/>
38. Yuen, K. F., Wang, X., Ma, F., & Wong, Y. D. (2019). The determinants of customers' intention to use smart lockers for last-mile deliveries. *Journal of Retailing and Consumer Services*, 49, 316-326.
39. Zarei, M. M., Chaparro-Pelaez, J., & Agudo-Peregrina, Á. F. (2020). Identifying consumer's last-mile logistics beliefs in omni-channel environment. *Economic Research-Ekonomska Istraživanja*, 33(1), 1796-1812.
40. Zenezini, G., Lagorio, A., Pinto, R., De Marco, A., & Golini, R. (2018). The collection-and-delivery points implementation process from the courier, express and parcel operator's perspective. *IFAC-PapersOnLine*, 51(11), 594-599.
41. Zhang, S. Z., & Lee, C. K. M. (2016). Flexible vehicle scheduling for Urban Last Mile Logistics: The emerging technology of Shared Reception Box. *2016 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM)*, 1913-1917.

# ORIENTATIONS FOR BUILDING THE POTENTIAL OF SCIENCE AND TECHNOLOGY OF THE VIETNAMESE PEOPLE'S ARMY IN THE FOURTH INDUSTRIAL REVOLUTION PERIOD

*Dr. To Hien Tha*

*tohientha@gmail.com*

*M.A. Nguyen Trong Luat*

*tothak51@gmail.com*

*Le Quy Don Technical University, Hanoi, Vietnam*

## **Abstract**

*The Fourth Industrial Revolution has started and continued to affect every aspect of social life, opening up many opportunities but also posing many challenges in many areas. Because of its unique nature, the Military has always had an urgent need for the application of new scientific and technological achievements, the area where the fourth industrial revolution promises to bring many achievements. To grasp that inevitable trend, building scientific and technological potentials for Vietnam's defense needs to fundamentally change its quality and meeting the requirements of building an elite, formal, and step-by-step modern People's Army of Vietnam.*

**Keywords:** *Fourth Industrial Revolution, labor productivity, Science and Technology, Military, Vietnamese People's Army, defense potential, war, Internet of Things (IoT), big data, self-propelled vehicles, cyber combat.*

## **1. Introduction**

The 12th Party Congress affirmed, must continue "Consolidating national defense, maintaining national security, political stability, social order and safety are essential and regular tasks of the Party, the State and of both the political system and the entire population, of which the People's Army and the People's Police are the core. Strengthening defense and security potentials; to build the national defense posture and the people's security posture "[3, p.148].

In the cause of building and defending the homeland, national defense plays a core role in defending a country. Including domestic and international affairs of the Military, politics, economy, culture, the science of the State and people to defend the country, creating a full and balanced power, in which military power is characteristic, to keep the peace, repel and prevent the provoking action of the enemy in all forms and scales. National defense is the political and social activity, of which the armed forces are the core. National defense is not merely military activity but also the synergy of many factors; in particular, military power, military activities are characteristic of defense power; defense is not a separate activity of the armed forces, but rather the activity of the entire people and many fields and

is an essential task for the whole country, of which armed forces are the core. Our Party has identified that the future war is a high-tech war, accompanied by many advanced weapons with high accuracy, remote control, automation, reconnaissance vehicles, intelligent humanmade robots replacing soldiers to undertake many special missions, sophisticated cybersecurity warfare, various space and time of combat, difficult boundaries between the enemy and us. Therefore, building a strong defense potential is an urgent demand in this current period.

National defense potential is the capacity of human resources, material resources, finance, and spirit domestically and abroad that can be mobilized to perform defense tasks; is the existing or latent physical and mental capability of a nation that the State can mobilize to create military strength, with a view to protecting the country, maintaining peace, and preventing all threats and provoking action by hostile forces, ready to defeat the war of aggression on all scales possible. The defense potential is created by four main elements: political - mental potential, economic potential, scientific and technological potential, and military potential.

As one of the four main factors that create the defense potential, the science and technology potential is "the science and technology capability to solve the immediate and long-term tasks of society." The science and technology potential is the ability of the national science and technology to be mobilized for military and defense tasks, the ability to apply scientific and technological achievements into the field of Military and defense. The scientific and technological potential is composed of the following factors: the level of scientific and technological development (the level of research and application of science and technology to the preservation, repair, improvement, production, modernizing weapons and equipment; the ability to prevent high-tech weapons); facilities serving scientific and technological research activities (number of training and scientific research institutions; scientific and technological service organizations; finance for science and technology; scientific and technological infrastructure); quantity and quality of the science and technology workforce.

## **2. Method**

This paper uses an overall and comprehensive approach to collect and summarize the recent studies and reports which are related to this topic. All the data and figures are obtained based on the secondary data provided by some public organizations like the Vietnamese Ministry of Defence; the Central Party Committee of the military forces, etc.

## **3. Results**

The scientific-technological potential is shown most clearly in scientific accomplishments and the ability to apply those accomplishments in the fields of Military, defense, military science development, military art, military techniques, military science of the social and humanities. The potential of science and technology plays a huge role in national military power, which is the foundation and motivation for industrialization, modernization, is a crucial factor promoting economic growth, strengthening and fortifying

national defense. The scientific-technological potential has a positive impact on the development of military science, military art, the organizational structure of the armed forces, the commanding, and managing soldiers. At the same time, it accesses into other potentials, helps strengthen the relationship and interaction of those potentials, becoming a great motivation to promote development potentials, contributing to improving the efficiency of application of the potentials and the entire national military power.

Currently, the fourth industrial revolution is taking place on a global scale, affecting far-reaching fields, including Military and defense, especially building scientific-technological potential for national defense. Soon, when a high-tech war occurs, the computer will calculate the tactical intentions of the commander very quickly to devise the optimal attack plan for forces, vehicles, armaments; nanotechnology can make secret offensive weapons capable of all conditions; Artificial intelligence can create intelligent robot soldiers, always fighting tirelessly with extraordinary strength and endurance; cyber warfare can change the landscape of a battlefield. In the digital age, modern information systems, equipment, and weapons are gradually penetrating more in-depth into each field and combat environment of traditional war. The penetration of digital equipment enables each soldier on the battlefield to have a high level of synergies with the ability to recognize the situation of the battlefield in real-time, thereby aiding combat effectively. The match is markedly improved. We can see that the Industrial Revolution 4.0 has been affecting all elements of the Army's combat strength from people, weapons, technical equipment to the method of commanding, operating operations, from training to the organization to personnel of the Army. These are all essential elements that create defense potential, including the potential of science and technology.

The fourth industrial revolution created a breakthrough improvement in the development of weapons and technology and methods of waging war. The decisive factor that this revolution brings to Vietnam's defense is: *Creating favorable conditions for our country to study and develop military art and science*. We continue to study the theory of building secure provincial defense areas; organize battlefields according to new requirements, in each direction and each region, in association with investment in the construction of national defense and civil defense works. *Also, we can apply the achievements of the fourth industrial network to the preservation, repair, improvement, research, and mastering of weapons equipped with modern technology*, especially the Air Defence - Air Force and Navy, applying research results into practice for training, combat readiness, preservation, maintenance, repair, sealing, extension, modernization of weapons equipped with new generation technology; to conduct the research and manufacture of replacement specialized technical materials and components, technical assurance for weapons of new generation technical equipment. Focus on the areas of industrial supplies products in High-tech arts.

On the other hand, *the fourth industrial revolution creates conditions for our country to absorb advanced scientific and technological achievements in the world*. In the context of globalization and international integration, before the impact of the fourth industrial

revolution, our country has the opportunity to take advantage of foreign relations to expand international cooperation on military science technology, exploitation of foreign resources to accelerate the development of military science and technology potential. Renewing the management mechanism and operating mechanism of science - technology, and environment; Incorporate between research and application of research results to national defense production.

Another positive point is that *the fourth industrial revolution has produced favorable conditions for our country to build facilities and equip military science and technology activities*, creating conditions for proper maintenance and exploitation of existing research, testing facilities, synchronization, and appropriate improvements to meet immediate research requirements. Not only that, but international cooperation on defense also creates conditions for our country to attract capital for vital investment to build some specialized and high-tech laboratories in the fields of electronics and telecommunications, information technology, control engineering simulation, new materials, design automation, and technology for research and development of military engineering. Finally, *the fourth industrial revolution is an opportunity for Vietnam to develop military science and technology in human resources*. Participation in joint ventures and associates in science and technology activities with foreign partners gives Vietnamese scientists and technologists opportunities to access high-tech science and technology, thereby, step by step, narrow the gap in knowledge and research skills. Collaborative training programs for high-level science and technology human resources will contribute to improving the capacity and qualifications of existing scientific staff and developing a contingent of young scientists, military science, and technology development industry.

However, besides the favorable factors, the fourth industrial revolution also brings many challenges for building scientific and technological potential for Vietnam's defense. They are:

*Firstly*, with the rapid development of science and technology in the Fourth Industrial Revolution, a nation's military power can be measured by the number of advanced and modern weapons that have merit technology that the country's Military owns. Furthermore, the more advanced, modern weapons systems with high technology a nation's Army owns, the higher the ability to protect the country against enemies who want to infringe upon the territory and sovereignty of that country is. That inevitably led to a race to modernize the Military's weapons, equipment, and technical equipment among the militaries of nations around the world in order to improve their protection capabilities, and Vietnam cannot stand out from that trend. However, to be able to purchase modern weapons or modern technology lines applied to the manufacture, production, and improvement of weapons, we will have to spend some money. It is tremendous while the state budget is limited and still has to invest a lot in socio-economic development or upgrading the infrastructure system. That is not to mention, in the process of technology transfer for application in the manufacture and improvement of weapons, we are at risk of being dependent on the developed countries as mentioned above. This is also a big challenge that the Industrial Revolution



4.0 is posing towards the goal of building defense potential in general and science - technology potential in particular.

*Secondly*, our country's scientific and technological products are fiercely competed by scientific and technological products from advanced countries in the world. Although Vietnam's scientific and technological products have been improved and renovated, most of them still use old and outdated technologies. Technology innovation, compared to the common ground, is still slow. In the context of a challenging economy, limited investment in research and technology exchange makes science-technology products still lag behind the world, reducing competitiveness in this field. In the context of the fourth industrial revolution, the competition will become more intense and more fierce, causing obstacles for mobilizing scientific and technological resources for defense tasks. Besides, businesses often considering the interests of their businesses superior is detrimental to the interests of the nation and the nation, especially to the defense benefits of the country.

*Thirdly*, there are still many drawbacks of scientific and technological capacities that make it difficult to access the fourth industrial revolution. Social investment in science and technology is still meager, mainly investment capital from the state budget and domestic enterprises, investment from the foreign-invested enterprises' sector is still low. The facilities of research institutes and universities, in general, lack of asynchronicity and are outdated compared to other advanced production facilities in the same industry. The system of science and technology services (information, technology transfer consultancy, intellectual property, quality measurement standards) is still weak in terms of facilities and service delivery capacity to meet the requirements of regional and international integration. This directly affects the ability to build scientific and technological potentials for the entire national defense.

*Fourthly*, the management mechanism of science and technology is renovating slowly, still heavily administrative, which hinders access to the positive aspects of the fourth industrial revolution. Management of scientific and technological activities has not paid enough attention to managing the quality of output products and applying research results into practice. Scientific and technological tasks are not closely linked to the socio-economic development needs associated with national defense and security tasks. There is no mechanism to encourage research and application of dual-use products, serving a variety of requirements from time to time. The management mechanism is not flexible in exploiting the dual benefits that the fourth industrial revolution brings to the goals of socio-economic development as well as strengthening national defense and security.

*Fifthly*, the quality of human resources is still low, making it difficult for the scientific and technological research and application process before the impact of the fourth industrial revolution. In order to effectively absorb the achievements of the fourth industrial revolution, it is necessary to have a team of qualified science and technology personnel. However, at present, the number of science and technology human resources in our country is still tiny in quantity, quality is limited and uneven between fields and localities. Although

the human resource of science and technology in the defense industry in our country has increased in number, there is still a shortage of competent engineers, leading experts and no general engineers in the field of hi-tech weapons. This makes the building of scientific and technological potentials for defense tasks inconsistent and systematic. In particular, the mastery of weapons and equipment is currently limited to several prioritized military units of modernization, with significant disparities in qualification among the technical officers and officers in each unit.

#### **4. Discussion and Conclusion**

Facing the requirement to build the Army, consolidate national defense and defend the Fatherland in the context of the fourth industrial revolution, the content of building defense science and technology potentials needs to be carried out in the following fundamental directions:

*Firstly, strengthening the development of military science and technology human resources to adapt to the fourth industrial revolution.* Vigorously renovate modes of training and fostering military science and technology human resources. Formulate a strategy for developing Vietnamese military science and technology human resources, combining various types of training, including self-training, joint training, and sending personnel to overseas training. In those training processes, it is necessary to attach importance to training scientific and technological personnel with high qualifications, first mainly to meet the requirements of technology transfer, but in the long run, must be directed to self-research, manufacture, and production. To step by step approach and apply the training techniques from excellent schools in the world into the training process at institutions and schools in the Army.

Military science and technology training establishments shall enhance international cooperation activities, step by step, raising the capacity of teaching and scientific research to the contingent of lecturers and scientists. There are plans to develop military science and technology training facilities into science and technology centers, simultaneously carrying out training, scientific research, and production activities. Complete processes, programs, content, and facilities for the training of scientific and technical staff in the direction of designing and manufacturing in the country to reach the regional and world level. Focus on building and developing a laboratory system at in-depth military science and technology training establishments, forming two laboratory systems: laboratories for training and laboratories for scientific research, always closely linked to production facilities. Diversifying types of training and training methods in international cooperation, strengthening short-term training, and retraining forms such as internships, trainees in many ways such as sending package training, joint training, training under advanced programs. Strengthen links with foreign universities and research institutes, establish centers of military science and technology training and research centers, or cooperate with universities and research institutes, both domestic and foreign, in training, researching, and exploit foreign aid sources for training and research.

Build high-quality human resources, especially leading cadres designing and manufacturing weapons and equipment for military technology and a team of experts in military science and technology. The emergence of new professions and new technologies requires our country to intensify training, new training and retraining for experts and technical staff. The process of training and retraining should pay attention to raising professional and foreign language skills for military science and technology officials.

*Secondly, build a system of modern military-technical material facilities in the context of the fourth industrial revolution.* In the context of the fourth industrial revolution, military science and technology facilities need to soon invest capital and technology in modernizing infrastructure such as laboratory systems, workshops, test areas, testing workshop synchronously. Continue to invest in a laboratory system with modern machines and equipment, especially with many spearhead and high-tech laboratories. Concentrate investment on developing several research institutions according to advanced models of the region and the world, forming modern research centers in priority areas. Strengthen international cooperation in the construction of facilities for scientific research.

Invest in research and application of modern technologies and upgrade existing weapons and military equipment. Researching and applying new technologies to improve and develop technical combat features for existing weapons and newly purchased weapons and equipment is a measure of great military defense significance.

Improve the ability to produce military-technical weapons at current military science and technology facilities. In addition to purchasing high-tech weapons from abroad, our country needs to have a plan to produce primary weapons, ensure training and combat readiness, and be able to export to several countries in the world arms market. In the course of implementation, we must pay attention to the optimization in the scale of mass production technologies, the development of small or medium-sized production modules, and the advanced technological level. Military science and technology facilities need to have quick and flexible access to the selection of new weapons models for production, with particular attention to the issue of dealing with the high technology weapons of the enemy in the war. We need to change the priority to create new weapons that are easy to distribute, hide, move, and protect.

*Third, strengthen the State's management role in the development of military science and technology in the context of the fourth industrial revolution.* Innovate the management of science and technology in order to improve the efficiency of scientific research activities in military science and technology facilities. In which, focus on reviewing and reorganizing research centers in the whole Army in the direction of focusing on building models of large specialized research centers; research to consolidate or integrate many military scientific and technological research institutes and centers; expand the research fields of high duality in civil science and technology research establishments.

Promote investment to consolidate, modernize and improve the quality and performance of existing scientific research facilities; to jointly combine research in service

of defense needs with research in service of people's needs to maximize the capacity of research institutes and maintain research capacity; renovate organizational structure and management in research institutes. It is necessary to raise science and technology funds for research institutions. Strengthen facilities for management at research centers and laboratory facilities, production facilities. Closely link research institutes with production facilities.

*Fourthly, promote international cooperation in science and technology in the context of the fourth industrial revolution.* Diversify partners, expand relationships with many countries, companies, companies, many levels, and many directions of technology development. Promote cooperation with strategic partners in the field of science and technology with a focus on bilateral scientific and technological research cooperation. Enhancing the implementation of foreign technology search, decoding and transfer programs to Vietnam with the motto of diversifying technology transfer subjects; diversify technology transfer flows such as through the flow of experts, through the path of foreign direct investment, lending or foreign funding; diversify types of technology transfer; diversify contents and methods of technology transfer; improve access to technology transfer. Pilot research models of modern science and technology centers linking with foreign countries.

## **5. References**

1. *Vietnam Military Encyclopedia*, People's Army Publishing House, Hanoi, 2004.
2. National Assembly of the Socialist Republic of Vietnam, *National Defense Law*, No. 22/2018 / QH14, June 8, 2018.
3. Vietnam Communist Party, *Document of the 12th National Congress*, National Political Publishing House - Truth, Hanoi, 2016.

# OUTWARD FOREIGN DIRECT INVESTMENT IN THE CONTEXT OF DIGITAL TRANSFORMATION: THE CASE OF VIETNAM

*MSc. Nguyen Nhat Linh*

*nhatlinhkss@gmail.com*

*Dr. Phung Thanh Quang*

*pt\_quang@neu.edu.vn*

*Nguyen Thi Thao Nguyen*

*nguyen1151999@gmail.com*

*School of Banking and Finance, National Economics University, Hanoi, Vietnam*

## **Abstract**

*Over the past three decades, Vietnam's outward foreign direct investment activities have experienced massive changes. While Vietnamese entrepreneurs during the period of 2006-2010 mostly focused on "place-hold investment" strategy, they gradually shifted to the "slow but sure" strategy in recent years. OFDI firms also gradually shifted from vertical to horizontal investment, towards transferring human resources professionals and high technologies. This paper points out the new characteristics of Vietnam's OFDI in the context of integration such as diversifying investment areas rather than focusing on key markets, including Laos, Cambodia, Myanmar; shifting the capital structure from heavy industry, hydroelectricity to high tech agriculture and telecommunication. Therefore, on the basis of digital transformation context, the authors have suggested some solutions for the Vietnamese government and enterprises with the purpose of boosting the OFDI capital flows.*

**Keywords:** *outward foreign direct investment, foreign direct investment, digital economy, digital transformation*

## **1. Introduction**

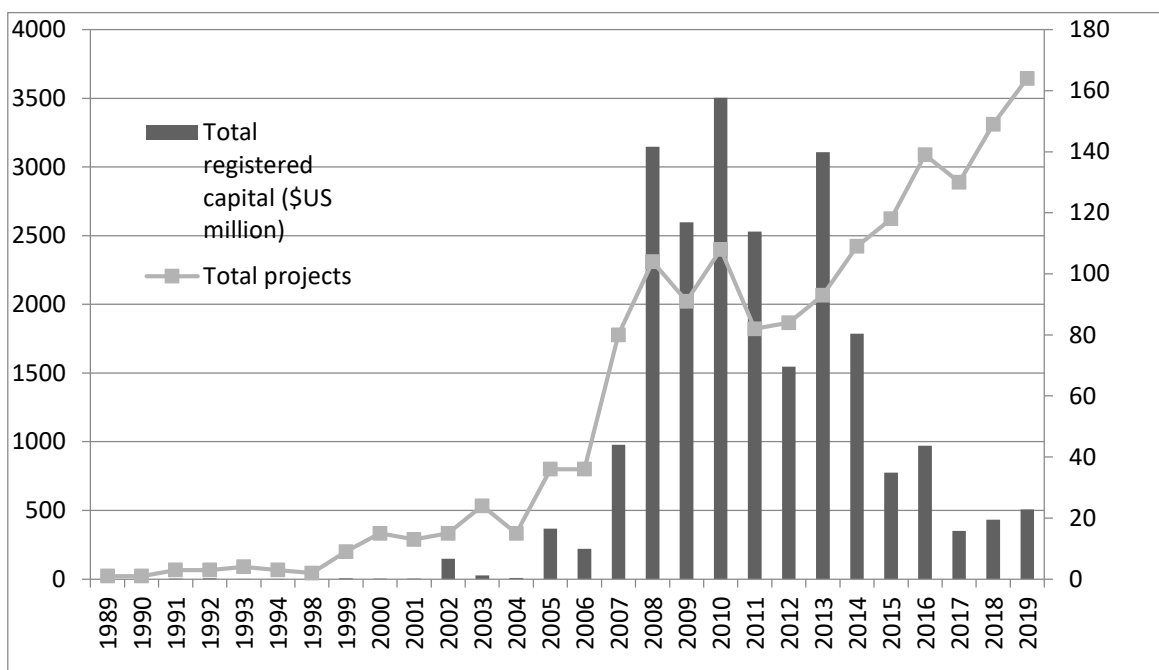
In the context of integration, in addition to attracting FDI into the country, Vietnamese enterprises also show interests in outward foreign direct investment activities. Moreover, with the advent of several free trade agreements, particularly CPTPP, EVFTA, and in-depth blending in with ASEAN economic community AEC, Vietnamese investors have had more opportunities to take full advantages of motivating FDI outflows. In 2019, the total value of announced and increased projects reached \$ USD 508.14 million, with the Vietnamese's investment capital of \$USD 403,15 million. Vietnam's OFDI in 2019 increased dramatically compared with the figures of 2018 and 2017, by 17% and 41% respectively. However, registered OFDI in 2019 was seen far less than the period of 2010-2016. The registered OFDI in 2019 was only equivalent to 52.3% of the registered capital in 2016 and 14.5% compared to 2010. This paper aims to evaluate the current situation of Vietnam's OFDI and suggests policies to promote FDI outflows in the context of digital transformation.

## 2. Overview about Vietnam's outward foreign direct investment

According to General Statistics Office of Vietnam, over 30-year span, Vietnamese enterprises have invested oversea 1336 projects with a total registered investment capital of over \$USD 20.77 billion. The average project size is \$USD 15.55 million. Hence, Vietnam's OFDI can be divided into four particular stages:

**Figure 1. Vietnam's outward foreign direct investment from 1989 to 2019**

*(Capital of Vietnamese investors only)*



*Source: General Statistics Office of Vietnam*

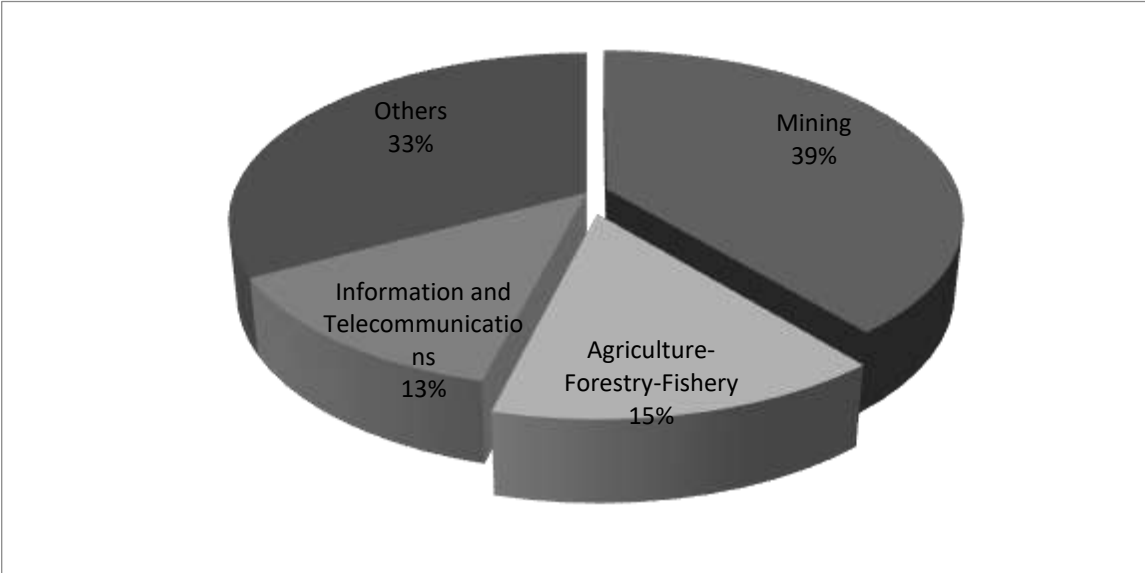
In the period of 1989-1998, 17 projects were licensed with the total registered capital of \$USD 13.6 million, in which the average capital size was \$USD 0.8 million. This stage of investment was considered as a pilot stage, contributing a moderate amount of quality and quantity. Outward investment projects in gross were fragmented and spontaneous, mainly implemented by state-owned enterprises. Most of the capital flows were invested in educational and medical construction which focused primarily on Laos and Cambodia due to Governments' agreements.

The period 1999-2005 marked significant changes in Vietnamese outward foreign direct investment flow owing to the effectiveness of the 22/1999/ NĐ-CP decree regulating OFDI activities. Vietnam's OFDI soared, in both projects and registered capital during this period. The total value of 127 announced projects was \$USD 567.7 million, making an increase of 7.5 times in the number of projects and 41.7 times in the registered investment capital compared with the previous period. The average capital size reached \$USD 4.47 million. Processing & Manufacturing industries, mining and agriculture & forestry sectors attracted a majority amount of capital during the period.

The period 2006-2010 witnessed the “explosion” of Vietnamese enterprises in the scale of capital and the number of projects thanks to the promulgation of 78/2006/NĐ-CP decree regulating the outward foreign direct investment. Over a five-year period, Vietnam created 419 OFDI projects with 10.447 billion USD total registered capital. The average capital per project was 24.93 million USD. Notably, there were 11 large-scale projects with total registered capital of over \$USD100 million such as cooperation project in telecommunications and transport in Mozambique with the value of project reached \$USD 493.79 million; Xekaman 1 and Xekaman 3 Hydropower Projects in Laos with the total investment capital of \$USD 273.1 and \$USD 441 million respectively. In particular, the Long Thanh-Vientiane Special Economic Zone project was Vietnam's largest OFDI during this period with a total registered investment capital up to \$USD 1 billion.

**Figure 2. Vietnam’s OFDI by kinds of economic activities**

*(Accumulation of projects having effect as of 31/12/2019)*



*Source: Foreign Investment Agency, Ministry of Planning and Investment*

The period 2011-2019 was recorded as a downturn time which experienced various unstable changes in the activities of Vietnamese enterprises. During this period, the number of projects increased; however, the registered capital decreased rapidly. In particular, the registered OFDI reached its peak in 2013, stood at \$USD 3.1 billion with 93 projects; but then experienced a dramatic decline in 2017, to \$USD 350.1 million with 130 projects. In 2018, Ministry of Planning and Investment enacted Circular No. 03/2018/TT-BKHDT, guiding and promulgating forms used in outward investment, has made positive impact on FDI outflows, since the total of registered capital experienced a marginal increase but still, in negligible figures. It is remarkable that in this 9-year period, 271 projects had been revoked licenses and shut down ahead of schedule with 2.23 billion USD total registered investment capital. As can be seen from fact, after the “explosion” period from 2006 to 2010 with the characteristic of “reserved investment”, investors were more cautious in the period 2011-2019 and paid more attention to investment quality with the perspective of “slow but sure”.

Regarding to OFDI by sectors, it is obvious that industrial sector contributed the largest proportion of capital flows, comprised for 52.3% of total registered OFDI, equivalent to \$USD 10.6 billion, mainly in mining with 60 projects and the total value of \$USD 7.9 billion. In the industrial sector, large-scale projects focused substantially on oil and gas exploration and exploitation, namely a joint-venture between PVEP and Perenco Peru Limited Company in oil extraction with a total registered capital of \$USD 1.7 billion, of which capital from Vietnam investors were \$USD 504.5 million; PVEP's investment project to develop, exploit oil and gas at the Junin 2-Venezuela block in Venezuela, with a total registered capital of 12.4 billion USD, in which 1.8 billion USD was contributed by PVEP. In addition to oil and gas, hydropower field also attract high capital quantity from Vietnamese investors. As calculated until the end of 2019, Vietnam has deployed 9 foreign hydropower projects with 1,4 million USD registered capital in Laos and Cambodia, which accounts for 14% total registered capital in industry and 7.3% OFDI capital quantity of Vietnamese enterprises. In which, The Hydro Power Lower Sesan 2 project is the biggest one with total registered capital of \$ USD 806.4 million, accounted for 54.2% of the total OFDI in electricity. Notably, although accounting for the largest proportion of accumulated investment capital, OFDI in industrial sector have been declining sharply in recent years, as registered capital has gradually shifted to agriculture and forestry.

Regarding to agricultural sector, this field is the undeniable advantage of Vietnamese enterprises. Therefore, OFDI activities in agriculture are increasingly intensified in both size and number of registered projects. As accumulated until the end of 2019, total investment capital in agriculture was 3,1 million USD, accounting for 14.92% of total registered OFDI. Most of projects in agriculture were invested in Laos and Cambodia markets. In addition to large-scale strategies in rubber and coffee industry, Vietnamese enterprises gradually take interest in other crops such as sugarcane, corn and begin laying the groundwork for breeding cows with modern technology. Several projects have been put in operation including: Vietnam Rubber Group with the idea to set up respectively 26,000 (378 million USD) and 90,000 ha (315 million USD) in Laos and Cambodia; Hoang Anh Gia Lai with the rubber field of 27,200 ha in Laos and 13,800 ha in Cambodia. Moreover, some other large-scale projects about industrial crops of big companies are moderately recognizable such as: An Dong Mia Joint Stock Company (JSC) with 80.4 million USD; Tay Ninh Rubber JSC (64.7 million USD); Dau Tieng Kratie JSC (63.8 million USD) and Tan Bien - Kampongthom JSC (61.98 million USD). In general, those projects are positively evaluated by Laos and Cambodia governments with some certain impacts as follow: maintaining high economic efficiency, creating stable income for local force, improving infrastructure and promoting economic growth as well as social security. It is noticeable that in recent years, OFDI flows to agriculture sector have grown dramatically, aiming to large-scale projects with high-tech agricultural applications. Big corporations such as Vinamilk, Hoa Phat or TH are altogether boosting investment overseas to utilize the efficiency of hi-tech in agriculture. In 2018, Vietnam's private TH Group has commenced the construction of its \$USD 2.7 billion dairy farm and milk processing mega-complex in the Borovsk Special Industrial Economic Zone



in the Kaluga region of Russia, turning the page for Vietnam's outbound investments. The project stands out for its high technology in managing the herd in which the cows are being equipped with electronic chips in order to control nutrition, health, etc. Therefore, all information about the life of the animal is transmitted directly to the server and also updated constantly. The special feature of this chip is the ability to detect warnings of serious diseases so that the milk flows from cows are always under controlled and closely monitored. Besides, a TH herd of cows are applied advanced embryo transfer and fertilization technology, which helps create prominent steps in increasing productivity, thereby increasing business efficiency for enterprises.

In services, the proportion of this sector was the highest in term of the quantity of registered projects, accounting for 67.6% of OFDI projects, with 837 registered ones. In which, information and telecommunication can be considered as a spotlight in the overall picture of Vietnam's OFDI. Remarkably, Viettel Group has been one of the most successful enterprises in going global strategy. By the end of 2019, Viettel has been in Top 15 largest telecommunications enterprises in the world in terms of subscribers, Top 30 largest telecommunications enterprises in the world in terms of digital infrastructure. Viettel currently has presence in 10 countries from three particular continents, focusing on mobile telecommunications services, especially brand-new products such as 4G, 5G, e-wallets, and large information technology projects serving corporates and governments. Viettel also has expertise on Hi-tech research and manufacturing, Postal Services, Construction, Commerce, Importing and Exporting, IDC etc. Some successful projects of Viettel in international markets recently are the East Timor's national network connection project; population management project in Laos; transmission channels for the Ministry of the Interior and the Ministry of Science and Technology in Mozambique; tax payment system for Burundi Tax Department; telecommunication network project in the Republic of Peru, etc. By the end of 2018, Viettel had a total revenue of more than VND234 trillion, accounting for 60% of the entire telecommunications industry in Vietnam; total consolidated profit reached VND37.6 trillion, accounting for over 70% of the whole Information & Communications industry.

### **3. Evaluation of Vietnam's outward foreign direct investment**

After a journey of 30 years implementing OFDI, Vietnam's economy in the general and Vietnamese enterprises in particular have achieved a number of encouraging results at both macro-level and corporate-level. It is obvious that over a thirty-year period, after experiencing lots of fluctuations, OFDI flows have shown a clearly significant recovery from 2017 to the present.

At a micro-level, OFDI activities have made a fundamental contribution to support international and regional economic integration of Vietnam. OFDI activities also effectively promote Vietnam's comparative advantages in agriculture and telecommunications sectors. Thereby, it helps strengthening the position of Vietnamese enterprises in the global markets and increasing revenues for state budget. For example, in 2019, business revenues of FPT Group in overseas markets rose by 26%, to VND 11452 billion, accounting for 41% of the

group's total revenue, especially from technology sector which increased by 28.5%, to VND 10848 billion. EBIT (Earnings Before Interest and Tax) from international markets rose by 27%, to nearly VND1900 billion, accounting for 41% of FPT group's total profit. In addition, OFDI from Information and Communication sector also witnessed a variety of bright spots in Viettel Global. In 2019, Viettel Global's revenue reached VND 17047 billion, with the rise of 10.6% compared to the figure of 2018 and EBIT reached VND2154 billion, the highest level in the past 5 years. Notably, 8 out of 10 markets invested by Viettel Global had shown exceptional double-digit growth in 2019 and the Southeast Asian markets in particular marked the highest amount of revenue, at VND12,000 billion, rose by 24.6% compared to 2018 and EBIT reached VND3780 billion. In 2019, Viettel Global contributed a record of VND792 billion to the State budget.

At a corporate-level, OFDI has played a crucial role in assisting enterprises on expanding markets; thereby enhancing competitiveness and the efficient use of capital. In terms of market share, Viettel is the biggest provider regarding to telecommunications services and digital infrastructure in 5 countries namely Cambodia, Mozambique, Haiti, Burundi và Timo-Leste. Additionally, Viettel also leads in network infrastructure as well as services and creativity, contributing to the transformation of telecommunications industry and the development of socio-economic in host countries. Besides Viettel, many large corporations such as FPT, TH, and Vinamilk have also succeeded in transferring OFDI flows effectively, making a great contribution to enhancing labor productivity, promoting business brand and national brand of Vietnam globally.

However, OFDI activities have also shown some drawbacks. One concern about OFDI is that a large number of enterprises had run businesses ineffectively, leading to prolonged losses, especially state-owned enterprises (SoEs). Accumulated to the end of 2018, there were 114 licensed projects implemented by 19 SOEs and only 84 projects generated revenues and profits. The total profits of these projects fell tremendously by 265% to \$USD 187 million, compared to 2017. Meanwhile, the total losses incurred rose by 265% to \$USD 367 million. In addition, in 2018, revenue and profit growth rate in many sectors had experienced a sharp decrease, especially in mining (declined to 27%) and oil fuel (fell by 23%) compared to the figures of 2017. Moreover, the average project size was small and is continuing its downward trend in recent years. Therefore, to enhance competitiveness, raising capital of OFDI projects is a top priority. However, currently, the number of projects has showed an upward trend but the registered capital has dropped sharply after reaching the peak in 2010, leading to fall in the average capital size of each project. Moreover, the rate of disbursed capital was still low, reaching less than 60% in the period of 2011 - 2019, resulting in the moderate amount of implemented capital invested in projects. Therefore, with small-scale FDI outflows, it will be difficult for Vietnamese enterprises to cope with high-tech investment and oversea markets domination. In addition, OFDI from Vietnamese enterprises are primarily implemented in the form of vertical investment (accounting for approximately 60% of the total projects), mainly in mining and raw product manufacturing with small added value either in re-exporting in Vietnam or exporting to a third country. Nowadays, nearly all

countries have encouraged the horizontal investment when attracting OFDI flows, associating with transferring high-technology and human resource professionals. This fact puts a strain on Vietnamese enterprises to switch strategies to meet the requirements of the host countries.

#### **4. Discussion and Conclusion**

##### ***4.1. Policy implications***

Despite the marginal growth in the last three years, OFDI from Vietnam in general contains a number of drawbacks in terms of small capital size, low disbursement rate and lack of capital efficiency etc. Therefore, to boost the FDI outflows, the authors have suggested some policy implications for both enterprises and the government, including:

For enterprises, Vietnamese investors themselves need to be more proactive in updating guidelines and policies from Vietnam and host countries' governments related to OFDI. In addition, Vietnamese enterprises need to actively improve their competitiveness, especially in term of capital adequacy and technology. In the context of the fourth industrial revolution, technology has become an essential factor attributing to the success of investment overseas. It is clear that enterprises' operation has been transformed significantly along with the rapid growth of digital economics transformation. Big groups such as FPT, Viettel, Vinamilk ... are typical examples in applying high technology, innovative production lines when going global. Enterprises also should participate largely in investment promotion activities, motivate to seek for new potential markets and utilize opportunities from trade agreements with countries throughout the world, namely CPTPP, EVFTA etc. Besides, it is crucial to strengthen the connection between enterprises themselves and connection with Vietnamese representative agencies in host countries. It plays a critical role in solving matter arises, resulting in efficiency of the FDI flows.

For the Vietnamese government, the authorities should promulgate policies to encourage investment in science, technology and education and training. These are two key areas of the Industrial Revolution 4.0, which play a fundamental role in the success or failure of enterprises when implementing OFDI. The government should further encourage the establishment or development of elite universities or research institutes, focusing on training high-quality and international-qualified human resources such as VinUni, FPT University, and Ton Duc Thang University. In addition, the Government should continue to promulgate policies to encourage investment abroad, simplify administrative procedures, synchronously convert to a "post-checking" mechanism to increase the activeness of enterprises. In addition, the Government should have policies to encourage high technology transfer for domestic FDI enterprises (the spillover effect of FDI), thereby contributing to improve the competitiveness of the Vietnamese business community, and promoting OFDI activities. Moreover, the government needs to continue increasing foreign exchange reserves, reducing trade deficits in order to improve capital adequacy to carry out OFDI activities.

## **4.2. Conclusions**

After more than 30 years implementing OFDI activities, Vietnamese enterprises have gradually grown up and many businesses have achieved remarkable results when going global. After the pilot investment phase and "reserved investment", the OFDI activities since 2011 has shifted to the restructuring stage, towards high quality investment projects, in the direction of "slow but sure". OFDI activities have been carried out in a variety of markets, not only focusing on traditional markets such as Laos, Cambodia and Myanmar but gradually shifting to large markets such as Australia, Japan, and Spain. Investment structure also has positive changes, gradually shifting from the field of mining industry, hydropower with low added value to sectors with higher added value such as telecommunications, agriculture with high technology associated with horizontal OFDI. In the context of the digital transformation of the economy, the government should have further policies to encourage OFDI activities, especially policies on education and training as well as science and technology. The government also should have more policies to encourage the initiative and actively seek outward investment opportunities of the business community, especially the non-state enterprises.

## **5. References**

1. Foreign Investment Agency - Ministry of Planning and Investment, Report on foreign direct investment in 2018
2. Foreign Investment Agency - Ministry of Planning and Investment, Report on foreign direct investment situation in 2019
3. Nguyen Xuan Dung, Vietnam's Offshore Investment: Problems and Solutions, Economic Research No. 385 - June 2010
4. Nguyen Thi Cam Nhung, *Đầu tư của Việt Nam ra nước ngoài và một số khuyến nghị*, Journal of Finance, June 1, 2019
5. Viettel International Investment Corporation, Consolidated Financial Statements Quarter 4/2019
6. UNCTAD, World Investment Report 2019
7. World Economic Forum, Global Competiveness Report 2019

# ORIENTED DEVELOPMENT FOR ECONOMICS FROM THE SIMILARITIES BETWEEN ECONOMICS AND DATA SCIENTIFIC

*Assoc. Prof. Dr. Pham Van Minh*

*minhvp@neu.edu.vn*

*Faculty of Economics, National Economics University, Vietnam.*

## **Abstract**

*Researched field about database appeared as both component and consequence of the 4.0 revolution. Data Science is built to collect and analyze data which bring useful information to the development of modern social. This article introduces the basic concepts of Data Science, the methods were used and the develop future of this field. Moreover, the paper also shows the similarities between Data Science and Economics Science and gives some directional suggestions for the development of Economics Science at the request of the new era.*

**Key words:** *data science; economics; directional development; similarities; 4.0 revolution.*

## **1. Introduction**

Today, a large number of data was generated which plays a very important role in operating, applying and storing information for user. It is the foundation and important basis for making decisions in our life. Therefore, a team of data analysts appeared such as Google, Facebook, Yahoo, etc. These activities are closely related to Data Science. Data science is spreading its influence and has significant meaning in modern society. It also shows the similarities between Data Scientific and Economics Science - one of the oriented bases for development Economics.

## **2. Method**

This article uses a combination of methods: document research - practical study of Data Science and Economics; inductive - interpretation; specific - except for statues; collate - compare; etc. From there, we can find out the similarities between Data Science and Economics Science and their movement trends.

The research process is shown by the below model

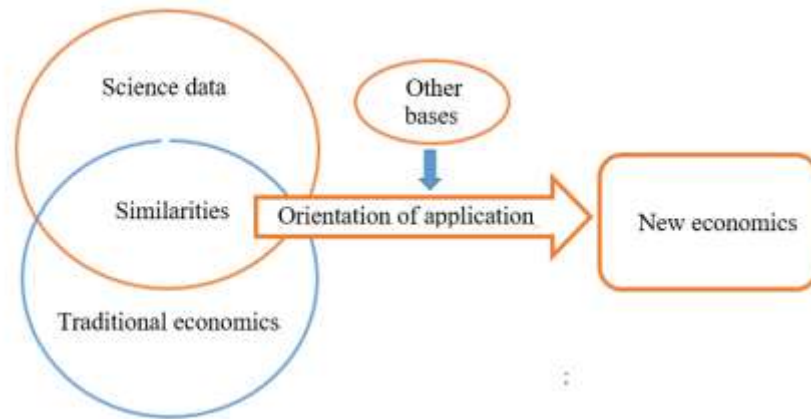


Figure 1. Research models<sup>1</sup>

### 3. Results

#### 3.1. Data Science - Theory and Practice

Data science is still a new concept which really only appeared in the early decades of XXI century.

##### 3.1.1. Some basic concepts

Currently, there are still many opinions about Data Science. Vietnam Journal of Science would like to introduce a comprehensive picture of the field of data science in Vietnam and the world<sup>2</sup>.

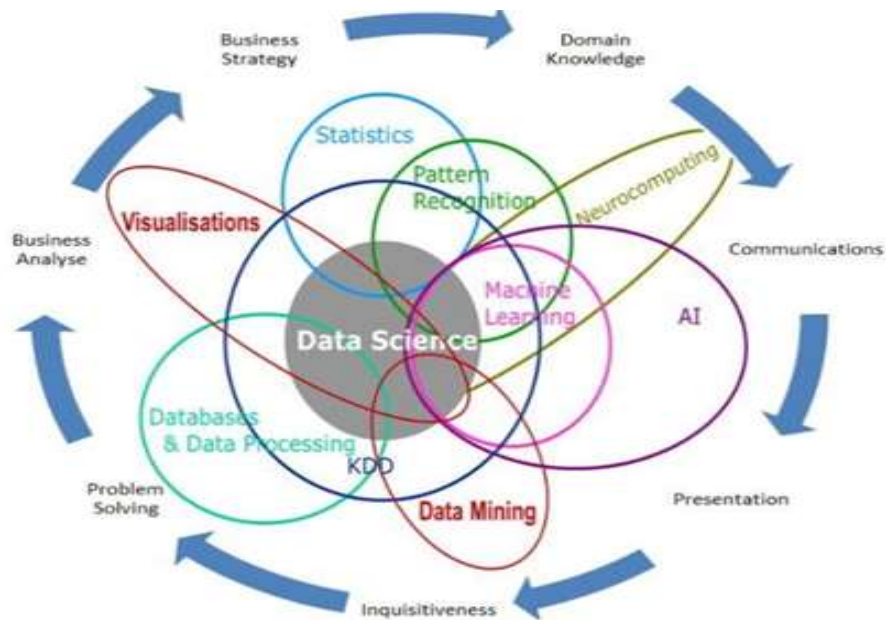


Figure 2. Illustration of data science from Brenden Tierney's blog<sup>3</sup>

<sup>1</sup> Self-authored

<sup>2</sup> According to <http://www.vjsonline.org/career/khoa-h%E1%BB%8Dc-ph%C3%A2n-t%C3%ADch-d%E1%BB%AF-li%E1%BB%87u-ph%E1%BA%A7n-i-t%E1%BB%95ng-quan-v%E1%BB%81-khoa-h%E1%BB%8Dc-d%E1%BB%AF-li%E1%BB%87u>

<sup>3</sup> Source Brenden Tierney's blog

Accordingly, Data Science is a collection of fields in the ongoing development of computer science, simulation, statistics, analysis and mathematics; with an emphasis on automation methods for analyzing large amounts of data to draw knowledge.

In other words, Data Science is a science which uses methods of calculation, statistics and visualization with research objects being data and databases. The characteristics of that object are very diverse with large volumes, very high rate of arising, coming from everywhere, in all social fields. Thus Data Science is an interdisciplinary field of study, and the scope of the research is very wide for processes and systems that collect knowledge from data in different forms. From there, a deeper, more accurate understanding of the data created useful things for the social decision-making process.

Josh Blumenstock said that Data Scientists converge 2 competencies of 2 computer science and statistics<sup>4</sup>. And Shlomo Aragon said: "Our graduates know how to make sense of the data and have the ability to discover their findings and recommendations for non-learners in data world"<sup>5</sup> and formulate into a following formula:

$$\text{Data Scientist} = \text{Scientist} + \text{Artist} + (\text{Programmer} - \text{Trainer} - \text{Storyteller})$$

They are mathematicians, statisticians, programmers and database savvy.

### 3.1.2. The position and the role of Data Science

The world is entering the era of big data, the necessary to approach and understand about data better is increasing; many fields such as medicine, biology - informatics, cybernetics, smart devices, crime prevention, business decision making, prediction, etc need to use support from data. The importance and increasing attractiveness of the data analysis industry in the future is confirmed by Professor Hal Varian (a Google expert): "The attractive work in the next 10 years will be Data scientist". Mckinsey, the world's leading corporation in the field of business strategy consulting, said that, for new graduated students, becoming a Mckinsey consultant is really a dream of many people. To do this, many people have to understand about data very well and have correct identification of data with basic characteristics:

- (i) A large volume,
- (ii) variety,
- (iii) collecting data is very fast (velocity);
- (iv) authenticity, also known as accuracy (veracity)<sup>6</sup>.

<sup>4</sup> According to MA Nguyen Danh Minh Tri, Overview of data science, posted on <https://ebookxanh.com/tai-lieu/tong-quan-ve-khoa-hoc-du-lieu-1157856.html>

<sup>5</sup> Favorite NerdScholar: Data Science Program - 2019, posted on <https://en.mfginvest.com/nerdscholar-favorites-data-science-programs>

<sup>6</sup> Based on Big data, posted on <https://text.123doc.org/document/4127127-big-data-du-lieu-lon.htm>

That is also the task of future data scientists. According to McKinsey, estimates in the US can come close to the 1.8 million positions that are looking for people in the industry<sup>7</sup>. In Southeast Asia, many countries are also aggressively developing programs to attract highly qualified human resources along with many activities around data science. Typically, the Singapore government is implementing a program to connect scientific communities with a project to build a modern smart city.<sup>8</sup> In Indonesia, many exciting activities are also taking place around to inspire enthusiasm and educate the community to bring data science into life.<sup>9</sup>

The ability to understand, process, extract values, visualize, and communicate with data will be an extremely important skill in the coming decades as the data grows larger, people are immersed in massive amounts of data but it lacks useful information. Data science will partly help people solve these important issues.

Data Science team of major technology companies such as Google, Amazon, Facebook, Microsoft, Youtube, LinkedIn, Instagram, Twitter. etc has been very actively collecting, analyzing, predicting knowledge from data, supporting businesses.

The applications that make up the great significance of today's Data Science industry with achievements including Netflix Award; application Google flu trends of Google; Obama's general election assistance; etc.<sup>10</sup>

### *3.1.3. The disadvantages of Data Science*

- Hype - data science craze. The consequences of this craze will lead to a false thinking that Data Science can solve any problem in the real world. However, in reality it is not so.

- Some technical errors:

+ do not specify goals for analysis,

+ using of low quality data, focus on technology but disregard the theory and expertise,

+ confusion between correlation - same time and causation (causation - before after),

+ failure to communicate results, complicate analysis too much, fail to maintain learning to fail (always to keep learning).

- Data is very messy and complicated, so Data Science is not an easy field; Inaccurate programming.

How to fix

Data scientists need to work in a scientific way, starting from the "Make observations" step according to the following diagram:

---

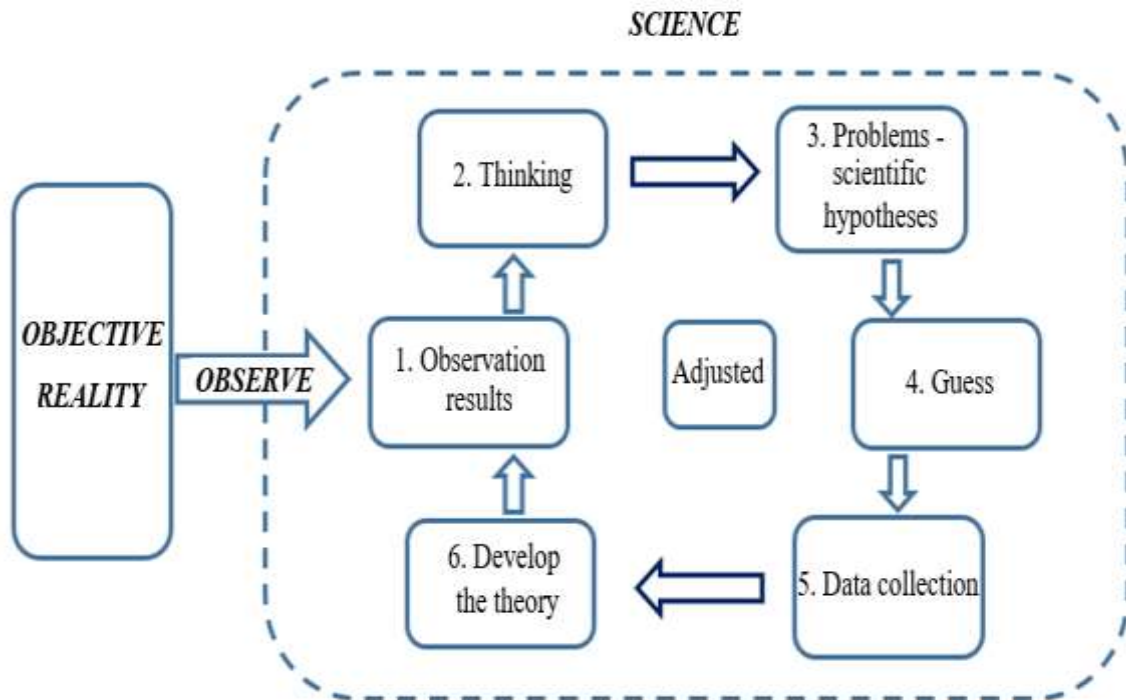
<sup>7</sup> McKinsey. Game changers: Five opportunities for US growth and renewal. <http://www.mckinsey.com/global-themes/americas/us-game-changers>. Accessed November 3, 2016.

<sup>8</sup> Smart nation fellowship. <https://fellowships.data.gov.sg/>. Accessed November 3, 2016.

<sup>9</sup> Data science Indonesia. <http://datascience.or.id/>. Accessed November 3, 2016

<sup>10</sup> According to News about Google flu trends; Posted on <https://congnghe.vn/Google-Flu-Trends.tag>

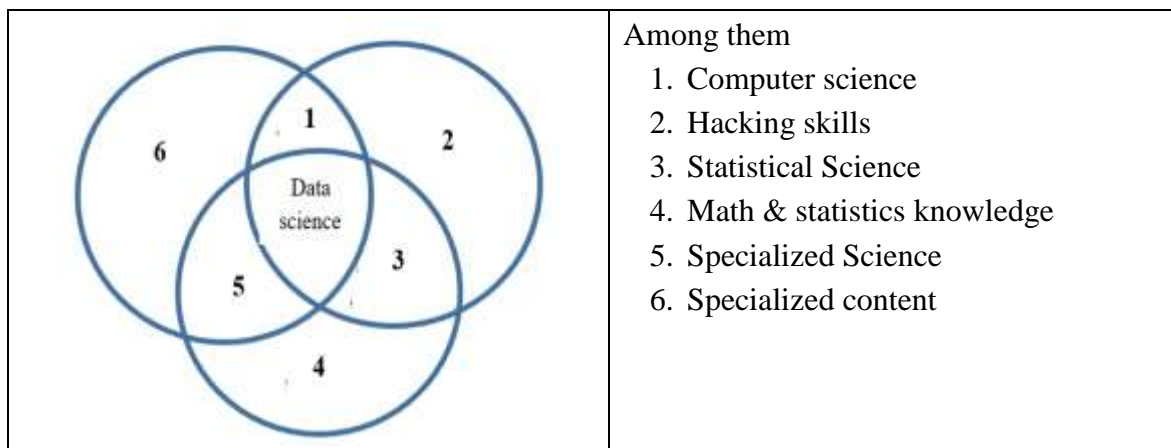




**Figure 3. Scientific process**<sup>15</sup>

*3.1.4. The main axis of Data Science*

Data science has many areas with pillars: calculations, statistics, mathematics, quantitative subjects and specialized scientific knowledge combined to analyze data and make better decisions.



**Figure 4. Venn diagram of Data Science**<sup>16</sup>

According to the diagram above, Data Science needs to answer five questions:

- Is this data A or B? (split 2 layers) or A, or B, or C or D? (multiple layers).
- Does this data reflect a strange thing? (anomaly detection).

<sup>15</sup> Source: self-authored

<sup>16</sup> Source: self-authored based on Drew Conway

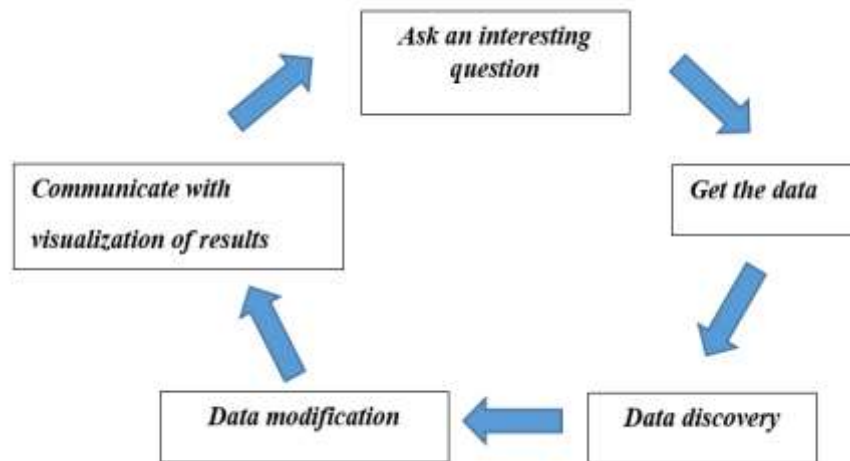
- Size, scale, how much? (regression).
- How is this data organized? (clustering).
- What to do next with this data? (reinforcement learning - reinforcement learning).

Knowledge of machine learning is essential and will always be the basis for making the Data Science process better and achieve the desired effect.

### 3.1.5. Research method for Data Science

Data science contains knowledge manipulated from raw data through the following complete data lifecycle process:

Ask interesting questions → Sampling (sampling, get the data) →  
 → Exploration, data discovery → Edit and validate data → Communicate to visualize research results.



**Figure 5. Data science process**<sup>17</sup>

The mission of data science

- Working with data to get information about management data sets (data munging / scraping / sampling / cleaning).
- Store and manage data so that data - especially big data - can be accessed quickly and reliably during subsequent analysis.
- Analyze exploration data to create data hypotheses and intuition.
- Forecasting is based on statistical tools such as regression, classification, and clustering.
- Communicate results (communication) through visualization, stories, and interpretable summaries.

<sup>17</sup> Source: self-authored based on Hanspeter Pfister, course material CS109, 2013

### 3.1.6. Languages and tools supporting Data Science research

(1) Python - an open-source, multi-purpose, interpreted programming language that supports various core programming styles, which are well used for data analysis. Python dynamically creates and uses automatic memory allocation.

You can use Pandas to manipulate data in Python, NumPy to manipulate data arrays, scikits learn to exploit data in Python.

(2) R is a software environment for statistical calculations and graphics. R provides good support for the field of data science through specialized statistical calculations and charts. The R application environment is continuing to grow rapidly and strongly in many different industries and fields, including data science.

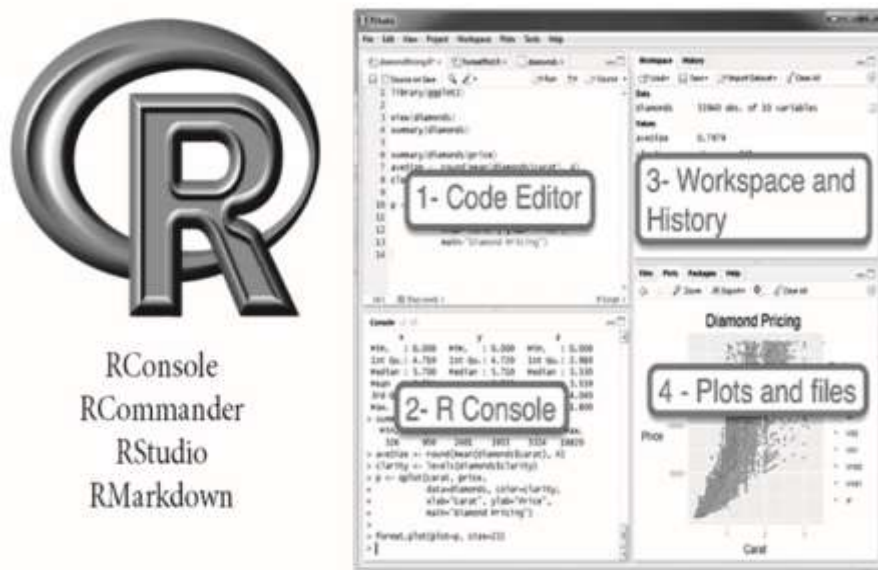


Figure 6. The R environment supports Data Science<sup>18</sup>

Summary, Data science is further developed, will make systems smarter and contribute to building a smart world in a digital age to better serve people. Promoting the effects of Data Science is the task of all mankind. Firstly, in the field of education, universities contribute to the introduction and integration of Data Science knowledge in the subjects.

## 3.2. Similarities between Data Science and Economics

### 3.2.1. Similarities between Data Science and Economics

**Economics** is a social science that studies the production, distribution and consumption of goods and services. Economics also examines how society manages its scarce resources (resources). Economic research aims to explain how economies move and how economic actors interact with each other. Economic principles are applied in social life, commerce, finance and public administration, even in criminology, education, sociology, law, and many other sciences.<sup>19</sup>.

<sup>18</sup> Based on Master Nguyen Danh Minh Tri (2018), Overview of Data Science, Information - exchange Magazine

<sup>19</sup> According to [https://vi.wikipedia.org/wiki/Kinh\\_t%E1%BA%BF\\_h%E1%BB%8Dc](https://vi.wikipedia.org/wiki/Kinh_t%E1%BA%BF_h%E1%BB%8Dc)

### 3.2.2. The research field of economics

According to the above thesis, economics is interested in many fields of economic activity. The emphasis is on the behavior of the overall economy and the behavior of individual actors in the economy, including businesses, consumer households, workers and the government. Each economic entity has a goal to work towards, which is to maximize their economic benefits. The goal of businesses is to maximize profits, the goals of consumer households are to maximize consumption, the goal of workers is to maximize wages and the government's goal is to maximize social benefits. Economics is supposed to help economic entities solve the problem of maximizing this economic benefit. So on one side, **Economics** consists of two organic components: Microeconomics and Macroeconomics. From another perspective, Economics is divided into two groups: Theoretical economics (economic theory) (specializing in studying the nature, content and the most common development rule of economic processes) and Applied economics (studying specific functions in economic management, or in other words, building management theories and methods for application in separate economic sectors).

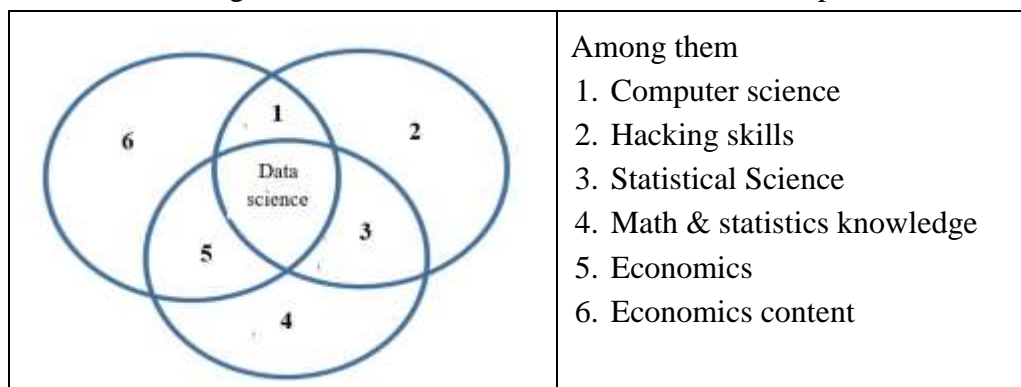
### 3.2.3. Requirements in teaching Economics

#### 3.2.3.1. Target

- Forming a worldview and scientific methodology for students
- Forming and training the ability to apply Economics knowledge to research work; ...

#### 3.2.3.2. Similarities between Data Science and Economics

From the analysis, it is shown that economics can be considered as a specific data science. Knowledge of Economics will also create 1 Big Data in the true sense. Under these conditions, the Ven diagram of Data Science of Economics will take place as follows:



**Figure 7. Data science Economics**<sup>20</sup>

Thus, the teacher - the person who spreads and develops knowledge of Economics will mobilize in the spirit of Data Scientist, with the corresponding skills, ensuring the formula:

***Economics teacher = Scientist + Artist + (Programmer - Trainer - Storyteller) on Economics***

<sup>20</sup> Source: Self-authored

If that trend is not followed, the teacher may lose their position and be pushed out of their own stadium.

### ***3.3. Commenting on the applied orientation in the development of Economics***

Make both the content and the representation form of Economics represent the nature of Data Science

+ Developing comprehensive economics on all 3 areas: computer science, statistical science; specialized science

+ Economics exists and exerts its effects in society in the direction of a real data science in the field of researching the use of natural resources.

Conditions for implementing the suggested plan:

(1) Deep understanding and love of Economics

(2) Knowledge of Data Science

(3) The school and society's interest in the 4.0 technology revolution, with a very basic foundation is Big Data, in Data Science media.

The corresponding facilities factors.

## **4. Discussion and Conclusion**

Data science will develop strongly and bring into full play the role of the future to help people thoroughly exploit sustainably. Potential from big data sources. At that time, Data Science will contribute to building a tolerant and intelligent world in the digital age and make a significant contribution to the development of Economics.

## **5. References**

1. The curriculum and curriculum of Economics used in university training
2. Data science, accessible from: <https://vi.wikipedia.org/wiki/> on 2/11/2017
3. Data science is the most attractive industry in the 21st century, accessible from: <http://www.giaoducdaotao.org/home/khoa-hoc-du-lieu-la-nganh-thu-hut-nhat-the-ky-21>, on 4/11/2017
4. How to become a Data Scientist, Accessed from: <https://bigsonata.wordpress.com/2014/11/15/lam-sao-de-tro-thanh-nhakhoa-hoc-du-lieu>, on 4/11/2017
5. Overview of Big Data, Access from: <http://vienthongke.vn/attachments/article/2290/Bai4.So5.2016.pdf>, on 4/11/2017.

**12<sup>th</sup> NEU-KKU INTERNATIONAL CONFERENCE  
ON SOCIO-ECONOMIC AND ENVIRONMENTAL  
ISSUES IN DEVELOPMENT**

---

**LABOURS - SOCIAL PUBLISHING HOUSE**

No. 36, Hoa Binh 4 alley, Minh Khai, Hai Ba Trung, Hanoi

Tel: (024) 36246917 - 36246920; Fax: (024) 36246915



RESPONSIBLE FOR THE PUBLICATION

AND THE CONTENT:

***General Director, Editorial Director Phung Huy Cuong***

EDITOR:

**Phung Huy Cuong**

PRINT AND COVER PAGE DESIGNER:

**Thai Pham**

---

Printing 200 copies, size 20.5 x 29.5 (cm) at the Printing Factory, Labour - Social Publishing House.

Address: Hoa Binh 4 alley, Hai Ba Trung, Hanoi.

Publishing register No. 2623-2020/CXBIPH/01-145/LDXH.

Publishing Decision No. 310/QD-NXBLDXH, dated on 13/7/2020.

Completed and registered in the third quarter of 2020

ISBN: 978-604-65-5031-0



# 12<sup>th</sup> NEU-KKU INTERNATIONAL CONFERENCE SOCIO-ECONOMIC AND ENVIRONMENTAL ISSUES IN DEVELOPMENT



ISBN: 978-604-65-5031-0



9 78 6046 55031 0

**BOOK NOT FOR SALE**