

**APPLICATION GUIDELINES IN APPLYING SUFFICIENCY  
ECONOMY PHILOSOPHY (SEP) FOR THE FARMERS IN  
DJAKOTOMEY DISTRICT, BENIN**

แนวทางการประยุกต์ปรัชญาของเศรษฐกิจพอเพียงสำหรับเกษตรกร  
ในอำเภอจารย์โกโตเมย์ ประเทศเบนิน

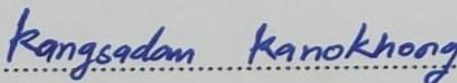
**GEORGES KODJO**

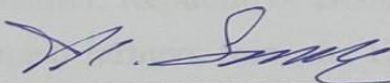
**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF  
THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF ARTS PROGRAM IN SCIENCE FOR  
SUSTAINABLE LOCAL DEVELOPMENT  
GRADUATE SCHOOL, CHIANG MAI RAJABHAT UNIVERSITY  
YEAR 2024**


<b>Thesis Title</b>	Application Guidelines in Applying Sufficiency Economy Philosophy (SEP) for the Farmers in Djakotomey District, Benin
<b>Author</b>	Georges Kodjo
<b>Degree</b>	Master of Art
<b>Program</b>	Science for Sustainable Local Development
<b>Thesis Advisors</b>	
<b>Advisor</b>	Emeritus Professor Dr. Manat Suwan
<b>Co – advisor</b>	Dr. Chutiwalanch Semmahasak

---

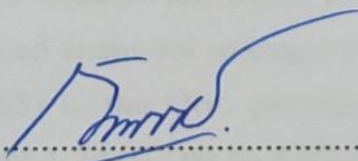
**Thesis Defense Examination Committee**

 Chairperson  
(Assistant Professor Dr. Kangsadan Kanokhong)

 Member  
(Emeritus Professor Dr. Manat Suwan)

 Member  
(Dr. Chutiwalanch Semmahasak)

Graduate School of Chiang Mai Rajabhat University approved this thesis as partial fulfillment of the requirements for the degree of Master of Arts program in Science for Sustainable Local Development in Graduate School..

 Dean of Graduate School  
(Assistant Professor Dr. Kittisak Chotikadachanarong)

Date... July 7<sup>th</sup>, 2024 .....

Copyright of Graduate School, Chiang Mai Rajabhat University

**Thesis Title** Application Guidelines in Applying Sufficiency Economy Philosophy (SEP) for the Farmers in Djakotomey District, Benin

**Author** Georges Kodjo

**Program** Science for Sustainable Local Development

**Thesis Advisors**

: Emeritus Professor Dr. Manat Suwan	<b>Advisor</b>
: Dr. Chutiwalanch Semmahasak	<b>Co-advisor</b>

## ABSTRACT

The purpose of this study was to investigate effective guidelines for applying the Sufficiency Economy Philosophy (SEP) to enhance the quality of life (QoL) of farmers the Djakotomey District, Republic of Benin. This research drew lessons from the experiences of 17 selected farmers from the Huay Tong community, Mae Wang District, Chiang Mai, Thailand. The research employed a mixed-methods approach, utilizing both quantitative and qualitative methods including questionnaires, interviews, and focus group discussions. In the Republic of Benin, data were gathered from 24 farmers in Djakotomey District who underwent vocational and agricultural training using the SEP concept, facilitated by experts from the Thailand International Cooperation Agency (TICA) between 2019 and 2022. In Thailand, lessons from the Huay Tong farmers revealed key success factors, including: 1) capacity building through active engagement in training activities, particularly from the Royal Project; 2) knowledge dissemination on agricultural practices, herbal medicine, and food within the community, 3) production of organic fertilizers to promote sustainable agriculture and reduce costs; and 4) enhanced financial management skills. The study observed a significant improvement ( $P<0.05$ ) in the QoL perception among Huay Tong farmers over time, with scores rising from  $1.74\pm0.104$  to  $4.67\pm0.063$  on a 5-point scale.

In the Republic of Benin, the study identified several factors that influence the adoption of the Sufficiency Economy Philosophy (SEP): 1) capacity building

through participation in activities at community learning centers; 2) effective financial management practices; 3) adoption of innovative agricultural techniques; and 4) understanding and integration of SEP principles into daily routines. Following vocational and agricultural training under the SEP concept, there was a notable improvement ( $P < 0.05$ ) in the quality of life (QoL) perception of farmers in Djakotomey District, with scores rising from  $1.91 \pm 0.239$  to  $3.97 \pm 0.300$  on a scale of 5. A statistically significant correlation was found between the perception of QoL and the understanding of SEP in both communities, represented by the equation  $QoL = 1.320 + 0.663 \text{ SEP}$  ( $r^2 = 0.624$ ,  $P < 0.05$ ).

In conclusion, the adoption of SEP practices led to an improved perception of QoL among farmers. Based on these findings, the study recommends the following guidelines for effective SEP implementation in the Republic Benin: 1) comprehensive understanding and adoption of SEP principles to drive sustainable development; 2) vocational and agricultural training activities using SEP as principal concepts; 3) promotion of knowledge sharing and community empowerment; 4) development of financial management skills for stability; and 5) establishment of partnerships between government and community entities.

**Keywords:** Sufficiency Economy Philosophy, Quality of Life, Agricultural Training, Republic of Benin.



**หัวข้อวิทยานิพนธ์** : แนวทางการประยุกต์ปรัชญาของเศรษฐกิจพอเพียงสำหรับเกษตรกร  
ในอำเภอจารย์โกโตเมย์ ประเทศเบเนน

**ผู้วิจัย** : ฌอร์ฌ ก็อดโฌ

**สาขาวิชา** : ศาสตร์เพื่อการพัฒนาท้องถิ่นอย่างยั่งยืน

**อาจารย์ที่ปรึกษาวิทยานิพนธ์**

: ศาสตราจารย์เกียรติคุณ ดร.มนัส สุวรรณ

**อาจารย์ที่ปรึกษาวิทยานิพนธ์หลัก**

: อาจารย์ ดร.ชุตินันท์ สุ่มมหาศักดิ์

**อาจารย์ที่ปรึกษาวิทยานิพนธ์ร่วม**

### บทคัดย่อ

การศึกษานี้มีวัตถุประสงค์เพื่อนำเสนอแนวทางการประยุกต์ใช้ปรัชญาของเศรษฐกิจพอเพียงที่มีประสิทธิภาพเพื่อยกระดับคุณภาพชีวิตของเกษตรกรในเขตจารย์โกโตเม สาธารณรัฐเบเนน ด้วยการถอดบทเรียนความสำเร็จจากเกษตรกร จำนวน 17 ราย ในบ้านห้วยตอง อำเภอแม้ว จังหวัดเชียงใหม่ ประเทศไทย โดยใช้วิธีการวิจัยแบบผสมผสานระหว่างการวิจัยเชิงปริมาณและคุณภาพ โดยใช้แบบสอบถาม การสัมภาษณ์ และการสนทนากลุ่มเป็นเครื่องมือในการศึกษา ซึ่งการเก็บรวบรวมข้อมูลในสาธารณรัฐเบเนน ได้รับการอำนวยความสะดวกจากผู้เชี่ยวชาญของกรมความร่วมมือระหว่างประเทศ (TICA) ของไทย ในการรวบรวมข้อมูลจากกลุ่มตัวอย่างเกษตรกร จำนวน 24 ราย ในเขตจารย์โกโตเม ที่เข้ารับการฝึกอบรมและการเกษตรบนพื้นฐานของแนวคิดปรัชญาของเศรษฐกิจพอเพียง ในระหว่างปี พ.ศ. 2562 ถึง พ.ศ. 2565 ผลการถอดบทเรียนจากเกษตรกรตำบลห้วยตองในประเทศไทย แสดงให้เห็นถึงปัจจัยแห่งความสำเร็จในการนำเอาปรัชญาของเศรษฐกิจพอเพียงมาประยุกต์ใช้ อันประกอบไปด้วย 1) การเสริมสร้างศักยภาพผ่านการมีส่วนร่วมในกิจกรรมการฝึกอบรม โดยเฉพาะจากโครงการหลวง 2) การเผยแพร่ความรู้เกี่ยวกับการปฏิบัติทางการเกษตร การใช้สมุนไพร และอาหารภายในชุมชน 3) การผลิตปุ๋ยอินทรีย์เพื่อส่งเสริมการเกษตรอย่างยั่งยืนและช่วยลดต้นทุนการผลิต และ 4) การเสริมสร้างทักษะการบริหารจัดการเงิน ทั้งนี้ ผลการศึกษาพบว่า การประยุกต์ใช้ปรัชญาของเศรษฐกิจพอเพียงทำให้เกษตรกรรับรู้ได้ว่า คุณภาพชีวิตของพวกเขาดีขึ้นอย่างมีนัยสำคัญ ( $P < 0.05$ ) โดยมีคะแนนเพิ่มขึ้นจาก  $1.74 \pm 0.104$  เป็น  $4.67 \pm 0.063$  (จากคะแนนเต็ม 5 คะแนน)

ในกรณีของสาธารณรัฐเบเนน ผลการศึกษาแสดงให้เห็นถึงปัจจัยที่มีอิทธิพลต่อการยอมรับแนวคิดปรัชญาของเศรษฐกิจพอเพียง ได้แก่ 1) การเสริมสร้างศักยภาพผ่านการมีส่วนร่วมในกิจกรรมของศูนย์การเรียนรู้ชุมชน 2) การปฏิบัติในการบริหารจัดการเงินอย่างมีประสิทธิภาพ 3) การนำนวัตกรรมทางการเกษตรมาใช้ 4) การทำความเข้าใจและการบูรณาการหลักการปรัชญาของเศรษฐกิจพอเพียงเข้ากับกิจกรรมประจำวัน ทั้งนี้หลังจากเข้ารับการฝึกอบรมและการเกษตรภายใต้แนวคิดปรัชญาของเศรษฐกิจพอเพียงแล้ว เกษตรกรในเขตจารโกโตเม รับรู้ได้ว่าคุณภาพชีวิตของพวกเขาดีขึ้นอย่างเห็นได้ชัดเจน ( $P < 0.05$ ) โดยมีคะแนนเพิ่มขึ้นจาก  $1.91 \pm 0.239$  เป็น  $3.97 \pm 0.300$  (จากคะแนนเต็ม 5 คะแนน) อีกทั้งยังพบความสัมพันธ์เชิงบวกอย่างมีนัยสำคัญทางสถิติระหว่างการรับรู้ด้านคุณภาพชีวิตและความเข้าใจในแนวคิดปรัชญาของเศรษฐกิจพอเพียงของทั้งสองชุมชน ดังแสดงด้วยสมการ  $QoL = 1.320 + 0.663 SEP$  ( $r^2 = 0.624$ ,  $P < 0.05$ )

โดยสรุปแล้ว การนำแนวปฏิบัติตามแนวคิดปรัชญาของเศรษฐกิจพอเพียงมาประยุกต์ใช้ส่งผลให้การรับรู้ถึงคุณภาพชีวิตของเกษตรกรดีขึ้น ดังนั้น แนวทางการประยุกต์ใช้ปรัชญาเศรษฐกิจพอเพียงที่มีประสิทธิภาพเพื่อยกระดับคุณภาพชีวิตของเกษตรกรในเขตจารโกโตโกเม สาธารณรัฐเบเนน ได้แก่ 1) การทำความเข้าใจและยอมรับหลักปรัชญาของเศรษฐกิจพอเพียงเพื่อขับเคลื่อนการพัฒนาอย่างยั่งยืน 2) การจัดกิจกรรมการฝึกฝนอาชีพและการเกษตรโดยใช้แนวคิดปรัชญาของเศรษฐกิจพอเพียงเป็นหลัก 3) การส่งเสริมการแบ่งปันความรู้และการเสริมพลังชุมชน 4) การพัฒนาทักษะการบริหารจัดการเงินเพื่อความมั่นคง และ 5) การสร้างความร่วมมือระหว่างหน่วยงานภาครัฐและชุมชน

**คำสำคัญ:** ปรัชญาของเศรษฐกิจพอเพียง, คุณภาพชีวิต, การฝึกอบรมด้านการเกษตร, สาธารณรัฐเบเนน

## ACKNOWLEDGEMENTS

I would like to express my heartfelt gratitude to all those who have supported me during this journey. The completion of this research would not have been possible without the unwavering assistance and encouragement from various individuals and institutions.

First and foremost, I extend my deepest gratitude to the Thailand International Cooperation Agency (TICA) for granting me a scholarship, including the Director General of TICA and all its members. Special appreciation is extended to Miss Patchara Kosinanot, Ms. Charintip Yosthasan, Ms. Phitchaya Sricharoenrat, and Ms. Sumethinee Saetan, as well as to TICA volunteer Ms. Nittayapond Nipatsant, for their unwavering support. Additionally, I wish to convey my heartfelt thanks to the Observatory of Social Change (OSC) officers, particularly Mrs. Evelyne Agossi Adoko, and to the Chief of Staff to the Ombudsman of Benin Republic, Mr. Pascal Tchiwanou, for their invaluable assistance. Their unwavering support, alongside that of Chiang Mai Rajabhat University (CMRU), has been indispensable throughout my academic journey. I am deeply thankful to my esteemed advisors, Emeritus Professor Dr. Manat Suwan and Dr. Chutiwalanch Semmahasak, for their invaluable guidance. Additionally, I extend my gratitude to my special advisors, Associate Professor Dr. Watcharapong Wattanakul, and Assistant Professor Choosit Choochat. My gratitude extends to Dr. Thanat Boonchai, and Assistant Professor Dr. Nakarin Pripwai for their dedication.

Special thanks go to all graduate school officers, especially Dr. Phatthanawan Chanrattanayothin, Ms. Kamonrat Chuesuanoi, Ms. Veeranuch Daroonsontaya and Ms. Ornkamon Suwanprates, as well as to all international affairs officers, particularly Ms. Nida Printrakun, Ms. Lawanrat Butha, and Ms. Laksika Artwichit for their tireless support.

I extend my appreciation to Committee Chairperson, Assistant Professor Dr. Kangsadan Kanokhong, and my classmates, Mr. Arnon Panram and Ms. Kawintida Pamonpukkepoom, for their camaraderie and assistance. My heartfelt gratitude also

goes to my parents, father Egah Kodjo and mother Hodoke Gossou, and my siblings, particularly Janvier Egah and Seraphine Kodjo, for their unwavering support.

Last but not least, I extend my gratitude to my partner Jeacqueline Kommadan, my beloved children, and my dear friends Ms. Tantiga Takumnun, Mr. Naif Djarra, Ms. Jambay Lhamo, Mr. Pelden Jongsuk, and Ms. Sunisa Frenzel, a Director of the Tourism Center, Faculty of Humanities and Social Sciences, for their encouragement and assistance throughout my studies. Their collective support, advice, and contributions have been invaluable to me.

Georges Kodjo





## CONTENTS

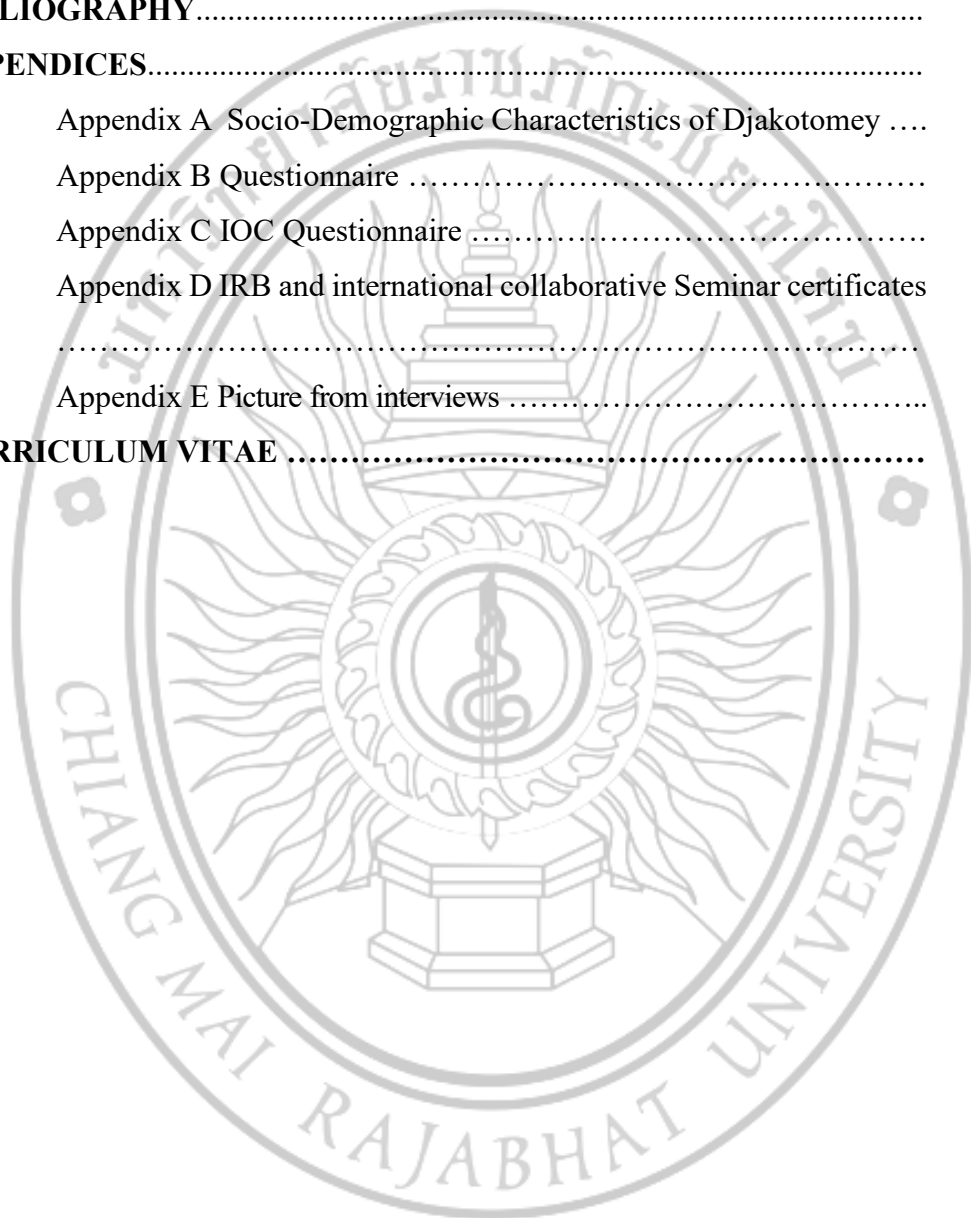
	Page
<b>ABSTRACT.....</b>	<b>ii</b>
<b>บทคัดย่อ.....</b>	<b>iv</b>
<b>ACKNOWLEDGEMENTS.....</b>	<b>vi</b>
<b>TABLE OF CONTENTS.....</b>	<b>viii</b>
<b>LIST OF TABLES.....</b>	<b>xi</b>
<b>LIST OF FIGURES.....</b>	<b>xiii</b>
<b>LIST OF ABBREVIATIONS.....</b>	<b>xv</b>
<b>CHAPTER</b>	
<b>1 INTRODUCTION .....</b>	<b>1</b>
Statement of the study .....	1
Objectives of the study .....	6
Significance of the study .....	6
Scope and Limitation of the study .....	6
Definitions of Terms.....	9
Conceptual Framework.....	10
<b>2 LITERATURE REVIEW.....</b>	<b>11</b>
Sufficiency Economy Philosophy concept.....	12
Sustainable Development concept .....	56
Notion of Quality of Life .....	67
Acceptance of Innovation concept .....	71
Case of study contexts .....	75

## CONTENTS (CONT.)

		Page
<b>CHAPTER</b>		
<b>3</b>	<b>RESEARCH METHODOLOGY.....</b>	<b>116</b>
	Research design .....	116
	The study site .....	117
	The respondent and sampling technique .....	119
	Research Instruments .....	121
	Data Collection .....	122
<b>4</b>	<b>RESEARCH FINDINGS .....</b>	<b>124</b>
	Learned Lesson of Success in Improving the Quality of Life of the People through the Practice of the Sufficiency Economy Philosophy (SEP) in Thailand .....	131
	Factors Influencing the Adoption of SEP in Practice in Republic of Benin .....	145
	The Appropriate Guidelines for the Adoption of SEP in Improving Quality of Life (QoL) into Practice in the Republic of Benin .....	156
<b>5</b>	<b>OVERALL FINDINGS AND CONCLUSION .....</b>	<b>180</b>
	Overall findings .....	180
	Discussion .....	183
	Recommendation .....	214

## CONTENTS (CONT.)

	<b>Page</b>
<b>BIBLIOGRAPHY</b> .....	<b>216</b>
<b>APPENDICES</b> .....	<b>238</b>
Appendix A Socio-Demographic Characteristics of Djakotomey ....	249
Appendix B Questionnaire .....	253
Appendix C IOC Questionnaire .....	266
Appendix D IRB and international collaborative Seminar certificates .....	270
Appendix E Picture from interviews .....	272
<b>CURRICULUM VITAE</b> .....	290



## LIST OF TABLES

Table	Page
2.1 Five attributes in DOI .....	72
2.2 Innovation-decision process definitions.....	74
3.1 Population and Sample in the Study Area.....	120
3.2 Likert Scale Rating and Interpretation .....	123
4. 1 Participant groups in Djakotomey District, Republic of Benin and Huay Tong Village, Thailand. ....	125
4.2 Demographic and Socio-economic Characteristics of Participants in Djakotomey District, Republic of Benin and Huay Tong Village, Thailand .....	126
4.3 Socio-economic data in Huay Tong Village, Thailand .....	129
4.4 Socio-economic Data of Djakotomey District, Republic of Benin district, Benin .....	130
4.5 The frequency (%) of participants' perception of Quality of Life (QoL) Before and After acquainted with SEP in Huay Tong, Thailand.....	136
4.6 Comparison of Quality of Life Perceptions among Participants in Huay Tong Village, Thailand Before and After Participation in Royal Project Activities N=17.....	143
4.7 Comparison of understanding Sufficiency Economy Philosophy concepts between Djakotomey community and Huay Tong community .....	147



## LIST OF TABLES (CONT.)

Table	Page
4.8 Comparison of Understanding Sufficiency Economy Philosophy between Djakotomey District Participant and Huay Tong Village Participants .....	151
4.9 Agricultural training conducted in Djakotomey District, Republic of Benin, under the Sufficiency Economy Philosophy concepts and its utilization .....	156
4.10 Frequency of implementation following the training of participants in Djakotomey District, Republic of Benin .....	161
4.11 Frequency of Participants' Perceptions of Quality of Life Before and After Receiving Agricultural Training under the Sufficiency Economy Philosophy in Djakotomey District, Republic of Benin .....	163
4.12 Comparison of Quality of Life Perceptions Among Participants in Djakotomey District, Republic of Benin Before and After Receiving Agricultural Training Under the Sufficiency Economy Philosophy N=24.....	171
4.13 Descriptive Statistics .....	175
4.14 Correlations .....	176
4.15 Model Summary <sup>a</sup> .....	176
4.16 ANOVA <sup>a</sup> .....	176
4.17 Coefficients <sup>a</sup> .....	177
4.18 Casewise Diagnostics <sup>a</sup> .....	177
4.19 Residuals Statistics <sup>a</sup> .....	177

## LIST OF FIGURES

Figure	Page
1.1 Conceptual Framework of the research .....	10
2.1 The conceptual diagram of the local economy with the SEP in terms of sustainable development.....	14
2.2 Concept of Sufficiency Economy Philosophy SEP concept with Three Pillars and two conditions .....	14
2.3 Food Chain Approach .....	25
2.4 Agriculture, Food, Nutrition and Health .....	26
2.5 Food security .....	27
2.6 Food quality and safety .....	28
2.7 Food Education .....	30
2.8 Food Management .....	31
2.9 Shows three Pillars of Sustainable Development leads to community stability or sustainability .....	34
2.10 Sufficiency Economy Philosophy for Sustainable Development Goals (SDGs).....	38
2.11 SEP Principles and its conditions for Thailand development .....	42
2.12 Nine (09) steps of SEP for SDGs .....	44
2.13 Showing farming products from New Theory Agricultural .....	53
2.14 Conceptual Framework Illustrating the Impact of Agricultural Interventions on Nutrition.....	62
2.15 Five Key Principles of Sustainability for Food and Agriculture .....	63
2.16 The three pillars of sustainability based on sustainable Development .....	65
2.17 Human Development Index as Described by Beslerová (2014) .....	69
2.18 The Legatum Prosperity Engine .....	70
2.19 Adopter categorization on the basis of innovativeness .....	73

## LIST OF FIGURES (CONT.)

Figure		Page
2.20	A Model of Five Stages in the Innovation-Decision Process .....	75
2.21	Six transformations for SDGs .....	97
3.1	Map of Huay Tong Village .....	118
3.2	Map of Djakotomey Community .....	119



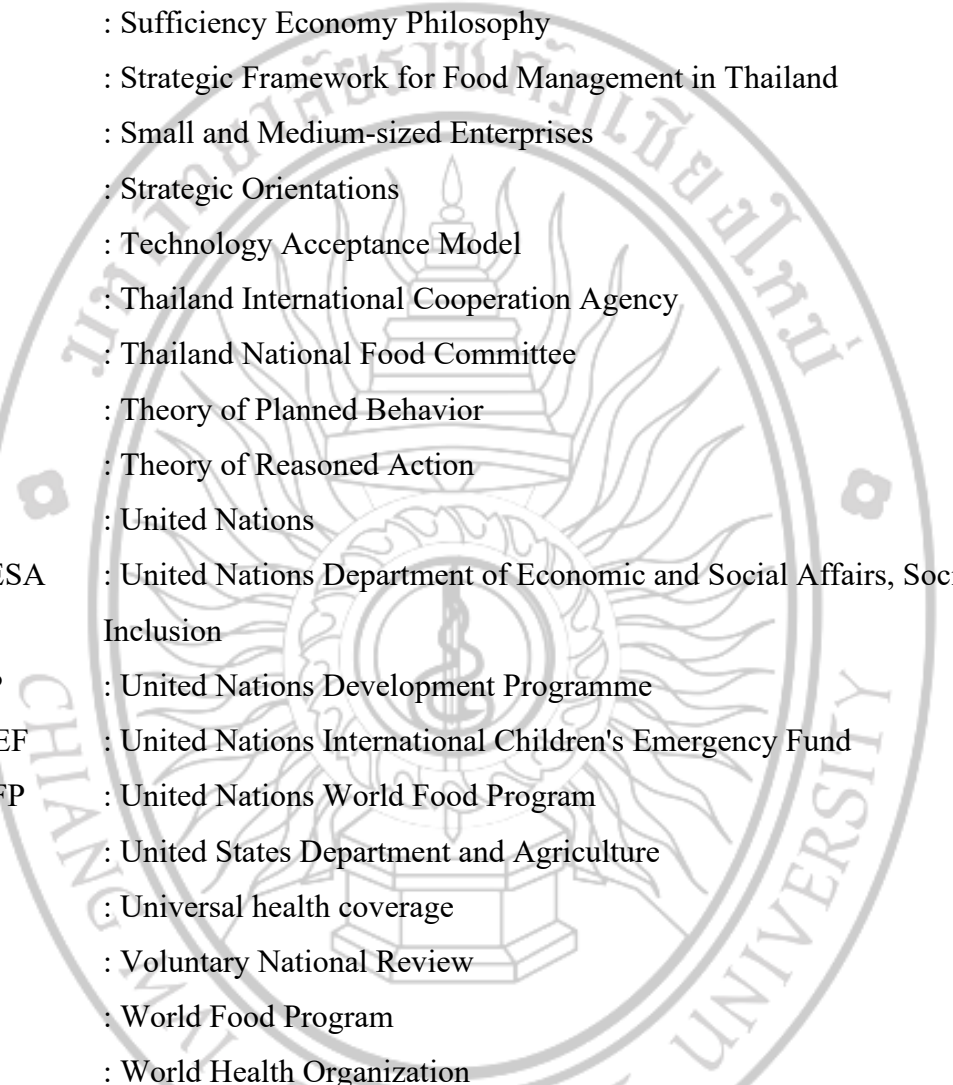
## LIST OF ABBREVIATIONS

CSR	: Corporate Social Responsibility
CPI	: Corruption Perception Index
CSD	: National Committee for Sustainable Development
CSOs	: Civil Society Organizations
DOI	: Diffusion of Innovation
ECOWAS	: Economic Community of West African States
EPI	: Environmental Performance Index
ESG	: Environmental, Social, Governance
FPS	: Faculty of Physical Sciences
FAO	: Food and Agriculture Organization of the United Nations
FAO	: Organisations des Nations Unies pour l'Alimentation et l'Agriculture
FNP	: Food and Nutrition Plan
FTA	: Forests, Trees, and Agroforestry
GAIN	: Global Agriculture Information Network
GAPs	: Good Agricultural Practices
GCPH	: General Census of Population and Housing
GDP	: Gross domestic product
GHG	: Green House Gas
GHPs	: Good Hygienic Practices
GOB	: Government of Benin
GMPs	: Good Manufacturing Practices
HACCP	: Hazard Analysis Critical Control Points
(HAAC)	: High Authority of Audiovisual and Communication
HDI	: Human Development Index
IAEG-SDGs	: Inter-Agency and Expert Group on Sustainable Development Goal Indicators



## LIST OF ABBREVIATIONS (CONT.)

ICRAF	: International Centre for Research in Agroforestry
IFAD	: International Fund for Agricultural Development
IISD	: International Institute for Sustainable Development
IMF	: International Monetary Fund
INSAE	: Institut National de la Statistique et de l'Analyse Economique
INStad	: Institut National de la Statistique et de la Démographie
IOC	: Index of Consistency
IWRM	: Integrated water resources management
IRP	: International Resource Panel
KMS	: Knowledge Management System
MAEP	: Ministère de l'Agriculture de l'Elevage et de la Pêche
MOAC	: Ministry of Agriculture and Cooperatives
MOFA	: Ministry of Foreign Affairs
NCCMP	: National Climate Change Management Policy
NESDB	: National Economic and Social Development Board
NESDP	: National Economic and Social Development Plan
NTA	: The New Theory Agriculture
NVP	: National Voluntary Presentation
ONEP	: Office of Natural Resources and Environmental Policy and Planning
ORDPB	: Office of Royal Development Project Board
OTOP	: One Tambon One Product
PAG	: Government Action Plan
PAP	: Poverty Alleviation Plan
PGS	: Participatory Guarantee Schemes
PNASI	: Programme National d'Alimentation Scolaire Intégré,
PNIASAN	: Plan National d'Investissements Agricoles et de Sécurité Alimentaire et Nutritionnelle



PSDSA	: Strategic Plan for Agricultural Sector Development
QoL	: Quality of life
RDPs	: Royal Development Projects
SD	: Sustainable Development
SDGs	: Sustainable Development Goals
SEP	: Sufficiency Economy Philosophy
SFFM	: Strategic Framework for Food Management in Thailand
SMEs	: Small and Medium-sized Enterprises
SOs	: Strategic Orientations
TAM	: Technology Acceptance Model
TICA	: Thailand International Cooperation Agency
TNFC	: Thailand National Food Committee
TPB	: Theory of Planned Behavior
TRA	: Theory of Reasoned Action
UN	: United Nations
UN-DESA	: United Nations Department of Economic and Social Affairs, Social Inclusion
UN-DP	: United Nations Development Programme
UN ICEF	: United Nations International Children's Emergency Fund
UN WFP	: United Nations World Food Program
USDA	: United States Department and Agriculture
UHC	: Universal health coverage
VNR	: Voluntary National Review
WFP	: World Food Program
WHO	: World Health Organization

# **CHAPTER 1**

## **INTRODUCTION**

Sustainable development, as defined by the International Institute for Sustainable Development (2017), is a developmental approach that ensures the fulfillment of present needs without compromising the ability of future generations to meet their own needs. Achieving the objectives of sustainable development requires addressing various interconnected issues, including agriculture, environment, social welfare, economics, education, and healthcare (Barua & Tejavivaddhana, 2019), with particular emphasis on the agricultural sector. Agriculture plays an important role in facilitating the advancement of other sectors to meet requirements of sustainable development, thereby enhancing the quality of life for household and communities. However, approximately 80 percent of agricultural households worldwide remain in poverty and face food insecurity, especially in rural areas (Adjimoti & Kwadzo, 2018).

In response to these challenges, the Sufficiency Economy Philosophy (SEP) introduced by King Rama IX offers a promising approach for sustainable development, particularly in the agricultural sector, both within Thailand and worldwide (Janmaimool & Denpaiboon, 2016). SEP's principles, which emphasize a balanced approach at the individual, community, and national levels, have shown potential in reducing food insecurity and poverty (Wattanakornsiri & Pukkalanun, 2020). By adopting SEP, countries can promote sustainable agricultural practices, thereby addressing pressing issues like food insecurity and poverty while fostering overall development.

This thesis will delve into the factors affecting the implementation of SEP practices, with a specific focus on the agricultural contexts of the Republic of Benin and Thailand. Subsequently the thesis will propose appropriate guidelines for effectively implementing SEP in the Republic of Benin. The introduction section begins by elucidating the interconnections between quality of life and the agricultural sector, which are crucial components in achieving sustainable development. Following this,

the significance of SEP is detailed to clarify its role and effectiveness in achieving sustainability.

### **Background and Rationale**

Quality of life (QoL) is the level of health, comfort, and happiness experienced by individuals or a group (Beslerová & Dzuričková, 2014). It depends exclusively on factors such as employment, household income, and access to essentials such as food, health care, housing, environment, and education (U-tantada et al., 2016). Therefore, it is an increasingly important issue in developing countries in general.

Presently, QoL faces various challenges stemming from global uncertainties. According to The UN's Human Development Report 2021/2022, the ongoing COVID-19 pandemic has precipitated setbacks in human development across nearly all countries, perpetuating a state of unpredictability. Concurrently, geopolitical shifts and strained international frameworks exacerbate existing concerns. This uncertainty is further compounded by the emergence of what is termed the 'uncertainty complex,' driven by three novel sources: the intertwined planetary pressures and inequalities of the Anthropocene era, the pursuit of equitable societal transformations, and escalating societal polarization (UNDP, 2022). These factors collectively paint a picture of unsettled lives and uncertain times. In this context, improving people's QoL becomes an inevitable necessity, especially in rural areas where the agricultural sector is the crucial sector for supporting people's quality of life in the middle of that crisis. In rural areas, agriculture is the main source of income for 80% of the world. As such, this sector plays a critical role in reducing poverty, raising incomes, and improving food security (World Bank, 2018). It also leads to achieving global sustainable development goals by ending extreme poverty, enhancing shared prosperity, and feeding the world's 9.7 billion people by 2050. Compared to other sectors, growth in agriculture is two to four times more effective in increasing the income of the poorest populations (World Bank, 2021). These present the family farm and the infrastructure that supports it were positively associated with a greater QoL for individuals in rural regions, and both were consistent with the country's democratic political system (Heffernan, 2019).



However, the growing global population has prompted serious concerns about agriculture's food security. Practices such as overharvesting have resulted in significant environmental degradation and resource depletion. Moreover, the extensive use of fertilizers and pesticides has led to soil and water pollution, contributing to the erosion and extinction of plant and animal species (Bastan et al., 2017). Agrifood systems remain susceptible to shocks and disruptions arising from conflicts, climate variability, economic contractions, and widening inequalities, challenging their ability to provide nutritious, safe, and affordable diets for all. Despite economic recovery efforts post-pandemic, global hunger levels remain elevated, with an estimated 690 to 783 million people experiencing hunger in 2022, an increase of 122 million individuals compared to pre-pandemic levels (FAO, 2023). This poses significant challenges in meeting Sustainable Development Goals (SDGs) and ensuring good QoL for people globally.

The global crisis above becomes an opportunity to turn toward sustainable development by adopting the Sufficiency Economy Philosophy (SEP), proposed by King Rama IX of Thailand (Jenjarrussakul & Senasu, 2022). The SEP is a concept that builds the knowledge, relationship and values in the community by putting to balance social, environmental, economic and cultural. Wattanakornsiri and Pukkalanun (2020) pointed that SEP is a tool not only to promote villagers' knowledge about their daily lives but also support families' quality of life or human development on the way to achieving SDGs. It promotes efficient utilization of natural resources, good governance, and ethical behavior while ensuring the sustainability of future generations. Recognized by United Nations (UN) in 2006 as a sustainable development tool under the 17 SDGs, SEP has been endorsed as a development model for environmental improvement, society equality, and economic growth (Savetpanuvong, 2021). It is the guidance of the way of life and people's behavior from family to the national level.

SEP consists of three interconnected pillars: moderation, reasonableness, and resilience, which are complemented by knowledge and morality conditions (Mongsawad & Thongpakde, 2016). Implementing this philosophy can facilitate a balance between socioeconomic growth and environmental dimensions, while simultaneously addressing poverty and food insecurity, as its principles are applied in

the Middle Path at the individual, community, and national levels (Wattanakornsiri, Pukkalanun & Phimphanthavong 2020). Consequently, SEP underpins people's QoL particularly in the agriculture sector across the world (Jeerat et al., 2022). This is because it provides guidelines to solve agricultural problems and reach sustainable agriculture (Isarangkun & Pootrakool, (n. d.)).

Republic of Benin is situated in West Africa, bordered by Togo to the west, Nigeria to the east, Burkina Faso to the northwest, and Niger to the northeast. The majority of its population resides in the southern regions, with Porto-Novo serving as the capital and Cotonou as the economic hub, according to Institut National de la Statistique et de l'Analyse Economique (INSAE) (2018).

The climate of Republic of Benin is tropical with a dry season in winter and a rainy season that extends from May to September in the far north and from mid-March to October in the south. The southern region experiences a break in the rainy season in August. Rainfall is less than 1000 millimeters per year in the far north, where the dry season lasts almost seven months, while in the rest of the country it varies between 1000 and 1300 mm (INSAE, 2018).

INSAE (2018) and Republique Du Benin, Departement Du Couffo, (2017) indicate that its original rainforest, which covered most of the south of the country, has now been largely cleared, except near rivers. In its place, many oil palms have been planted and food crops are grown. The cultivation of food crops, such as maize, cassava, and yams, is intensive on the outskirts of cities. In the center, the vegetation is a mixture of forest and savannah, giving way further north to savannah. Besides oil palm, the trees include coconut, mahogany, and others. Thus, Benin's agricultural sector is characterized by a few farms, mainly small family farms focused on mixed food cropping and family farms with small-scale livestock farming (Baudoin, 2014; Commune de Djakotomey, 2017). The people of this country practice animal husbandry which is characterized by a variety of animals including rabbits, pigs, mutton, buffaloes and cows. Birds include guinea fowl, wild duck and partridge, as well as many tropical species (Paracchini et al., 2020).

Therefore, the economy of Republic of Benin relies heavily on agriculture, particularly on palm oil and cotton production. The agricultural sector provides some employment opportunities and income from subsistence farming (Global Agriculture

Information Network (GAIN), 2014). However, income from the agricultural sector and government budgets are insufficient enough to improve Beninese's quality of life. The supply and quality of primary and secondary education services in Benin vary from one geographical area to another, i.e., the quality of education in rural villages is relatively poor. It suffers from a lack of equipment and a problem of absenteeism (or strikes) and the qualification of teachers. Some learners are not stable in their situation with regard to schooling, and nutritional needs which are the basis of certain diseases at the origin of their absenteeism and their abandonment of class during the year (Imeokparia & Edigbonya, 2015). Additionally, health and education qualities are closely linked to agriculture, and is significantly impacted by its vulnerability to climate change. This makes the level of the economy comparatively low on the basis of some diseases among children and in some adults.

The country's quality of life situation motivates the government to enter into a relationship with Thailand. Through its development tool known as Sufficiency Economy Philosophy (SEP), Thailand intervenes in Republic of Benin through TICA and its philosophy to contribute to food security and improve the quality of life of Beninese people. Djakotomey, a district in Benin, serves as a pilot area for the introduction of SEP concepts by TICA, with the objective of enhancing the quality of life for farmers in a manner similar to their counterparts in Thailand.

The TICA project in Republic of Benin focuses on helping agricultural producers through the production of organic fertilizers and pesticides by themselves in order to facilitate the production of natural agriculture. This would allow a contribution to a healthy environment and the health of the community of Djakotomey District and even the entire population of Republic of Benin.

In order to implement SEP continuously in Republic of Benin, a comparative study with successful case studies or communities adopting SEP in Thailand is necessary due to they can provide lessons and important factors that could be applied to the farmer communities in Djakotomey District, Republic of Benin. Hence, lessons learned and adoption concepts are employed, along with SEP principle, to analyze the successes and failures of SEP adoption in both countries. Finally, the appropriate guidelines for the adoption of SEP into practice in Republic of Benin will be presented.

### **Objectives of the study**

1. To examine the lessons learned from successful implementations of the Sufficiency Economy Philosophy (SEP) in improving the Quality of Life (QoL) in Thailand.
2. To investigate the factors affecting the adoption of the Sufficiency Economy Philosophy (SEP) practices in the Republic of Benin.
3. To analytically propose appropriate guidelines for the adoption of the Sufficiency Economy Philosophy (SEP) to enhance Quality of Life (QoL) in the Republic of Benin.

### **Expected results of the study**

The expected results of the thesis include:

1. Identification of factors affecting the success or failure of adopting SEP practices in the Republic of Benin.
2. Compilation of lessons learned from case studies of Sufficiency Economy Model villages in Thailand.
3. Comprehensive findings and conclusions aimed at enhancing the application of SEP for sustainable development in the Republic of Benin and potentially other regions.

### **Scope and Limitation of the study**

#### **Scope of Population and Sample Group**

The population and sample group used in this study were divided into two groups according to the study area as follows.

1. Population and Sample Group in the Republic of Benin

The population consisted of 24 farmer households in Djakotomey district, Republic of Benin who have already implemented SEP based only TICA recommendations (2019-2022). The heads of these households were selected as key informants, therefore, all of them were included in the target group.

2. Population and Sample Group in Thailand

Baan Huay Tong is selected as a Sufficiency Economy Model village in Chiang Mai, Thailand. According to the Mae Win Subdistrict Administration



Organization (2022), there are 138 farmer households in this village. Purposive sampling was employed, based upon the theoretical requirements and SEP adoption, to select informants in the study area and to ensure a balanced representation of household sizes. Consequently, 17 household heads who have adopted SEP more than five years were selected as a sample group.

### **Scope of Content**

The scope of content was divided into three parts as follows:

#### **1. Scope of Success/Failures and Affecting Factors in Adopting SEP in the Republic of Benin:**

1.1 Exploration of knowledge and understanding of SEP leading to its acceptance and implementation based on the diffusion of innovations theory.

1.2 Assessment of quality of life before and after the application of SEP.

1.3 Application of the three core components of SEP: moderation, reasonableness, and good self-immunity, along with morality and knowledge as two conditions facilitating sufficiency.

1.4 Identification of problems and obstacles encountered in applying SEP, including challenges from its implementation.

1.5 Examination of factors related to SEP adoption, encompassing reasons for farmers' acceptance or resistance to SEP implementation.

#### **2. Scope of Lessons Learned from Successful SEP Practices in Thailand:** The scope of consideration was the same as the guidelines set out in the first scope but focused more on three levels of application: individual, family and community.

#### **3. Scope of Guidelines for SEP Adoption in the Republic of Benin:** Guidelines were proposed by analyzing the results obtained from objectives 1 and 2, along with insights gathered from a semi-structured interview.

### **Scope of Duration Time**

This research divided the duration time of the study according to the study areas as follows:

1. The duration of the study in the Republic of Benin was from 2018 to the present, coinciding with the period when TICA introduced SEP to farmers in



Djakotomey District, Republic of Benin.2. The duration of the study in Huay Tong Village, Mae Wang, Thailand, was from 2013 to 2023. This timeframe allowed for a comprehensive review of the success of farmers in adopting SEP.

### **Scope of Place**

According to the research objectives, the scope of place is represented below.

#### **1. Djakotomey District, Republic of Benin**

Djakotomey district was selected as the study area due to its heavy reliance on agriculture. However, the cultivation of agricultural products in this region is confronted with problems related to climatic and economic conditions, resulting in food insecurity. Since 2019, some farmers in the commune have become aware of this situation and have started taking SEP into practice. To ensure that there will be enough food to consume for all year round, the villagers have adopted the SEP idea by practicing mixed farming technique. Various kinds of crops such as maize, bean, soybean, cassava, and some fruit trees have been planted. (Leon, 2023). In addition, various kinds of animals such as sheep, pigs, chickens, and pigeons have been raising throughout the municipality. This practice allows them to apply the integrated farming system by which animal manure has been used as fertilizer for single and mixed crops (Leon, 2023). The choice of Djakotomey district was further justified by its representation of an area heavily impacted by food insecurity, making it an ideal location for TICA's introduction of SEP to address these issues.

#### **2. Huay Tong Village, Mae Wang, Thailand**

Huay Tong Village is selected due to its successful in applying SEP. The village used to face with food insecurity, the same situation as in Djakotomey district. Prior to the introduction of SEP, the villagers struggled to meet their basic needs, including food, clothing, housing, health care, and transport. In 1965, King Rama IX visited the inhabitants of the village with the aim of solving those problems. The Royal Project Development Center Office, then, proceeded according to his royal initiative by promoting the SEP to support the people in the area who are now living with good quality of life.

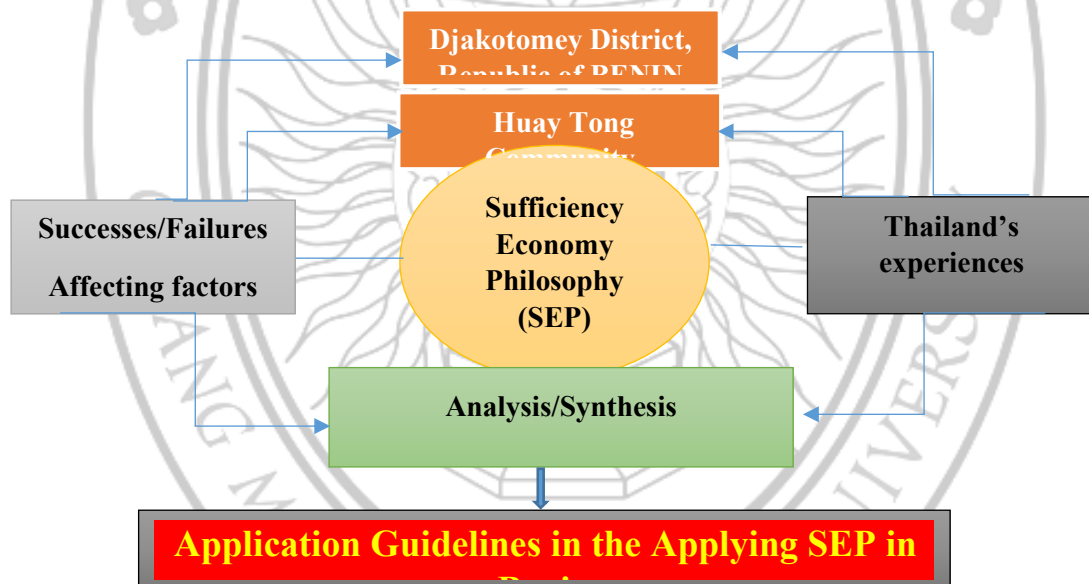
### Definitions of Terms

**Adoption** means the act of implementing or putting into practice a concept.

**Quality of Life (QoL)** means a characteristic of living conditions within the community, characterized by household income, education, food supply, health, housing, and environment within society.

**Sustainable agriculture** means a system that allows people or farmers to use the necessary resources while preserving the current capacity of the planet or community for future generations. This system contains five main patterns: agroforestry, organic farming, natural farming, new theory farming, and integrated farming.

### Conceptual Framework



**Figure 1.1** Conceptual framework of the research

The agricultural sector is important to improve farmers' quality of life, particularly in developing and underdeveloped countries. However, there are approximately 80 percent of farm households remain in poverty and food insecurity. Applying SEP as a sustainable development tool, then, could alleviate those problems

and enhance their living standard. This is because SEP has its principle put into practice in the middle of path at the individual, community and national level. Accordingly, the conditions affecting successes and failures of SEP adoption will be examine by focusing on the agricultural country context of the Republic of Benin and Thailand. Finally, the analytical suggestions will be shaped in order to make guidelines in applying SEP for farmers in Djakotomey District, Benin.



## **CHAPTER 2**

### **LITERATURE REVIEW**

This Chapter presents the theoretical context of the study, elaborating on the debates and concepts introduced earlier. The thesis's analytical framework draws from key aspects of the extensive literature on Sufficiency Economy Philosophy, sustainable development, and acceptance approaches, which collectively inform the overall research design (see Chapter 3).

1. Sufficiency Economy Philosophy concept
  - 1.1 Meaning and Principles of Sufficiency Economy Philosophy
  - 1.2 Pillars and Conditions of Sufficiency Economy Philosophy
  - 1.3 Application of Sufficiency Economy Philosophy to Sustainable Development in Thailand
  - 1.4 Sufficiency Economy and New Theory under the Royal Development
2. Concept of Sustainable Development
  - 2.1 Definition and Importance of Sustainable Development
  - 2.2 Principles of Sustainable Development
  - 2.3 Application of Sustainable Development
3. The Notion of Quality of Life (QoL)
  - 3.1 Definition and Important of QoL
  - 3.2 Indicators and Measurement of QoL
  - 3.3 Construction of QoL
  - 3.4 QoL and Its Relation to Sustainable Development.
4. Acceptance of Innovation Concept
5. Case Study Context

## **Sufficiency Economy Philosophy Concept**

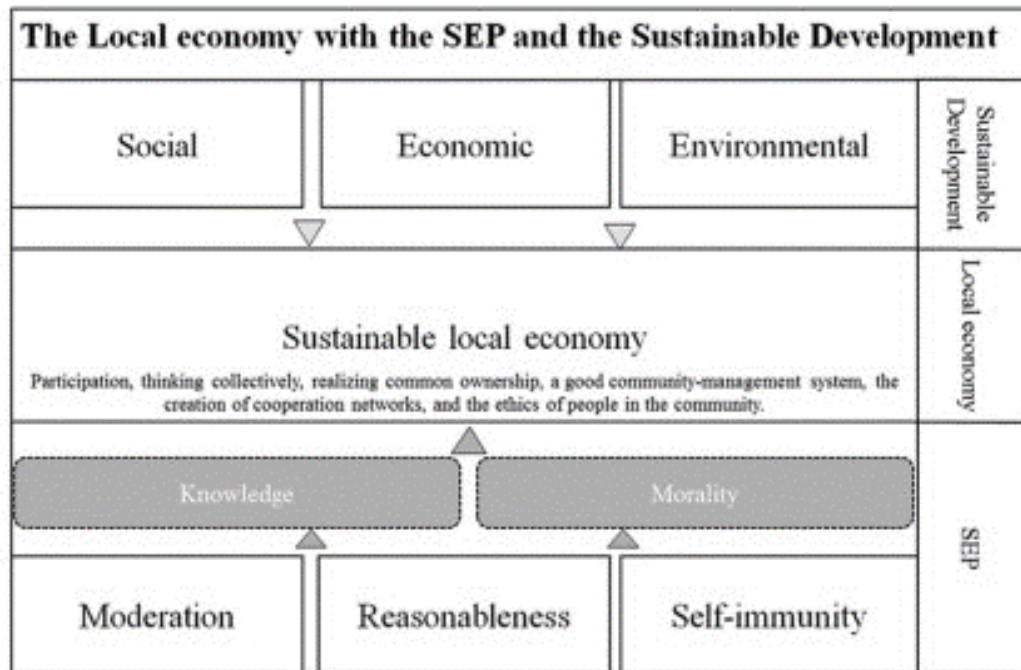
### **1. Meaning and Principles of Sufficiency Economy Philosophy**

The Sufficiency Economy Philosophy (SEP) was proposed and developed in 1997 by His Majesty Bhumibol Adulyadej, the King of Thailand. This philosophy provides guideline for sustainable development and economic growth, promoting a sustainable way of living for Thai people (Janmaimool & Denpaiboon, 2016). According to Jenjarrussakul and Senasu (2021, 2022), on November 29, 1999, His Majesty the late King Bhumibol Adulyadej official defined SEP, explaining that it is a philosophy guiding life, behavior, and the improvement of Quality of Life of people at all levels, from family and community to national development and governance. This philosophy is based on the “middle way” economic development. During Asian financial crisis in 1997, the King conceived the idea of implementing SEP to solve that problem. As a result, Thai people were able to overcome the financial crisis by adopting and practicing SEP in their daily lives (Korphaibool, Chatjuthamard, & Treepongkaruna, 2021). SEP has been recognized as an effective concept to guide community members in overcoming poverty and contributing to sustainable economic growth (Jeerat et al., 2023). In others words, the philosophy practice allows people to balance and secure their life by improving their livelihoods and income and sustaining agriculture strategy for food secure of the people. According to Janmaimool and Denpaiboon (2016), SEP improves the quality of life and environment sustainably through its practice. According to Mahakunajirakul and Ruenrom (n. d), the SEP is adopted as a middle path economy, practiced at all levels: individual, household, family, community and national. SEP builds knowledge, relationship, and values in the community by balancing social, environmental, economic and cultural aspects (Jedaman et al., 2020). Wattanakornsiri, Pukkalanun, and Phimphanthavong (2020) sustain that SEP promotes villagers’ knowledge about their daily lives and supports the qualities of life and human development, aiming to achieve Sustainable Development Goals (SDGs). SEP promotes efficient use of natural resources, good governance, and ethical practices without compromising needs and sustainability of future generations. Recognized by the United Nations (UN) in 2006 as a sustainable development tool under the 17 SDGs, SEP serves as a development model to improve the environment, social equality, and economic growth (Savetpanuvong, 2021). SEP addresses issues in



agriculture and the economy, such as natural resource deterioration, environmental degradation, poverty, income inequality, and food insecurity (Mongsawad & Thongpakde, 2016). In this study, SEP refers to good governance of community agriculture and natural production by villagers, aiming to achieve food security, self-reliance, and quality of life in a healthy environment. SEP emphasized improving quality of life sustainably, leading to knowledge and proper morals adopted in all sectors, including bureaucracy, academia, the private sector, and ordinary citizens. Successful SEP practices are believed to yield beneficial outcomes, helping people escape poverty by reducing farming expenditures, increasing incomes, and promoting sufficiency through local resources management and knowledge-based farming practices. This can lead to restore environmental conditions for sustainable community development. According to His Majesty Bhumibol Adulyadej, SEP is a guideline for living self-reliant, free from poverty, and sufficiently, with good jobs based on integrity, a simple life and economical lifestyle, and stable, sustainable, and careful living. The principle of moderation, reasonableness, self-immunity, and the necessary conditions of knowledge and morality, lead to achieving 17 SDGs through forest, water, and soil management, economic growth, and social development.

For economic local sustainability based on SEP, rural people should understand clearly key aspects of SEP activities, including participation, collective thinking, ownership, robust community management, cooperation networks, and community ethics. Applying SEP and achieving concrete outcomes requires ethical, integrity, and knowledge (Wongkumchai & Kiattisin, 2021).



**Figure 2.1** The conceptual diagram of the local economy with the SEP in terms of sustainable development.

**Source:** Mahakunajirakul and Ruenrom (n. d.)



**Figure 2.2** Concept of Sufficiency Economy Philosophy

**Source:** Royal Thai Embassy, Doha Qatar (2015)

Janmaimool and Denpaiboon (2016), Agard and Roberts (2020), Korphaibool, Chatjuthamard, and Treepongkaruna (2021), Wattanakornsiri Pukkalanun and Phimphanthavong (2020), and Arevart (2018) stated that SEP has three interconnected components and two important conditions. People who have believed in the SEP should use these components and conditions, which are core to sustainable development and improving quality of life. The self-reliance also contains same principles emphasized individuals' ability and needs by avoiding external assistance. The components are: Moderation, Reasonableness and Self-immunity. The conditions: Knowledge and Morality. The SEP supports an adoption and implementation of the Middle way of practice through three principles with two conditions (Wattanakornsiri Pukkalanun & Phimphanthavong, 2020).

Morality or integrity involves individual, cooperatives, or communities showing compassion to others, a crucial value for applying SEP (Naipinit, Sakolnakorn, & Kroeksakul, 2014).

Practicing SEP through its principles and conditions allows people to appreciate situations, identify objectives, and lead them to make decisions. This can be used at any level of society from community to national, leading to good human development (Naipinit, Sakolnakorn, & Kroeksakul, 2014). SEP provides solutions to modern economic challenges, such as poverty, through cooperative farming systems in urban and rural areas (Naipinit, Sakolnakorn, & Kroeksakul, 2014)

## **2. Sufficiency Economy Philosophy Pillars and Conditions**

### **Moderation principle**

According to Janmaimool and Denpaiboon (2016), moderation is philosophy of life which is the core of the SEP. This principle is referred to aspect of moderation in individual good intentions of doing something, moderation in needs, in wealth, and in happiness. Moderation in the mind plays an important role and leads individuals to self-assess to control their excessive thoughts (Barua & Tejavivaddhana, 2019). It can allow people to avoid risky behaviors. Savetpanuvong (2021) stated that moderation is related to both production and consumption which should be done in moderate level. In addition, Jedaman et al. (2020) and Savetpanuvong (2021) stated that moderation involves avoiding extremes, neither too small nor too excessive, and ensuring that one's actions do not encroach upon oneself or others. The SEP concept is

derived from the Buddhist philosophy which teaches its members to follow the "middle way" of avoiding greed and excess, with regard to economic development in the age of globalization (Barua & Tejavaddhana, 2019). It is a balance between the emotional needs and desires of a person taking into account the impacts on his neighbors and environmental on health. Moderation is about avoiding extremes by balancing activities between necessity and waste, between local needs and globalization, and between autonomy and dependence. Moderation causes people to keep their behavior more sustainable (Mongsawad & Thongpakde, 2016). Moderation implies the practice of simplicity, refraining from extreme behavior. Practicing moderation fosters stable personal growth. Embracing simplicity as a guiding principle leads to a content and envy-free life, fostering a positive impact on society (Wanasilp & Tangvitoontham, 2015).

### **Reasonableness Principle**

Reasonableness means the evaluation of the consequences of an action or decision. Decisions regarding the level of sufficiency must be made rationally, taking into account the factors resulting from such a decision not only on oneself but also on one's neighbors, the community, and the environment in both the short and long-term (Barua & Tejavaddhana, 2019). Reasonableness is the ability to make decisions relating to rational management by considering the results that these decisions produce. It is also the ability to analyze and understand both external and internal causes and their effects on actions that lead to sufficiency (Barua & Tejavaddhana, 2019; Wongkumchai & Kiattisin, 2021). Reasonableness is ability to make a decision or take action regarding the level of self-sufficiency while considering all relevant factors, both external and internal, and carefully considering the expected results of such actions (Budhtranon, Chianchana, & Kamkhuntod, 2021). This principle implies a careful and prudent approach to actions. Reasonable individuals gather relevant information for decision-making, anticipate outcomes, consider the potential risks and benefits, and evaluate their impact on others and the community. Embracing reasonableness as a guiding principle undoubtedly benefits society through fostering increased peace and prosperity (Wanasilp & Tangvitoontham, 2015).



### **Self-immunity principle**

The principle of self-immunity is fundamentally about being prepared for various effects and changes, whether external or internal, that stem from one's actions in agricultural practices, which are anticipated to manifest in the future, as described by Wongkumchai and Kiattisin (2021). It is the fact of being ready to face oneself the impacts related to internal and external changes in various aspects taking into account the appearance of future situations, according to Barua and Tejavivaddhana (2019). Jeerat et al. (2022) suggest that self-immunity entails being equipped to effectively handle challenges resulting from external socio-economic, physical, environmental and cultural impacts and changes. Self-Immunity is aimed at good risk management strategies and adapting to the external and internal vagaries of life that affect agricultural production (Naipinit, Sakolnakorn, & Kroeksakul, 2014). Self-immunity involves the ability to manage risks and adversities without excessive reliance on external support, such as government assistance. To achieve self-immunity, individuals must exercise prudence, stay informed about potential risks, employ risk-mitigation tools like savings and insurance, participate in clubs or associations, and cultivate strong community connections (Wanasilp & Tangvitoontham, 2015).

### **Knowledge condition**

Knowledge is having a deep understanding of agricultural practices to find solutions to farming problems by careful planning (Wongkumchai & Kiattisin, 2021). It is the experience and skills acquired from mentors, academic training, and a training center, enabling individuals to make decisions (Barua & Tejavivaddhana, 2019). A fundamental understanding of several relevant domains is essential for attentive and prudent use as well as competencies (Jeerat et al., 2022). Knowledge represents one of the foundational pillars supporting the practice of these three SEP principles. Possessing sufficient knowledge enables individuals to make reasonable and self-immune decisions for daily living and future planning. (Wanasilp & Tangvitoontham, 2015)

### **Morality condition**

Morality is a proof of ethics, honesty, patience, perseverance and wisdom in life. Basic morality ensures that individuals do not envisage the good of the other, but allows to do like others to have the same benefits. It can allow to sacrifice one's



own or individual advantages for the benefit of others for common objectives in one's environment (Wongkumchai & Kiattisin, 2021). Morality serves as a guideline principle, promoting people to consider the impact of their actions on others and their communities (Mongsawad & Thongpakde, 2016). It refers to the ethical standards of honesty, patience, diligence, and integrity in one's conduct (Kansuntisukmongkol, 2017).

According to figure 2, Sufficiency Economy Philosophy (SEP) consists of three interconnected components and two underlying conditions. Applying this philosophy people farmers need to both conditions which are necessary to achieve Sustainable Development Goals (SDGs). In other words, applying the SEP concept leads to improved living conditions for households and communities by balancing economic, social, environmental factors, ultimately contributing to national stability and sustainability. The virtues associated with knowledge shape moderation, reasonableness and prudence, maximizing durable results. Proper application of these principles leads to self-reliance, resilience, and immunity by balancing life across four dimensions: economic, social, environmental and cultural (Ministry of Foreign Affairs, Kingdom of Thailand, 2020).

These values, virtue, and knowledge are important for villagers to develop their community through agricultural activities, addressing problems at both individual and cooperative levels (community learning center) (Simantara et al., 2022), then improving their quality of life. Moreover, knowledge and virtue play a vital role in the agricultural sector by enabling farmers to be credible and confident in facing and reducing problems in agricultural production (Nguyen, Seddaiu, & Roggero 2019). For example, knowledge is essential for farmers to face climate change by establishing storage and reserves of farming products, seeds, and tools, as well as preserving land and water resources to ensure economic security (Kansuntisukmongkol, 2017). Effective management and protection of natural resources, including land and water, allow farmers to grow crops out of season (Kansuntisukmongkol & Thongpakde, 2017). This ensures households have access to food year-round, meeting their own agricultural needs with organic fertilizers and saving and selecting their own seeds for family consumption (Kansuntisukmongkol, 2017). Morality serves as the second pillar, ensuring that individuals behave reasonably. Those with a strong moral compass exhibit

good citizenship, cooperation, and a willingness to assist others. Furthermore, with a clear conscience, individuals can lead simple lives without resorting to extremes (Wanasilp & Tangvitoontham, 2015).

### **3. Sufficiency Economy Philosophy applies to sustainable development in Thailand**

The government of Thailand utilizes the Sufficiency Economy Philosophy as a tool for national development planning. This allows people to practice sustainable livelihoods by cultivating vegetables, rice, corns for personal consumption or sale, raising domestic animals for income, and saving money within community or cooperative societies while maintaining a healthy environment through the practice of morality and knowledge. The philosophy is applied in Thailand to achieve sustainability in economic, social, and environmental dimensions (Naipinit, Sakolnakorn, & Kroeksakul, 2014).

#### **1. Economic dimension**

The economic dimension of sustainable development emphasizes that the primary goal for countries today is not merely economic growth, but sustainable development that enhances the quality of life for their populations. As Isarangkun and Pootrakool (n.d.) note, no country or community can advance without economic growth, which is foundational to improving living standards. Promoting human capital, government need to invest in education and has a good system of education. This human capital contributes to economic growth by helping to have a good job in government service or good business in private. This investment not only helps eliminate poverty and reduce inequalities, including those based on gender but also ensures that education is accessible to all. Ensuring access to at least nine years of compulsory primary and secondary education is a crucial target of the Sustainable Development Goals (SDGs). This target of SDG is mostly important which can help many countries in the world to expand social safety by avoiding discrimination according to Sustainable Development Report (2022). Education involves both the imparting of knowledge and the acquisition of knowledge. It also refers to the knowledge received through schooling or instruction and the institution of teaching itself. It is the development of cognitive abilities. According to Syeda and Nazish (2017), education is an essential factor for economic growth and a fundamental right of every person. No country can attain sustainable

economic growth without substantial investment in education. Education improves technical capabilities, fostering innovation, and improves the quality of life, leading to collective benefits for individuals and societies. Economic growth is a broad process of growth, progress, and change, driven by the residents, organizations, and governments of a given area. Women's literacy rates play a vital role in enhancing national economic development. Ekber and Gökhan (2013) indicate that higher education becomes an important political issue within the knowledge-based economy. For individuals, higher education is a key determinant of career and economic success. For society, it forms the basis of economic performance, ensuring higher incomes and better job opportunities. Consequently, it directly influences individuals' success in both daily life and business. Syeda and Nazish (2017) revealed that developing and developed nations must focus on improving its educational system for staying in competition with the worldwide economies. So far, the governments put a large amount of money for the education sector of its budget allocation. From these definitions we will show that education and economic activities lead to labor force participation and further improve the economic development. Education is a powerful driver of development and one of the strongest instruments for reducing poverty and improving health, gender equality, peace, and stability. Developing countries have made significant progress in enrolling children in primary schools, and most children worldwide are now in primary education. Investing in research and development is crucial for promoting economic growth and reducing inequalities (Sustainable Development Report, 2022). Thailand's primary development objective has been to foster economic growth and meet the essential needs of its population. The emphasis on infrastructure development, particularly in roads and electricity, stems from three significant reasons. Firstly, it addressed a fundamental necessity: the road network connected rural villages to market systems and facilitated rural-to-urban migration, while electricity enabled increased production and supported daily activities. Secondly, infrastructure development was a pivotal driver of economic growth, creating jobs and promoting overall economic expansion (Thongpakde, n.d.; Feigenblatt et al., 2022). Thirdly, infrastructure development was linked to security, allowing the government to extend its services to rural areas and reduce the influence of the Thai Communist Party in remote regions. This strategic development bolstered national security (Thongpakde, n.d.).

The concept and practices of the Sufficiency Economy were born from the profound wisdom of His Majesty the King, who drew from his extensive 50-year experience in rural development and poverty alleviation. An illustration of this can be found in an excerpt from His Majesty's speech delivered on July 18, 1974. In this address, His Majesty provided insightful guidance for the country's development, emphasizing the principle of moderation. His Majesty stressed that the nation's development should occur incrementally, beginning with the establishment of a strong foundation. This foundation should prioritize ensuring that the majority of the population has access to their basic necessities using cost-effective means and equipment that adhere to theoretical principles (The Chaipattana Foundation, 2020; Thongpakde, n. d.).

The concept of the Sufficiency Economy advocates for production and trade practices to those in the contemporary capitalist system. It primarily recommends that individuals exercise reasonableness, moderation, and self-sufficiency. By doing so, individuals can mitigate the frequent economic crises that have become a common in the present day (Wanasilp & Tangvitoontham, 2015).

## **2.Social dimension**

It was not until the crisis that the people of Thailand truly grasped the importance of His Majesty's teachings. Subsequently, Thai people recognized the Sufficiency Economy Philosophy (SEP) as prescription for a sustainable economy, garnering substantial recognition across all sectors. Following this crisis, the Thai government initiated the incorporation of the SEP as a fundamental framework for the nation's economic development programs (Wanasilp & Tangvitoontham, 2015). The SEP, developed by King Bhumibol Adulyadej, serves as a guiding framework for sustainable development and social well-being in Thailand (Feigenblatt et al., 2022). This philosophy is based on the idea that individuals, communities, and the nation should seek balance and moderation in their pursuit of economic and social progress. It encompasses various principles, such as resource sufficiency, mindful consumption, and the importance of self-reliance (Feigenblatt et al., 2022).

Applying the SEP to the development of Thailand involves several key aspects as following:



1) **Balanced Development:** SEP emphasizes balanced development, where economic growth is pursued in harmony with social and environmental considerations (Thongpakde, n. d.; Naipinit, Sakolnakorn, & Kroeksakul, 2014). It discourages reckless and unsustainable practices that can lead to resource over-exploitation or social inequalities.

2) **Sustainable Agriculture:** Promoting sustainable agricultural practices is a central element of SEP. Encouraging farmers to adopt sustainable and organic farming methods, as well as diversifying agricultural production, can contribute to food security and environmental protection (Setsoafa, Ma & Renwick, 2022; Gebbsa et al., 2020).

3) **Community Empowerment:** SEP encourages the development of strong and self-reliant local communities. This can involve providing training, resources, and support to enable communities to manage their own resources and improve their well-being.

4) **Prudent Financial Management:** Individuals and businesses are encouraged to manage their finances prudently, avoiding excessive debt and risky financial behavior. This can help create economic stability at the individual and community levels.

5) **Education and Knowledge Sharing:** Promoting education and knowledge sharing is a fundamental aspect of SEP. This includes raising awareness about sustainable practices, empowering people with the skills they need for self-reliance, and fostering a culture of lifelong learning (Khaokhrueamuang, 2017; Al-Kurdi, El-Haddadeh, & Eldabi, 2018).

6) **Government Policies:** The government plays a crucial role in creating policies and regulations that support sustainable development and the well-being of its citizens. This includes encouraging sustainable practices, supporting research and development, and addressing social disparities (Ministry of Foreign Affairs, Kingdom of Thailand, 2017).

7) **Private Sector Involvement:** Businesses and corporations contribute to SEP by adopting ethical and sustainable practices that benefit both the company and society as a whole (Ministry of Foreign Affairs, Kingdom of Thailand, 2017). This includes corporate social responsibility (CSR) initiatives. This key pillar of the SDGs



promotes key investment in health and well-being. To achieve this, government policy must give people the opportunity to be covered by universal health and ensure that people have access to health services (Sustainable Development Report, 2022). Making food by managing land and water on sustainable way people must use integrated strategies. This enhances environment quality and people healthy. SEP encourages the development of strong and self-reliant local communities. This may involve providing training, resources, and support to enable communities to manage their own resources and improve their well-being (Ministry of Foreign Affairs, Kingdom of Thailand, 2017). Achieving this, government of Thailand give the scholarship student from secondary school until finish PhD, leading its people to get good employment for community empowerment then improve their quality of life. Moreover, one can envision that individuals who adopt the straight forward SEP framework, as depicted, are likely to enjoy a fulfilling life characterized by modest living and steady progress. When members of the community embrace this approach, it is probable that the overall economy will flourish and follow a sustainable growth trajectory (Wanasilp & Tangvitoontham, 2015). Thailand officially incorporated nutrition into the country's fourth National Economic and Social Development Plan (NESDP) from 1977 to 1981. However, substantial advancements in nutrition were initiated during the fifth NESDP (1982-1986) under the purview of the National Committee on Rural Development, with a heightened focus on provincial, sub-district, and community levels. The primary emphasis was on enhancing nutrition and meeting essential local needs (Kuwornu, 2017). The Poverty Alleviation Plan (PAP) recognized malnutrition as both a consequence of poverty and a key nutrition indicator. However, the PAP encompassed a comprehensive set of initiatives, including programs for creating rural employment, enhancing village development, providing essential services, and promoting agricultural production. Additionally, the Food and Nutrition Plan (FNP) specifically targeted vulnerable populations. It prioritized food production to improve nutrition within a subsistence economy, introduced supplementary nutrition for expectant mothers, and implemented community-based complementary feeding for infants and young children. These efforts led to a significant reduction in the prevalence of underweight children under the age of five in rural communities (Kuwornu, 2017).

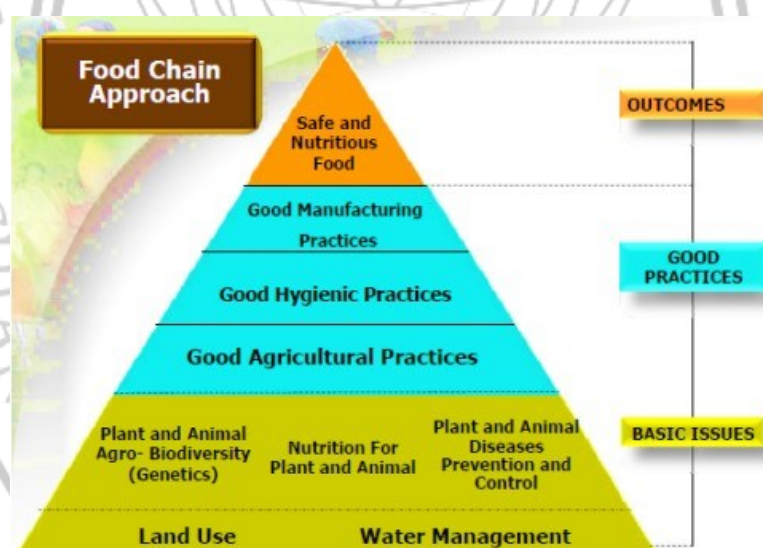
Thailand stands as one of the most remarkable success stories globally

when it comes to reducing poverty. Transforming from a low-income nation in the 1950s, Thailand reached middle-income country status in just a few decades (Pramudwinai & Don, 2016). The core objective of the SEP has consistently been to alleviate suffering among the impoverished and the vulnerable. Through the promotion of knowledge, temperance or moderation, and judicious or prudent decision-making, the SEP has empowered individuals and communities to enhance their self-reliance and resilience in the face of a volatile global landscape. The subsequent projects showcase the application of the SEP principles in the pursuit of poverty eradication (Kuwornu, 2017). One Tambon One Product (OTOP) represents the government's initiative to sustain or encourage local entrepreneurship and community-based enterprises. Each community is encouraged to discover its unique identity, create region-specific products, and establish brands to enhance income generation. The government provides support to these community enterprises through technical and marketing assistance. Numerous OTOP products have gained international popularity, often leveraging online marketing channels (Kuwornu, 2017; Thailand National Food Committee (TNFC), 2017). The Doi Tung project stands as another program and has evolved into one of the most prominent success stories in sustainable development within the northeastern highlands of the country. This initiative effectively addressed issues like opium cultivation and deforestation in the mountainous regions by replacing opium with Arabica coffee trees (Ministry of Foreign Affairs, 2015). Thailand government established Living Museums which are learning centers. These are agricultural research centers aimed at facilitating the acquisition and application of holistic SEP-based methodologies by local communities. These techniques encompass integrated approaches to soil and water resource management, land development, and animal husbandry (Kuwornu, 2017; Thailand National Food Committee, 2017).

### **Food Situation in Thailand**

The food situation in Thailand, a nation endowed with rich biodiversity and abundant resources, demonstrates significant potential to produce a substantial food supply. This capacity suffices not only for its own population but also supports exports. However, several factors impact production efficiency across all stages of the production process, particularly those related to resources, production methods, agricultural labor, and more. By considering the national food committee act, Thailand's

food situation can be examined as shown in figure 2.3 below (Thailand National Food Committee, 2017). This figure shows that the concept encompasses various aspects of agricultural production, including responsible land utilization, effective water management, and the preservation of genetic resources in plants and animals, as well as measures for the prevention and control of plant and animal diseases. It also includes adherence to Good Agricultural Practices (GAPs), Good Hygienic Practices (GHPs), and Good Manufacturing Practices (GMPs) (Kuwornu, 2017). The primary step of food situation is geared towards securing food at the national, community, and household levels, as it serves as the foundation for nutritional security. Within this framework, key focal points include delimit zones for food and energy crop cultivation, enhancing production efficiency to ensure the availability of safe and high-quality food, facilitating food access for communities and households, conducting research, and enhancing the logistical aspects of food distribution systems as shown figure 2.4 (Kuwornu, 2017).

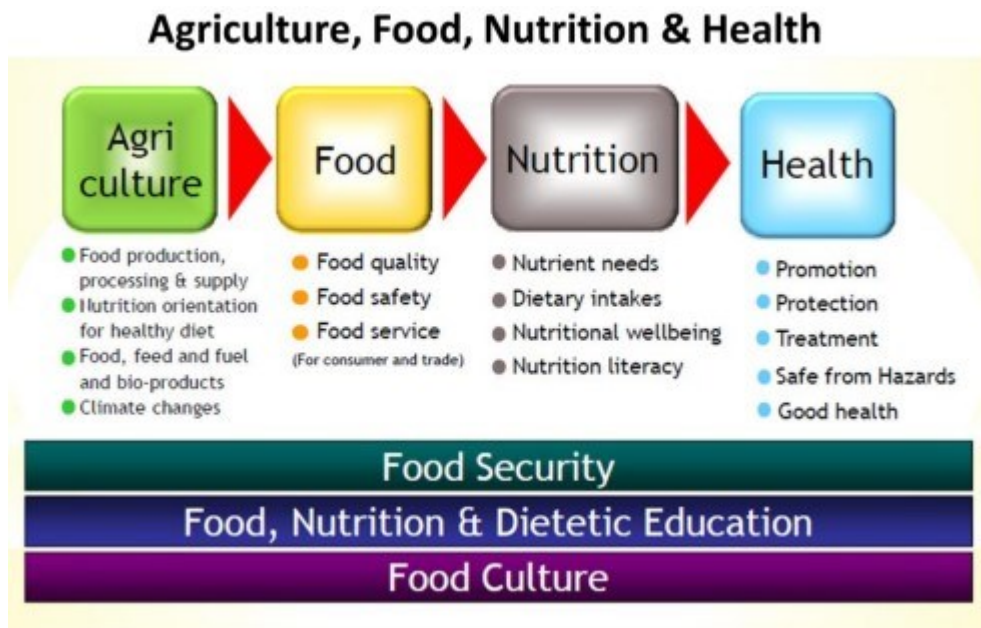


**Figure 2.3**

Food Chain Approach

**Source:**

Thailand National Food Committee, 2017

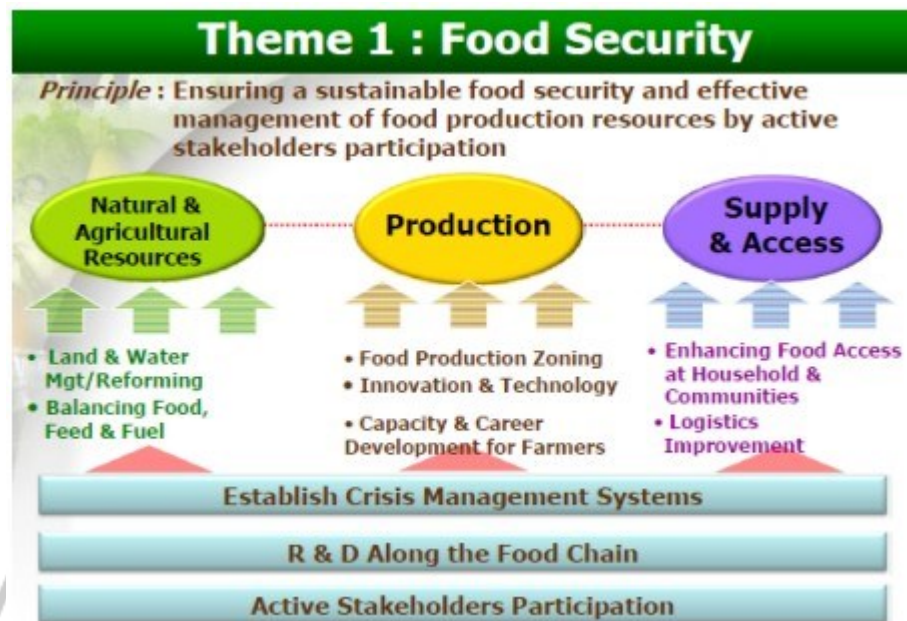


**Figure 2.4** Agriculture, Food, Nutrition and Health  
**Source:** Thailand National Food Committee, 2017

### 1. Food Security

Food security signifies that every individual has access to a sufficient and safe food supply that meets nutritional requirements for all age groups. It also implies that the food supply maintains a well-balanced production chain that is harmonious with the ecosystem and utilizes natural resources effectively for national food production, both in regular conditions and during unforeseen events such as natural disasters or food-related terrorist threats (TNFC, 2017). The definition above implies that every Thai citizen possesses the entitlement to receive an ample food supply, holds sufficient production capacity, and can access essential resources. However, the depletion of the country's natural resources has had a detrimental impact on agricultural production and food security (Thailand National Food Committee, 2017; Kuwornu, 2017).





**Figure 2.5** Food Security

**Source:** Thailand National Food Committee, 2017

As illustrated in Figure 2.5, the process of enhancing food security involves promoting household food accessibility. This is accomplished by motivating local residents to cultivate regionally significant, nutritionally rich crops and engage in local animal husbandry, effectively establishing a local "food reserve." Such reserves can also serve as valuable resources during emergency situations. This agricultural approach aligns with the principles of the Sufficiency Economy Philosophy (Kuwornu, 2017). The ten key strategies outlined in this figure are as follows:

1. Accelerate land reformation and safeguard agricultural areas.
2. Effectively manage water and land resources for agricultural and community forests.
3. Achieve a balance between food and energy crop production.
4. Enhance the efficiency of food production.
5. Foster motivation for pursuing agriculture as a profession and increase the participation of young agriculturalists.
6. Facilitate food access at both household and community levels.
7. Develop and enhance logistical systems for agriculture and food production.



8. Foster collaboration between government agencies, the private sector, and the Thai population to safeguard food security.

9. Invest in research and technological innovations throughout the entire food production process.

10. Establish an emergency plan to ensure food security during crisis situations.

## 2. Food Quality and Safety

Food quality and safety involve the establishment and enforcement of food production standards, spanning from the community level to the food industry (Kuwornu, 2017).



**Figure 2.6** Food Quality and Safety

**Source:** Thailand National Food Committee, 2017

Figure 2.6 shows that the objective of Food quality and safety is to produce safe, high-quality food items that safeguard consumer health and facilitate both domestic and international trade (Thailand National Food Committee, 2017). The thematic strategies to achieve this include:

1. Standardize food safety measures and promote their implementation.
2. Enhance the production of primary food products to meet quality and safety standards, while also boosting their nutritional value.

3. Provide support and oversight for food production at the community level to minimize losses and enhance product value.

4. Extend support and oversight for food production across all industrial sectors.

5. Foster the trade and marketing of standardized products originating from both community and industrial sources.

6. Strengthen the mechanisms for monitoring and controlling national food quality and safety.

Initiatives within Food quality and safety encompass:

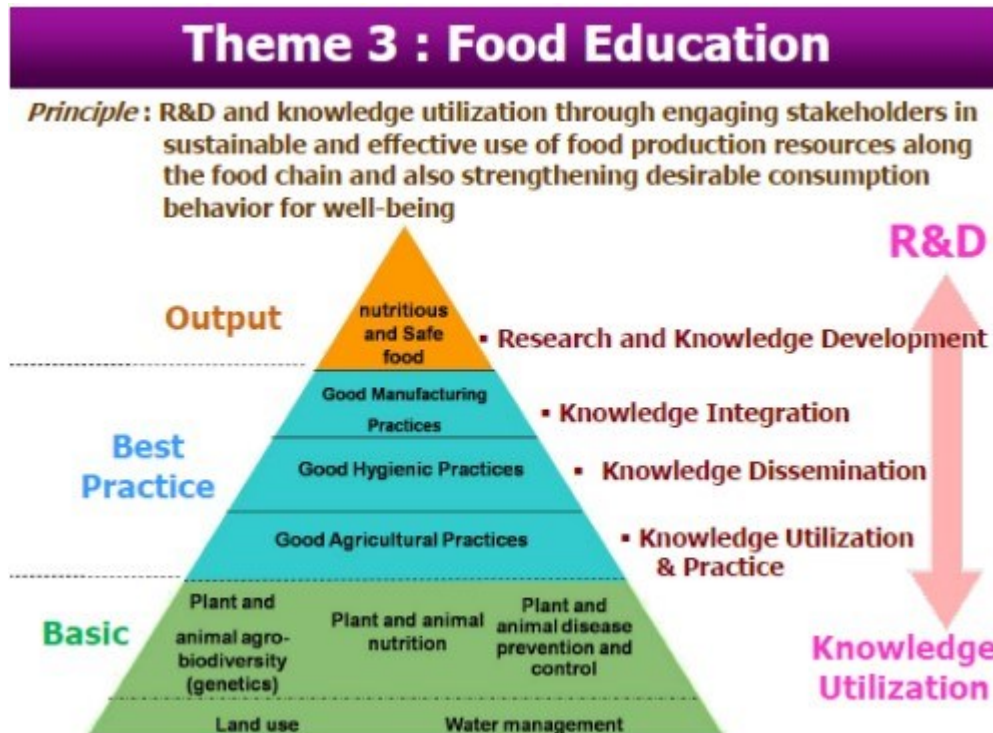
1. Advancing research in breeding and disease control for plants, animals, and other resources to enhance their quality and nutritional value.

2. Promoting Good Agricultural Practices (GAPs) and expanding the number of farms implementing GAPs through knowledge dissemination, alongside the promotion of wholesome agricultural methods, including organic agriculture and the Integrated Pest Management (IPM) system.

3. Promoting food preservation and processing to curtail food and nutritional losses while amplifying their value. This is achieved through research and the adoption of best practices, which include GAPs, Good Hygienic Practices (GHPs), Good Manufacturing Practices (GMPs), and Hazard Analysis Critical Control Points (HACCP).

Implementing food quality and safety assurance systems for both domestic and exported foods, thereby ensuring consumer protection and facilitating international food trade (Thailand National Food Committee, 2017).

### 3. Food Education



**Figure 2.7** Food Education

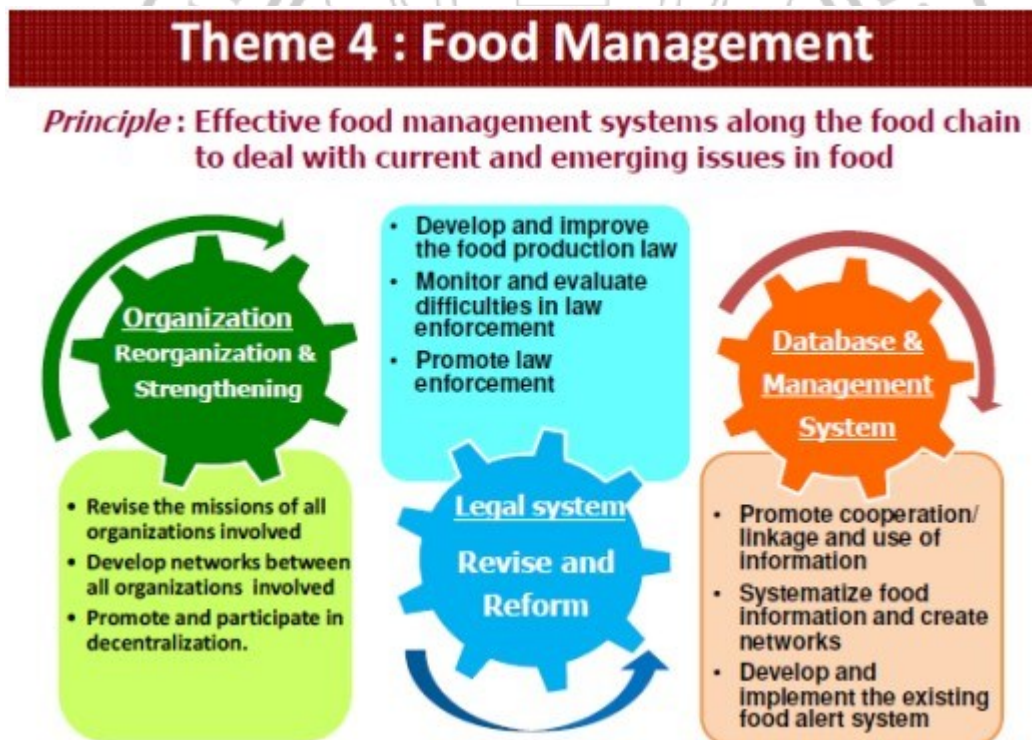
**Source:** Thailand National Food Committee, 2017

Food education emphasizes the promotion of knowledge and research, the effective use of research outcomes to raise awareness, and the responsible management of resources for food production and desirable consumer behaviors (Kuwornu, 2017). As illustrated in figure 2.7, the primary strategies within this Food Education encompass knowledge management throughout the entire production process to the final output. These strategies include:

1. Encouraging collaboration and integration among all agencies engaged in food education.
2. Providing support for applied food research.
3. Establishing knowledge management practices in food education and fostering ongoing knowledge dissemination.
4. Promoting suitable food education among farmers and communities.
5. Encouraging appropriate individual and community consumer behaviors.

A pivotal strategy within food education, executed by Ministry of Agriculture and Cooperatives (MOAC), centers on fostering "Food Educators of Smart Farmers." This category comprises individuals who excel in their roles, possess the necessary knowledge and information to make informed decisions regarding food production and marketing, prioritize consumer safety, and demonstrate awareness of social and environmental considerations. They take pride in being exemplary farmers. Furthermore, a key emphasis of the food education program is the development of appropriate consumer behavior indicators related to nutrition and health (Kuwornu, 2017; Thailand National Food Committee, 2017).

#### 4. Food Management



**Figure 2.8** Food Management  
**Source:** Thailand National Food Committee, 2017

The Food Management strategy focuses on the systematic enhancement of the nation's food value chains in both routine and crisis scenarios (Kuwornu, 2017). As in Figure 2.8, effective food management can be achieved through the following strategies: strengthening the organizational structures of involved sectors and



developing networks and cooperation; improving relevant laws and regulations and their enforcement within the food production chain; improving database and reducing gaps in national management; and improving capacity development and decentralization of authoritative, monitoring and evaluation systems (Thailand National Food Committee, 2017).

However, political influence is a major challenge in managing the food system at the national level as many issues need political approval before they can be addressed. To facilitate decision-making, the Strategic Framework for Food Management in Thailand (SFFM) emphasizes harmonization, coordination, and facilitation among key sectors with active participation from academia, the private sector, and NGOs (Kuwornu, 2017; Thailand National Food Committee, 2017).

### **3.Environmental dimension**

The pillars of sustainable development are interconnected and lead to economic, social, and environment stability, as shown in figure 2.8. Climate change is an all-encompassing global emergency that transcends boundaries (Kuwornu, 2017; U-tantada et al., 2016). The SEP principle offers a guiding philosophy that encourages informed and virtuous action. This entails avoiding unnecessary waste and excessive consumption, while also proactively preparing for impending future risks and unexpected shocks. In this regard, such careful and judicious resource management practices can assist Thailand in mitigating the impacts of climate change (Kuwornu, 2017). Thailand has embraced the Sufficiency Economy Philosophy (SEP) principle as the cornerstone or keystone of its approach to crafting National Economic and Social Development Plans. This philosophy aligns with the Sustainable Development Goals (SDGs) and aims to foster well-rounded and steady development at the levels of individuals, families, communities, and society as a whole. Furthermore, the SEP is committed to advancing the sustainability of natural resources and the environment by improving the efficiency, transparency, and equity of the natural resource and environmental management system (Ministry of Foreign Affairs, Kingdom of Thailand, 2016; U-tantada et al., 2016). The industrial sector in Thailand leverages modern infrastructure, a business-friendly environment, and the country's geographical advantages. Nonetheless, the industry's expansion is exerting significant stress on both infrastructure and the environment. The objective is not solely growth but also the



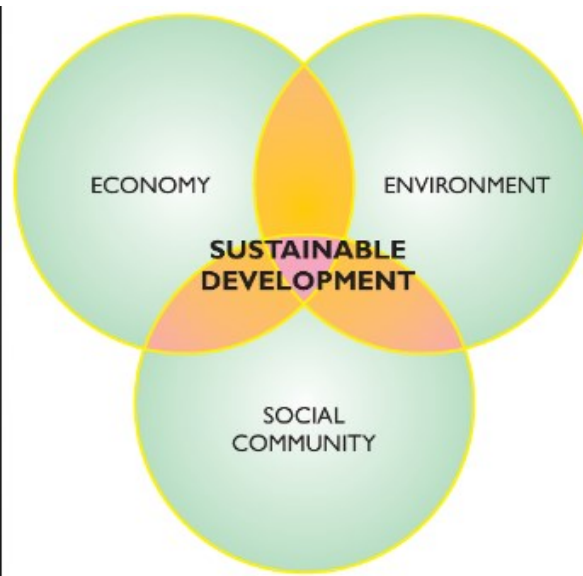
transformation of industrial development into an eco-friendly, sustainable, and equitable (Kuwornu, 2017). The government has established several programs to support business owners across all sectors and farmers, including:

1. The government has adopted the “Green Transport” program to actively pursue a series of environmentally friendly transport policies that leverage sustainable technologies, offering sustainable economic benefits and strengthen the resilience of the transport system.

2. Green financing or green loans, which are specialized loan products designed to offer reduced interest rates to entrepreneurs, small and medium-sized enterprises (SMEs), and individuals involved in environmentally friendly projects (Kuwornu, 2017).

3. The "Royal Rains" program is dedicated to generating artificial rainfall to assist Thai farmers in coping with drought resulting from climate change. The program's focal point has evolved into the Artificial Rainmaking Research and Development Center (Kuwornu, 2017).

At the national level, Thailand has also declared its commitment to reducing greenhouse gas emissions. In this regard, Thailand's Climate Change Master Plan (2013-2050) and National Disaster Prevention and Mitigation Plan (2015) aim to advance climate and disaster preparedness initiatives that align with the SEP principles of sustainable environmental practices. This approach includes water storage to prevent flooding during the rainy season and provide agricultural water during extended dry periods, accessible to ordinary villagers to help mitigate the adverse effects of climate change (Department of Pollution Control, 2015). Variations in soil nutrient levels result from the interplay of both natural and human influences. Alterations in land use inevitably bring about shifts in soil nutrient content. By comprehending the disparities in soil nutrient content associated with various crop cultivations, we can establish a foundation for the judicious utilization of land resources and the preservation of the ecological environment (Gorgoglione et al. 2018; & Zhao et al., 2018).



**Figure 2.9** Shows three Pillars of Sustainable Development leads to community stability or sustainability

**Source:** Ankit, 2015

From Figure 2.0, the application of Sufficiency Economy Philosophy (SEP) principles and conditions in Thailand, particularly within the context of the Middle Path, plays a crucial role in promoting sustainability across various domains, including society, economy, environment, and culture. Following is a summary of how SEP principles and conditions contribute to sustainability in these areas:

### 1. Society

1.1 SEP encourages moderation and avoidance of extremes, fostering social stability by reducing inequalities and minimizing social unrest.

1.2 By emphasizing self-reliance, communities and individuals are better equipped to withstand economic and social shocks, contributing to a more resilient society.

1.3 The philosophy promotes community values, preserving cultural traditions, and promoting social cohesion.

### 2. Economy

2.1 SEP advocates for wise financial management, discouraging excessive risk-taking. This leads to a more stable and sustainable economy.

2.2 It encourages diversification of income sources, reducing dependence on a single sector, which is essential for long-term economic stability.

2.3 SEP supports the development of small and local businesses, stimulating economic growth in rural areas.

### **3. Environment**

3.1 The Middle Path promotes responsible use of natural resources, reducing environmental degradation and preserving ecosystems.

3.2 SEP emphasizes the importance of environmental conservation and a balance between human activities and nature to ensure long-term sustainability.

3.3 Encouraging moderation in consumption leads to a lower ecological footprint, contributing to environmental sustainability.

### **4. Culture**

4.1 SEP fosters the preservation of cultural traditions and values, promoting a sense of identity and continuity.

4.2 It supports the coexistence of various cultures and traditions, contributing to the richness of the cultural tapestry.

4.3 By maintaining cultural practices, communities can better adapt to changes and challenges, ensuring cultural sustainability.

In summary, the application of SEP principles and conditions in Thailand, especially within the context of the Middle Path, seeks to strike a balance in various aspects of society, the economy, the environment, and culture. This balance is essential for long-term sustainability by promoting stability, resilience, responsible resource management, and the preservation of cultural heritage.

It is important to note that the SEP is deeply rooted in Thai culture and history. Its successful application depends on understanding and respecting these cultural foundations. Over the years, the government of Thailand and various organizations have implemented policies and initiatives to incorporate the principles of the SEP into the country's development agenda. While the application of the Sufficiency Economy Philosophy has achieved some success in Thailand, it is not without its challenges. Balancing economic development with social and environmental concerns can be complex and requires ongoing commitment and adaptation. However,

the philosophy remains an important part of Thailand's approach to development and sustainability.

Another important aspect significantly affecting environmental quality is New Theory Farming and integrated farming. These sustainable agricultural practices play a vital role in solving food security issues, empowering women and youth, and improving human capital, ultimately improving quality of life for Thai people. The pillars of sustainable development—economic, social and environmental—are interconnected. Moreover, the 12th National Economic and Social Development Plan (NESDP) has been formulated in alignment with the national strategy. This blueprint places a significant emphasis on socio-economic progress achieved through the utilization of knowledge, skills, as well as the integration of science, technology, innovation, and research and development. It also underscores the importance of striking a balance with environmental sustainability. Furthermore, this plan will persist in its focus on the principles of moderation, reasonableness, and prudence within the context of the Sustainable Economic Prosperity (SEP) framework (Ministry of Foreign Affairs (MOFA), 2016). However, Thailand's experience with the SEP demonstrates that the United Nations' 17 Sustainable Development Goals (SDGs) can be achieved when decision-making takes into account the well-being of people, the environment, and the needs of future generations (Ministry of Foreign Affairs, 2015).

The 2030 Agenda for Sustainable Development was adopted by United Nations member states in September 2015. This comprehensive plan, set to be accomplished within a 15-year timeframe, encompasses 17 Sustainable Development Goals (SDGs). These goals are accompanied by 169 specific targets and a set of 230 indicators used for measuring progress and success in achieving these objectives (Report of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs), 2016). The SDGs emphasize the significance of harmonizing the three key dimensions of sustainable development: economic, social, and environmental. This integration should be carried out in an inclusive manner, ensuring that no individual or group is excluded or left behind in the pursuit of these goals (Ministry of Foreign Affairs, 2017). However, Thailand has embraced its own development framework, known as the Sufficiency Economy Philosophy (SEP), as a means to attain the Sustainable Development Goals. This philosophy is rooted in



wisdom and integrity, guided by the principles of moderation, reasonableness, and prudence, originally conceived by the late King Bhumibol Adulyadej. The central tenet of the SEP revolves around sustainability and has served as the foundational principle of Thailand's National Economic and Social Development Plan since 2002 (Open Development Thailand, 2018).

Sustainability has been a foundational principle of the SEP since its inception. Numerous principles within SEP have been designed to address sustainability in Thailand by harmonizing economic growth, environmental preservation, and the well-being of its people. SEP is also fully aligned with the core principle of the 2030 Agenda and can serve as a valuable approach to advance the achievement of the SDGs on a global scale (National Voluntary Presentation (NVP), 2014).

Since the Asian financial crisis in 1997, the Sufficiency Economy Philosophy (SEP) has played a central role in guiding Thailand's sustainable development initiatives. This philosophy places a strong emphasis on achieving equilibrium in the utilization of economic, social, environmental, and cultural resources. Grounded in three fundamental principles, the SEP advocates for a moderate and balanced approach for all Thai individuals, spanning from families and communities to the entire nation (Open Development Thailand, 2018).

Therefore, in Thailand, the principle of moderation holds significant importance in attaining SDG targets. This includes the promotion of sustainable consumption and production practices (SDG 12), the reduction of fossil fuel consumption (SDG 7), and the responsible management of marine (SDG 14) and terrestrial (SDG 15) ecosystems. Indeed, reasonableness entails the deliberate contemplation of how our actions and choices can affect both others and the world at large. When we examine the Sustainable Development Goals (SDGs), we find that reasonableness has a multitude of practical applications in addressing global concerns, including climate change (SDG 13), equality (SDG 10), justice (SDG 16), the advancement of clean energy resources (SDG 7), and the mitigation of pollution (SDG 12). Prudence involves the systematic evaluation of potential risks, a methodical approach, and the attainment of a certain level of competency and self-reliance before advancing. It also encompasses the notion of individuals being mindful not to exceed



their capabilities. This guiding principle is applicable to a wide range of the SDGs, notably health (SDG 3), food (SDG 2), water (SDG 6), and energy security (SDG 7), among others (Open Development Thailand, 2018).



**Figure 2. 10** Sufficiency Economy Philosophy for Sustainable Development Goals (SDGs).

**Source:** Ministry of Foreign Affairs of Thailand, 2017.

This figure shows that the concept of "SEP for SDGs" emerged from the Sufficiency Economy Philosophy (SEP). SEP places strong emphasis on leveraging local wisdom and culture to address specific development challenges in various regions, while nurturing a mindset of sustainability among the local population. Importantly, the SEP has been deployed in various aspects of life prior to its application in the pursuit of the Sustainable Development Goals (SDGs). Both the SEP and the SDGs have been seamlessly integrated into Thailand's 20-Year National Strategy Framework and the 12th National Economic and Social Development Plan (2017–2021), which includes the Thailand 4.0 policy. This alignment has led to the synchronization of plans and budgets across all government agencies with both SEP and the SDGs (Open Development Thailand, 2018).

### **National Strategy Framework (2017–2036)**

The 20-Year National Strategy Framework (2017–2036), released by Prime Minister General, is crucial for delineating Thailand's sustained path toward sustainable development. Referred to as the "6-6-4 plan," the framework integrates six key domains, six fundamental strategies, and four supplementary strategies. This strategic amalgamation aims to comprehensively guide Thailand's future developmental initiatives (Open Development Thailand, 2018). The framework categorizes six essential domains as follows:

1. Security
2. Competitiveness enhancement
3. Human resource development
4. Social equality
5. Green growth and rebalancing
6. Public sector development

Aligned with these domains, the six primary strategies aim to:

1. Foster the growth and realization of human capital potential
2. Foster justice and diminish social disparities
3. Stimulate the economy and improve sustainable competitiveness
4. Encourage green growth for long-term sustainability
5. Ensure national stability as a foundation for prosperity and sustainability
6. Enhance the efficiency of public sector management and advocate good governance.

The four supplementary strategies aimed at facilitating efficient national development encompass:

1. Infrastructure development and logistics system enhancement.
2. Advancements in science, technology, research, and innovation.
3. Development of urban areas, regions, and economic zones.
4. Promotion of international cooperation for development.

Furthermore, Thailand must address disparities and rectify the imbalance between the environment and society effectively. With a shared overarching goal aligned with the Sustainable Development Goals (SDGs), the Thailand 4.0 policy

serves as a government instrument to propel the nation's economy and production towards achieving high-income status, fostering inclusivity in the economy, and prioritizing sustainable growth and development. Thailand 4.0 represents an economic paradigm aimed at transitioning from conventional farming to smart agriculture, transforming SMEs into intelligent businesses, elevating traditional services to high-value service sectors, and reshaping the economy to be powered by innovation, creativity, research and development, as well as green industries (Open Development Thailand, 2016).

In 2017, Thailand was ranked 55th among 157 nations in an index designed to assess their progress in fulfilling the Sustainable Development Goals (SDGs). The nation has dedicated considerable efforts to addressing poverty reduction (Goal 1) and facilitating access to clean water and sanitation (Goal 6). Nevertheless, it is evident that more substantive and cooperative measures are necessary for Thailand to make substantial advancements across all the SDGs, as illustrated in the figure above (Open Development Thailand, 2017).

The Thai government has established the National Committee for Sustainable Development (CSD), which is under the leadership of the Prime Minister. This committee comprises 37 members representing various sectors, including the public, private, academia, and civil society, with the Secretary-General of the National Economic and Social Development Board (NESDB) serving as the secretariat (Ministry of Foreign Affairs of Thailand, 2017). The National Committee for Sustainable Development and various policy bodies and frameworks have placed a significant focus on fostering collaboration between the public and private sectors, as well as civil society organizations, guided by the principle of partnership for development.

The government has established a framework to promote collaboration among various agencies in their pursuit of the Sustainable Development Goals (SDGs). When specific SDG objectives, targets, and performance indicators necessitate cooperation between two or more agencies, and when the work is deemed a significant priority in alignment with essential development policies, national security strategies, and other critical government initiatives, these agencies have the option to seek an integrated budget allocation from the central budget (Ministry of Foreign Affairs of Thailand, 2017). This approach facilitates the synchronization of program

implementation efforts, ensuring they are well-connected, harmonized, and mutually reinforcing, all while optimizing efficiency, cost-effectiveness, and preventing duplication.

Government agencies primarily rely on the allocated budget to advance the SDGs. These funds form the cornerstone of the government's comprehensive strategies, aligning with the 20-Year National Strategy Framework and the 12th National Economic and Social Development Plan (Open Development Thailand, 2018).

During the fiscal year 2017–2018, the government additionally introduced three novel national committees:

1. A committee responsible for executing government policies, with a specific focus on the national reform agenda and the local-level implementation of the SDGs.
2. A committee dedicated to enhancing the capabilities of local communities, operating under the purview of the Minister of the Prime Minister's Office.
3. A committee dedicated to the Sustainable Project.

These committees open up additional avenues for collaboration between local communities and Civil Society Organizations (CSOs) with government entities, allowing them to address and advocate for local priorities more effectively (Post Today, 2018).

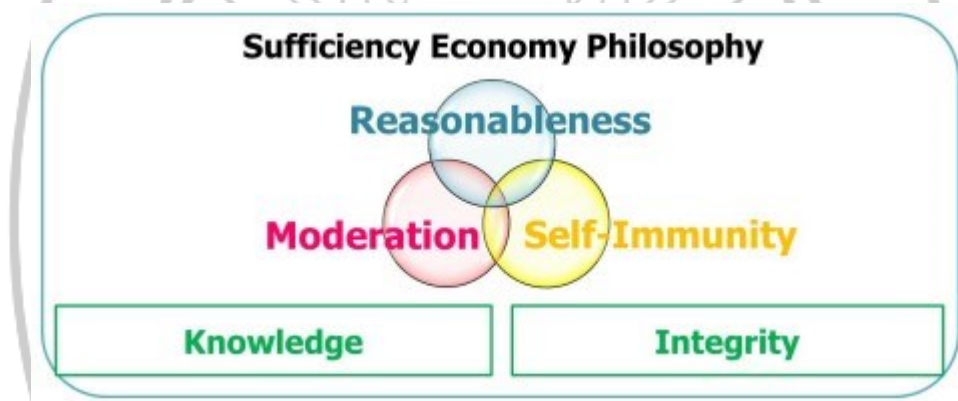
According to the Thai Government's roadmap for attaining the SDGs, three integral components are important as follow:

1. The Strategic Phase: This segment focuses on utilizing the Socio-Economic Plan (SEP) as a guiding framework to realize national objectives.
2. The Project Phase: In this aspect, detailed action plans are formulated, complete with well-defined implementation schedules.
3. The Follow-Up Phase: This step incorporates key performance indicators provided by the United Nations and SEP-based metrics developed by various organizations to evaluate Thailand's progress. It enables an assessment of whether further measures are necessary for the successful achievement of all 17 SDGs (Open Development Thailand, 2018).



Therefore, in the early stages of implementing the 2030 Agenda for Sustainable Development, the Voluntary National Review (VNR) serves as a crucial keystone for Thailand. It enables the nation to assess its progress in sustainable development, enhance its endeavors to implement the SDGs, raise public awareness, and foster active engagement from a wide spectrum of Thai society in pursuit of SDG realization (Ministry of Foreign Affairs of Thailand, 2017).

For Thailand, the Sufficiency Economy Philosophy (SEP), a locally developed approach initiated and refined by His Majesty King Bhumibol Adulyadej the Great, has once again proven its value. The SEP encompasses three fundamental principles: Moderation, Reasonableness, and Self-Immunity, along with two essential conditions: Knowledge and Integrity (Royal Thai Embassy, 2021), as show in figure 2.14.



**Figure 2.11** SEP Principles and its conditions for Thailand development

**Source:** Royal Thai Embassy, 2021

### **The SEP for SDGs Partnership in Action**

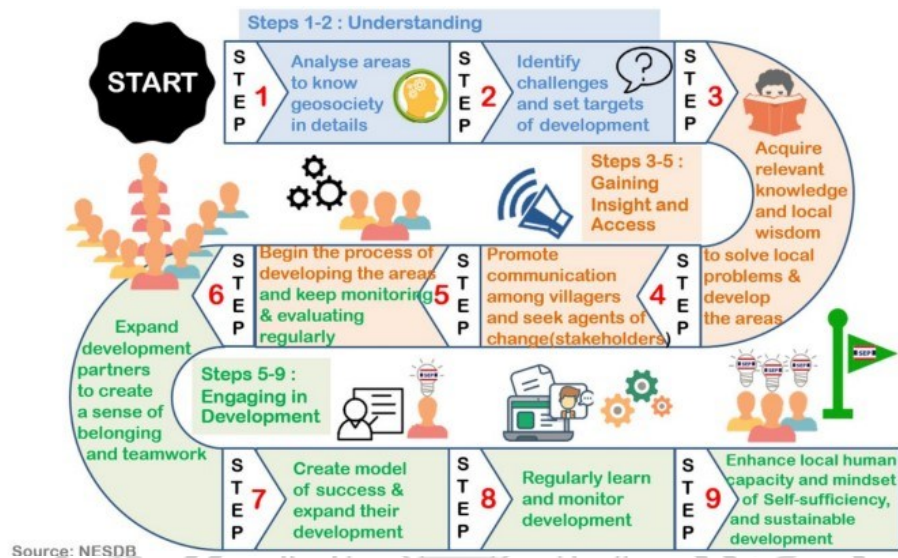
The Sufficiency Economy Philosophy (SEP) serves as both a personal philosophy and a development framework, emphasizing the cultivation of sustainable mindsets and a well-balanced, gradual approach to development with a focus on people. Historically, the SEP has proven effective in guiding Thailand through various crises, and it continues to provide valuable guidance in addressing the challenges brought about by COVID-19. Furthermore, it extends its positive influence to support our international partners and friends (Royal Thai Embassy, 2021).



Since the early 2000s, Thailand has adopted the Sufficiency Economy Philosophy (SEP) as a guiding principle and framework for international development cooperation with partners around the world. The SEP has been recognized and endorsed by the United Nations as an alternative approach to achieving the United Nations 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs). While the SDGs serve as a global measure of sustainability, Thailand views the SEP as a valuable compass and rudder for the international community to collectively pursue these goals, ensuring that no one is left behind (Royal Thai Embassy, 2021). The Thailand International Cooperation Agency (TICA) also strives to implement development projects that adapt knowledge and techniques to local topographical and sociological conditions, while taking into consideration the four dimensions of the SEP for SDGs: economy, society, environment, and culture. In response to the diverse challenges posed by the COVID-19 pandemic, TICA has identified specific priority areas for our forthcoming development projects. These priorities have been determined by considering sectors heavily impacted by the pandemic and those that have gained increased importance in the context of COVID-19. The designated areas of focus include (Ministry of Foreign Affairs of Thailand, 2017; Summary of Thailand's Voluntary National Reviews on the Implementation of the 2030 Agenda for Sustainable Development, 2017; Royal Thai Embassy, 2021):

1. Health Security
2. Job Security
3. Food Security
4. Energy and Environmental Security

To carry out our development projects guided by the SEP, and to achieve food security and economic stability, TICA follows a structured approach involving nine development steps, rooted in the principles of Understanding, Gaining Insight and access, and Engaging in Development.



**Figure 2.12** Nine (09) steps of SEP for SDGs

**Source:** NESDB

This figure illustrates the nine steps of SEP for SDGs. To participate for achieving SDGs, TICA implemented projects in partner countries which can be categorized into two primary types, as outlined in Figure 2.14. The first type involves the creation of SEP learning centers, while the second focuses on the establishment of SEP-driven sustainable communities. Both project types draw upon the development models, experiences, and success stories that Thailand has accumulated over many years of applying the SEP to foster sustainable development, both within the country and globally (Royal Thai Embassy, 2021).

### **Sufficiency Economy and New Theory under the Royal Development**

According to the Office of the Royal Development Projects Board (Office of the Royal Development Projects Board, 2020), the Royal Development Projects (RDPs) initiated by King Rama IX from 1982 to June 2002 encompass 4,685 projects categorized into eight sectors:

1. Development of Water Sources
2. Agriculture
3. Environment
4. Occupational Promotion

- 5. Public Health
- 6. Transportation/ Communications
- 7. Public Welfare
- 8. Other Projects

The primary aim of RDPs is to lead people getting their ability to improve “well-being and happiness” (Office of the Royal Development Projects Board, 2019). These projects are privilege of people who are facing agricultural problems. Then, making sure that his people have enough for living, for eating His Majesty always visit those people provides them help, assistance in technical, social ways; this leads them to be able to live well and eat well (The Chaipattana Foundation, 2020). In this case, King sets up RDPs Center in Huay Tong Village covers 12 villages. This center works with farmers according to King initiatives to promote sustainable development through plants such as fruits trees, vegetables flowers and animal husbandry production. This center successfully integrates economic, social, and environmental dimensions, promoting natural resource conservation by constructing dams that support both valley and mountain agriculture (Seeloy-ounkaew & Khamyong, 2016).

### **1. Agriculture**

Agricultural systems are complex and dependent on natural resource management, plants, animals, capital and inputs which are controlled or affected by institutional and socio-economic data at several levels (Nguyen, Seddaiu, & Roggero, 2019). Thus, agricultural systems are intricate socio-ecological systems, concern agricultural activities related by large scales of socio-ecological models and processes such as climate changes mitigation, socio-environmental characteristics, demographic and economic factors, producers wishing and able to practice sustainable farming (Virapongse et al., 2016).

Nowadays agricultural systems are facing major social, environmental and farmland-size challenges such as: urbanization, farming policies, NGOs, natural risks, environmental pollution, and climate change (Rigg et al., 2018; Chapagain & Raizada, 2017). Among farmers' challenges, farming sustainable reduces climate change and its impacts on farming systems through knowledge and local wisdom (Nguyen, Seddaiu, & Roggero, 2019). Sustainable agriculture is technically appropriate to protect the environment from erosion and pollution, and to ensure sustainable social and economic

growth (Velten et al., 2015). Thus, sustainable farming has remained attracted worldwide over the past decades and has led some countries including Austria, Japan, Australia, USA, Thailand, and Netherlands to introduce several sustainable farming practices. These different sustainable agricultures are biodynamic or integrated agriculture, natural agriculture, permaculture, organic farming and conservation farming by using knowledge and local wisdom (Liao, Nguyen, & Sasaki, 2022). Knowledge and local wisdom play a vital role on sustainable farming, not only to reduce farming cost but allow farmers to get appropriate food or products, increase family income, enhancing environment quality and improve farmers' quality of life. Sustainable farming for smallholders means farming system which leads farmers to self-sufficiency through farm stability (Niemmanee, Kaveetab, & Potchanasin, 2015).

Sustainable agriculture is a practice leading to the management of natural resources and their conservation, with the aim of satisfying the human needs of present and future generations (Food and Agriculture Organization of the United Nations, 2017). In addition, sustainable agriculture protects natural resources such as land, water, and crop, animal resources, protects environment against degrading (Food and Agriculture Organization of the United Nations, 2014; U-tantada et al. 2016; Kuwornu, 2017).

According to Niemmanee, Kaveetab, and Potchanasin (2015), the sector of agriculture is an important to Thailand and other countries development through the worldwide. But practicing intensive agriculture for monocrop by using chemical inputs lead to some problems related to resources such as water and farmland, environment and human health. This act to the people's quality of life. Avoiding those problems, the sustainable agriculture is the best solution to help farmers and whole people in the community.

In 1993, His Majesty the King Bhumibol Adulyadej proposed Sufficiency Economy Agriculture known as new agricultural theory in Thailand. At that time, the government oriented the agricultural development to the objective of sustainability (Niemmanee, Kaveetab, & Potchanasin, 2015).

The sustainable agriculture is the good and successful management of natural resources for farming to satisfy the human needs in improving the quality of environment and conserving soil and water (Wannaviroj & Sriburi, 2019). According



to Liao, Nguyen, and Sasaki (2022), sustainable agriculture is a tool which lead countries to achieve Sustainable Development Goal (SDGs) through food security in healthy environment and enhancing quality of life in the community. Practicing this tool has an important impact that reduce greenhouse gas production and lead to reduce the negative impacts on the environment as well as human health.

The first step to reach sustainable farming is to transition from mono-cropping to crop rotation or mixed cropping. The following step is to choose plants which can generate high income and can improve household quality of life. In this context, farmers should improve soil quality by reducing the use of chemical fertilizer and herbicide, or using organic matter such as animal manure and farming residues as organic fertilizer (Niemmanee, Kaveetab, & Potchanasin, 2015). These methods are not unique to reach sustainable farming in all regions but each country should find its own way to achieve sustainable farming itself under its environmental, economic and social conditions (Niemmanee, Kaveetab, & Potchanasin, 2015).

### **1.1 Agroforestry**

Agroforestry is practiced in a traditional way under the advice of the king for a reason “three forests four advantages”. This means growing mixed forests with tree types for four benefits: fruit, fuel, wood, and improved soil quality (Khaokhrueamuang, 2014, 2017). Sustainable farming in an agroforestry system is association of farming production and forestry. This system conserves forests, plants and animal species as well as biodiversity and environment. Moreover, this system of agroforestry aims to promote food production, increase income for farmers and enhance forest resources (Niemmanee, Kaveetab, & Potchanasin, 2015). According to Khongswasdi (2022), the well-conserved forests provide several products which constitute the pride and joy of villagers in the community in their daily life and promotes local resources management and sustainable way of life.

Agroforestry is a land-use management system that combines agricultural crops or livestock with trees and shrubs to create more diverse, productive, profitable, healthy, and sustainable land-use systems (Wikipedia, 2023). The practice seeks positive interactions between its components, aiming to achieve a more ecologically diverse and socially productive output from the land than is possible through conventional agriculture (Michael, n. d.). The USDA defines agroforestry as

the intentional integration of trees and shrubs into crop and animal farming systems to create environmental, economic, and social benefits (Food and Agriculture Organization of the United Nations, 2023). Agroforestry is a great example of agroecology in action, providing healthier soil, higher yields, and vital homes for wildlife.

Traditional farming is receiving attention worldwide for being a source of sustainable food production in times of global environmental crises (United States Department and Agriculture (USDA), n. d). Agroforestry has the potential to reduce poverty by providing economic value through tree products. This can be achieved in several ways (Food and Agriculture Organization of the United Nations, 2023; USDA, n. d.):

1. Reducing production costs: Agroforestry can reduce agricultural inputs and production costs, which can increase household income.
2. Increasing productivity: Agroforestry can increase productivity, which can lead to higher returns for farmers and foresters.
3. Creating new opportunities: The development of value chains for newly-produced tree products can create new opportunities for small-scale forest-based enterprises and employment.
4. Providing environmental services: The recognition of environmental services provided by agroforestry can provide a new source of income for the rural or urban poor.

Agroforestry has gained increasing attention as a sustainable land use mode to ensure food security, mitigate global climate change, and improve farmers' livelihoods (Dou et al., 2023). Likewise, agroforestry plays a key role in alleviating poverty, mitigating climate change and achieving the Sustainable Development Goals (SDGs) in developing countries (SDG Knowledge Hub by IISD, 2018). A report by member organizations of the Agroforestry Network provides evidence of how agroforestry can contribute to implementation of nine out of the 17 SDGs, with the strongest impact potential for poverty reduction (SDG 1) and hunger alleviation (SDG 2), as well as for climate action (SDG 13) and life on land (SDG 15) (SDG Knowledge Hub by IISD, 2018).

Agroforestry has been implemented in many developing countries to promote sustainable land use and alleviate poverty. Here are some examples of successful agroforestry projects:

1. World Agroforestry (ICRAF): This organization has implemented agroforestry projects in over 44 countries across six regions, with a focus on improving productivity, reducing poverty, and maintaining ecosystem services (Nyamwaro et al., 2013).

2. The Forests, Trees, and Agroforestry (FTA) program: This program is part of the Consultative Group for International Agricultural Research (CGIAR) research partnership and aims to decrease rural poverty and hunger while maintaining landscape integrity and ecosystem services (Montagnini & Metzger, 2018).

3. The World Bank: The World Bank provides funding for agroforestry projects and incorporates various technologies identified by ICRAF to increase the productivity of farming systems (John, n. d.).

4. Improved management of teak and paper mulberry plantations (Laos): This project aimed to improve the management of teak and paper mulberry plantations in Laos, leading to increased income for farmers and improved forest management (Bartlett, 2021).

Indeed, agroforestry increase the benefits not only for forests including soil fertility, its protection from trees but provides the needs of environment and can be the solution of deforestation problem. Agroforestry is one kind of sustainable agriculture system which enables farmers to gain a lot income from trees and crops specially fruits. This system refers to garden where any crops including fruits, vegetables, herbal for medicine can be grew well and together. Farmers do not need to spend much time and money. The garden is not only beneficial for producers but also for future generations.

### **1.2 New Theory farming**

The philosophy of Sufficiency Economy includes another concept known as New Theory farming, which focuses on sustainable agriculture. This concept can be applied to solve or reduce farming problems or risks in local villages. It is divided by three principles:

1. Farming land and local resources management at family level: This can make people to meet their livelihoods and have enough for living, can be self-reliant
2. Cooperative: Villagers must be in group to learn from each other. This leads villager cooperative to produce goods, establish markets and grow village welfare to increase villager solidarity
3. Networking and partnerships: Villagers should network and create partner with outside institutions, businesses, banks, and NGO and Governmental Organizations to gain the necessary financial knowledge and technical support (Naipinit, Sakolnakorn, & Kroeksakul, 2014).

According to Muhamad et al. (2021), the New Theory is a concrete concept of applying SEP in the agricultural sector which enables farmers to resolve natural disasters and leads them to meet their needs and then improve their quality of life through the means of subsistence. The necessary and important key in New Theory is sustainable water management. In this case, rural people must use groundwater by constructing irrigation systems through knowledge, local wisdom to create benefits of preserving forests, conserving soil and water then generating income; enabling farmers to improve their livelihoods and quality of life (Sustainable Development Report, 2020). Moreover, farmland is divided by four parts according ratio 30%, 30%, 30%, and 10 % for its successful management (Liyavanich & Amrit, 2018; Sustainable Development Report, 2020).

To succeed, the new theory applied to the agricultural sector, farmers must put into practice the components of SEP such as moderation, reasonableness and self-immunity with two conditions, knowledge and morality (Muhamad et al., 2021). Therefore, crops can be grown by properly applying the King science principles in every area in Thailand according to the Sufficiency Economy Philosophy of king Rama IX (Salyakamthorn, 2021). Water is stored by applying the principles King philosophy and improve rural people life (Muhamad et al., 2021). Then, water is life because it allows people to meet their necessary needs for living. In the mountains area village leaders must construct dams carefully in the village by using local wisdom, and knowledge, which will reduce water strength and soil erosion or degradation; then makes productive farm in every season (Department of Community Development, 2021).



To achieve sustainable agriculture and the Sustainable Development Goals (SDGs), His Majesty the Late King Rama IX developed the concept of the “New Theory” based on Sufficiency Economy Philosophy (SEP) which is farmer’s guideline for farmland and water resources management in sufficiently and rationally way (Wannaviroj & Sriburi, 2019). According to Budhtranon, Chianchana, and Kamkhuntod (2021), in 1989, King Rama IX conducted an important action or farming research on his land to explore the way to manage the land and water. This action is called “New Theory Agriculture”. He found that to help Thai people for useful the lands, New Theory is the way to manage, crop on their lands, and to improve their Agriculture yield. Putting this concept into practice, farmers should observe the condition of the water reservoir for the production of corn and rice. This can allow the crops to receive enough water, increase the grain number of these cereals too much and make them vigorous crops. According to Wannaviroj and Sriburi (2019), New Theory is a concept which based on self-reliant, self-sufficiency and risks management.

The New Theory is a guideline to manage the resources such as land and water in the natural farming (Budhtranon, Chianchana, & Kamkhuntod, 2021). This agricultural system is underpinning Sufficiency Economy Philosophy (SEP) which is called Sufficiency Economy Agriculture (SEA). The SEA approach allows farmers to diversify crops for production and have enough for consumption (Khaochrueamuang, 2014, 2017).

According to Khaochrueamuang (2014, 2017) and Budhtranon, Chianchana, and Kamkhuntod (2021), to maximize the benefits from small landholdings, farmers should adopt and implement the New Theory, which emphasizes proper management of land and water resources. The principles of New Theory contain three stages as following:

1. First stage: At this level, to achieve stable and sufficient food supplies, farmers should apply the New Theory Agriculture which is integrated and sustainable farming system, in following the procedures to divide their farmland into four parts according to the ratio: 30: 30: 30: 10 (Niemmanee, Kaveetab, & Potchanasin, 2015; Khaochrueamuang, 2014, 2017; Kuwornu, 2017; Wannaviroj & Sriburi, 2019; Budhtranon, Chianchana, & Kamkhuntod, 2021).

Approximately 30 percent of the land is designated to be excavated to depths of 4 or 5 meters, as necessary, to create water storage areas that can collect rainwater during the rainy season for crop irrigation (Khaokhrueamuang, 2014, 2017; Budhtranon, Chianchana, & Kamkhuntod, 2021). These artificial water sources can be used for supplemental irrigation (Wannaviroj & Sriburi, 2019). Additionally, these ponds or reservoirs can support fishing activities, providing a vital source of protein, and facilitate the cultivation of aquatic plants, which are essential for household food supply. The water reservoir can allow for growing corn, rice and some vegetables crop in dry season (Budhtranon, Chianchana, & Kamkhuntod, 2021; Kuwornu, 2017).

The second part is about 30 percent which is used to diversify crops such as corn, soybean, cassava and rice planting in the farm in rainy season (Khaokhrueamuang, 2014, 2017; Budhtranon, Chianchana, & Kamkhuntod, 2021). This can lead farmers to have enough food for family's daily consumption in whole year and make them self-reliant (Khaokhrueamuang, 2014, 2017; Kuwornu, 2017). This second part of farm is also retained to crop corn, soybean and rice in rainy season as well as dry season thus growing cassava, soybean and corn in dry season (Wannaviroj & Sriburi, 2019; Kuwornu, 2017).

The third one is about 30 percent which used for planting trees, fruit trees, perennial trees, herbs, some crops and vegetables etc. for as daily consumption food and over as medicines for self-healing to be healthy and contribute to improve quality of life of the people (Budhtranon, Chianchana, & Kamkhuntod, 2021; Kuwornu, 2017). These two parts of farm produced sufficiently food supply to feed household members in the year. This can allow to sell the surplus and get money for another needs (Wannaviroj & Sriburi, 2019). The last 10 percent of the farm should be allocated for animal husbandry and housing. This includes the farmer's residence, composting areas, and spaces for organic farming practices, such as vegetable gardens, mushroom cultivation, and flower gardens (Niemmanee, Kaveetab, & Potchanasin, 2015; Wannaviroj & Sriburi, 2019; Budhtranon, Chianchana, & Kamkhuntod, 2021). This first stage of the New Theory refers to Sufficiency Economy Agriculture (SEA) which allows farmers regarding to enhance livelihoods and well-being, quality of environment, human health and lead to sustainable community development. Using this

concept farmers become local resources manager leading them to have local knowledge about agriculture risks management.

2. The second stage concerns membership or the sharing of efforts and resources through a group of producers carrying out production and marketing cooperatives (Khaokhrueamuang, 2014, 2017; The New Theory Agriculture, 2021). According to Niemmanee, Kaveetab, and Potchanasin (2015) farmers should combine into groups, in order to exchange goods and services, as well as to increase efficiency in production, marketing and other social activities. Once food security has been achieved, the second stage of the New Theory encourages farmers to establish organized structures aimed at enhancing irrigation systems and boosting farm productivity. Moreover, it promotes the production, processing, and marketing of their agricultural products, with a preference for cooperative endeavors (Kuwornu, 2017; U-tantada et al., 2016). This approach leads to the development of strong farmers' groups and resilient communities. Moreover, producers must cooperate in farming practice by natural resources management and other, making organic fertilizer, finding seeds, plants species for cropping. This cooperation allows farmers to get benefit from agricultural production, yields and a good price and reduces agricultural costs as well (The New Theory Agriculture, 2021). Consequently, this leads them to have reasonable living conditions, basic necessities for living such as loans and clothing, several foods, proteins sauce as shown the following figures.



**Figures 2.13** Showing farming products from New Theory Agricultural  
**Source:** The New Theory Agriculture, 2021

3. The third stage of the New Theory is community networking and coordination to build social capital (Khaokhrueamuang, 2014, 2017). In this third stage, the community might be then engaged in the economy in the village and beyond the village to sell their surplus products, acquire the technology needed for projects such



as setting up their own rice mill, draw on the services of banks and other economic institutions and negotiate with businesses for mutual benefit (Wannaviroj & Sriburi, 2019). This can allow farmers to sell their products such as rice, maize, bean, soya, etc. at high prices (The New Theory Agriculture, 2021). For example, King explained to his people that the progress is not only to produce enough rice to eat but to have enough to create schools, works of art; which leads communities to prosper in every domain and in every dimension of sustainable development. This allows to improve quality of life of farmers through food secure (The New Theory Agriculture, 2021).

The Sufficiency Economy Agriculture (SEA) concept also promotes several forms of sustainable agricultural practices such as agroforestry, organic farming and integrated farming. This will allow local producers to use their local wisdom and traditional farming practices using livestock manure and human waste, create the traditional irrigation system such as a landscape of ditches and dykes, and small reservoirs for collecting rainwater (Khaokhrueamuang, 2014, 2017). Recognizing the profits of the agricultural New Theory, government agencies in Thailand have provided on-farm ponds to farmers in rain-fed areas, which represents almost 80 % of the country's total farm land (Royal Irrigation Department, 2017). This allows farmers in these areas to solve the water problem in case of lack of rain and then keep their farms cool. So, the New Theory agriculture is a guideline for natural or local resources management which makes benefits of small land farmers (the New Theory agriculture, 2021). The third stage of the New Theory emphasizes the establishment of equitable trade relationships between local organizations and the private sector. This agricultural theory promotes integrated farming practices that not only foster self-reliance for farmers but also address broader environmental issues (Kuwornu, 2017; U-tantada et al., 2016). When executed effectively, these models work to enhance farm diversity and resilience while diminishing or reducing poverty and food insecurity then improve people quality of life in rural areas (Kuwornu, 2017). In this context, Thailand established School Food Bank which is important program, strives to institute a free lunch program, resulting in enhanced nutrition for students (Kuwornu, 2017).

The New Theory is used as an insurance measure against hard times. It enriches farmers during peace time. After natural disasters, farmers can rebuild quickly without much assistance from state agencies (Leitch & Bohensky, 2014). Moreover,



The New Theory is developed as a system of integrated and sustainable agriculture, taking into account King's thoughts and efforts in water resource development and preservation, soil rehabilitation and preservation, sustainable farming and self-reliant community development. The aim is to make efficient farmland (The Chaipattana Foundation, 2020). The new theory is a way to make poor people to eat according to their own needs even they might be not rich but they have enough to eat then, they don't go hungry (The New Theory Agriculture, , 2021). However, the application of Sufficiency Economy or the New Theory will bring community or whole country to the prosperity, not automatically. In this, people must have perseverance and be patient to reach this goal.

### **1.3 Integrated farming**

Integrated system started after the economic crisis, based on the new theory of agriculture in which farm is divided into four parts for growing diversified crops and raising animals. Ditches were transformed into ponds to culture aquatic animal (Khaokhrueamuang, 2014, 2017). Integrated farming is an integrated agricultural operation that aims to carry out agricultural production crops, animals or plants, processing and selling to generate income for the family and the community (Simantara et al., 2022). Therefore, integrated farming constitutes the best system for sustainable farming. But it implies the judicious use of agricultural land to arise the range and number of farming activities by using waste from one kind of production in another kind of production. This can reduce farming risks and enable farmers to reduce agriculture costs (Niemmanee, Kaveetab, & Potchanasin, 2015).

### **1.4 Organic farming**

Organic agriculture is practiced in any sustainable agriculture system. This kind of sustainable farming uses organic matter such as organic fertilizer making from herbs or farming residues, animal manure etc. as fertilizer which can control and restore soil and water quality which before are damaged by using a lot chemical (Niemmanee, Kaveetab, & Potchanasin, 2015). The bank has promoted organic farming through agencies such as Good Agricultural Practices (GAP), Participatory Guarantee Schemes (PGS) and others to support agriculture in farmland management and water through knowledge, local wisdom (Sustainable Development Report, 2020). This practice ensures that households in both rural and urban communities have sufficient

food, with any surplus sold for additional income, leading to food security and a reliable local food source (Sustainable Development Report, 2020).

## **The Concept of Sustainable Development**

### **1. Definition and Importance of Sustainable Development**

According to Abrahams (2017), the concept of sustainable development, as outlined in the Brundtland Commission's 1987 report, has two definitions. The first definition pertains to "Our Common Future," stating that sustainable development is "meeting the needs of the present without compromising the ability of future generations to meet their own needs." The second definition emphasizes development from the community to the national level through local governance, utilizing local resources in terms of economic, social, and environmental dimensions. Haughton (1999), as quoted by Abrahams (2017), identifies five environmental equity dimensions that are fundamental to the concept of sustainable development. These equity principles are interconnected based on academic way in terms of procedural equity, inter-species equity, inter-generational equity, intra-generational equity and territorial equity. With regard to environmental issues, its management should focus on protection, the recycling of solid or household wastes and the planting of trees for the conservation of species in botanical gardens. In addition, it is important for communities to grow the economy with particular attention to environmental issues. Therefore, Abrahams (2017) added that the definition of sustainable development varies in harmony between individual vision, perception, philosophical beliefs, or local knowledge. For example, for a good development of the European territorial space, the member States of the European Union must consider concepts such as polycentrism and ecocentrism which constitute important factors or bridge for the sustainability of resources according to the policy of the European Spatial Policy Observation Network (ESPON) (Abrahams, 2014).

According to Duran et al. (2015), sustainable development comprises two concepts: sustainability and development. Development aims to expand the community or the state in all its aspects or dimensions. While sustainability aims to solve the real environmental problems caused by human activities. Sustainable development is the

expansion of a community or a State by building step by step its potential on each dimension.

Ivascu, Cirjaliu, and Draghici (2015), cited by Duran et al. (2015), defined sustainable development as the stability of economic, social, and environmental conditions in a healthy ecosystem.

Environment protection plays vital role or important key of sustainable development. The human action which affected ecosystem are: the increase the number of the population, misuse of agricultural chemicals, expanding the size of animal husbandry (Duran et al., 2015), and non-recyclable solid waste (Imasuen & Omorogieva, 2015). These activities impact the quality of the environment, an obstacle to the achievement of sustainable development at the root of food insecurity and diseases.

According to Duran et al. (2015), for sustainable development to be achieved globally, each country must focus on the social component by promoting environmental education, learning and community support; protection of human health by developing access to everyone to have health insurance and healthcare in rural areas and must know that population growth menace and block sustainable development. This can help to develop the economy to improve food secure of the population.

Sustainable development refers in this study is the ability to balance the needs of the present generations without destroying the resources of future generations to meet their needs. In other word sustainable development is making food, growing economy in the healthy environment preserving the resources natural against erosion, environment degradation. In addition, sustainable development in this research refers to economic growth and quality of environment from rural villages to urban communities.

According to the Sustainable development report (2022), some Africa countries, such as Benin and Nigeria, have ample gaps in their index score of SDGs but have achieved the high score from the efforts of their government. This progress allows them to work on each dimension investment of sustainable development.

## **2. Principles of sustainable development**

Resources have a unique important influence on the growing of the countries in which they are found. The good management of these resources leads to

the economic growth, create employment and contribute to sustainable development in the community (Litvinenko et al., 2022). Availability of raw materials products will depend on economic and markets factors related to social and environmental pressures (Franks et al., 2014) and (Prno & Slocombe, 2014). The production of certain minerals is not without consequences for the countries. It negatively impacts the principles of ESG and the objectives of sustainable development in all countries (Litvinenko et al., 2022).

Fishing is a very important activity which enhances the economy of countries which have their limits with the sea. But which is not without major consequences on the environment. According to Kraus and Diekmann (2017), fishing production remains an important activity that takes place on the sea-land interface and has consequences on the coasts and reduces the habitable space for the population. Coastal erosion, caused by the abusive practice of the activity and the supplement on the coast, leads to the reduction of the firm or solid space by the evolution of the sea towards the inside of the land following the loss of materials such as sands, rocks and sediments at the risk of negative impact on the environment. Aquaculture, however, is a more sustainable approach to meet the demand for seafood products as a source of economic growth.

Responding to international environmental policy, it is necessary to reduce the production of certain minerals present on the Earth by following international legal principles and avoiding monopolizing its production. This leads the professionals to have ability about extraction service (Litvinenko et al., 2022). Thus, the extraction of minerals must be carried out by professionals competent in terms of environmental, social and governance principles (Ali et al., 2017).

To achieve environmental and socio-economic goals, International Resource Panel Report states that is important to reduce use of earth's resources according the report of the International Resource Panel (IRP) (2020) quoted by Litvinenko et al. (2022). Thus, the use of environmental resources by the extraction of minerals must be controlled by public extractive services through ethics, security, preserving and knowledge. This will increase transparency and confidence following the Environmental, Social, Governance (ESG) principle and sustainable development goals for the management of its activities in rural areas.



The principle of sustainable development in this study refers to the production of raw materials to increase the economy through the extraction of products or land resources and aquatic production. It aims at socio-economic growth while following environmental rules and objectives. These raw materials allow production or management in industry and the population to survive or meet their basic needs that impact their quality of life. Extraction minerals and aquaculture production might be respecting the principle based on ethic, safety, preservation and knowledge to improve living conditions of the people in the rural area as in the urban community. So, the principle of sustainable development is based on the management of mineral resources and coastal erosion for a balanced ecosystem and a healthy environment by preserving the ocean and forests.

The principle of sustainable development refers to economic growth through of building the ponds that allow farmers to feed fish then to improve quality of their meals. This practice refers to the New Theory of Farming, which promotes vegetable and corn production. Also, this practice will allow breeders to know how to use the land for sustainable agriculture while taking into account environmental factors and raw materials management.

### **3. Application of Sustainable Development**

#### **Sustainable Development in Republic of Benin**

At the University of Benin, particularly within the Faculty of Physical Sciences (FPS), recycle waste is a significant asset. This allows the faculty to increase its income and provide the employment to some people who lives in joblessness. This leads them to good quality of life (Imasuen & Omorogieva, 2015).

The solid wastes are thrown away because it cannot be useful for the people. These wastes include produced from commercial, industrial, institutional like faculty of physical sciences, and households. The wastes lead to disease epidemic in the environment immediate and infect human health (Imasuen & Omorogieva, 2015).

Since its independence in 1960, Benin has recognized education as a critical tool for social, economic, environmental, and cultural development. According to Biao (2015), these educational initiatives enhance human capital and contribute to sustainable development. Agricultural production plays vital role in economic growth and rural livelihoods in developing countries in the worldwide. But agriculture sector

has many challenges such as climate change, soil degradation and its fertility, rarity of rain-fed etc. affect agriculture sector and lead to food insecure (Yegbemey et al., 2014). To meet these challenges, Vodouhe and Zoundji (2013), and Yegbemey et al. (2014), suggest agricultural sustainability in the Republic of Benin. The Songhaï Centre is NGO which contributes in sustainable development 30 years ago through research sustainable agricultural area, training, agricultural production and entrepreneurship focusing on model of agro-biological production (Vodouhe & Zoundji, 2013).

The Republic of Benin is first in cotton production in Africa. For textile industry on the sustainable development, Benin government must to rebuild underling of cotton production and move to secondary and tertiary sectors. This leads to create employs for economic growth and its stability through good environment quality (Dafia, Fei, & Sumo, 2022).

The primary, secondary, and tertiary sectors in the Republic of Benin provide the incomes and salary to people. Its government created the lyceum of textile industry in secondary school which can enhance human capital of students because textile industry plays important role in development. Those people have works for their well-being, happiness and lighting up in their way of life.

### **Sustainable Development in Netherlands**

Allowing a growing global population, estimated by the United Nations at 9.55 billion inhabitants by 2050, to meet food in quantity and quality without threatening the environment need immediate and effective solutions (Tedeschi et al., 2015). Indeed, sustainability in every sector is one and best of these solutions. According to the UN (2015) and FAO (2016), the Sustainable Development Goals lid each of the social, economic and environmental dimensions of sustainability. The 17 SDGs emphasis of developed countries while the Millennium Development Goals (MDGs) focused only on developing countries, because concerted action between all countries is the only way to achieve prosperity without threatening the planet (Steffen et al., 2015). World food security and agricultural sustainability are important targets for achieving Sustainable Development Goals 2 (SDG-2) in all developing and developed countries (Gil et al., 2018). Moreover, SDG-2 aims to achieve food secure, promote sustainable agricultural, to end hunger, and improved nutrition (Gil et al., 2018). The whole world, especially poor countries, is more dependent on agricultural

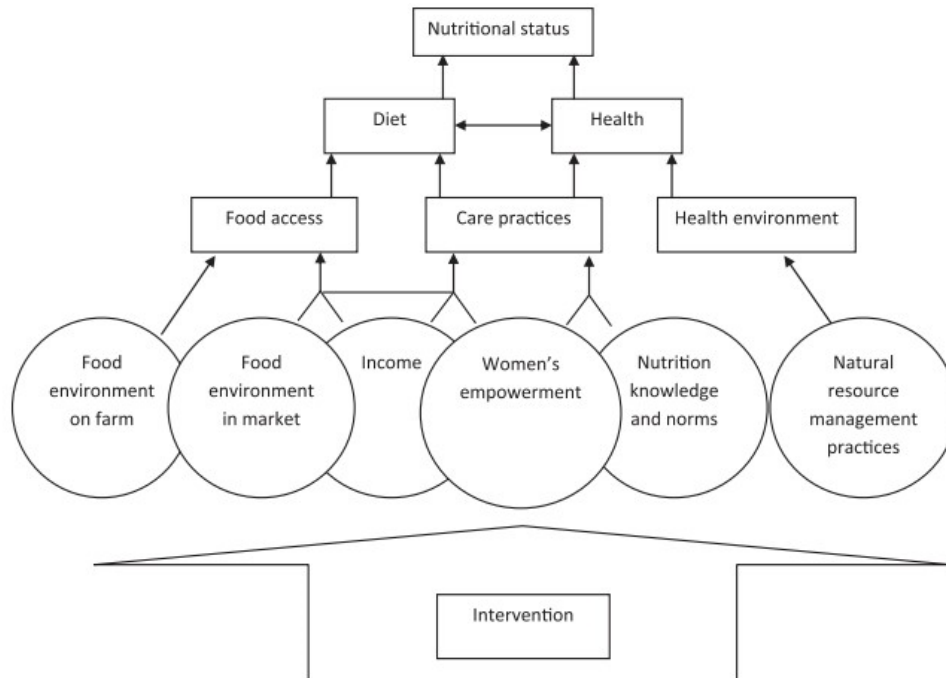
activities, not only for food production and consumption, but also for community economic growth. Historically, food production has prioritized maximizing yield and profitability, often at the expense of soil, water, and environmental quality, leading to the release of carbon into the atmosphere and degradation of natural resources (Tedeschi et al., 2015). Sustainability produces a bigger yield through managing resources within a period of time to reduce negative impacts on the environment. Therefore, sustainability provides opportunities for animal husbandry and cropping production per unit area, considering the social, economic and environmental dimensions (Tedeschi et al., 2015). Environmental protection is essential to enable humans to meet their needs, ensure the survival of our species, preserve biodiversity and manage soil and water (Tedeschi et al., 2015).

However, to achieve SDG 2 and eradicate of hunger the necessities or pillars of food security are availability (sufficient quantities of food in healthy environment), accessibility (economic and physical means to obtain a nutritious diet), utility (adequate diet and nutrient use in the body), and stability (ensuring social, economic and environmental sustainability) (Tedeschi et al., 2015). SDG 2 comprises eight targets and 15 indicators (Gil et al., 2018). The first five targets are directly linked to food security and farming sustainability. The last three objectives are market-related measures that aim to increase farming investments and decrease market distortions and volatility (Gil et al., 2018).

One of the main challenges for specific SDGs is to consider common areas with other SDGs. These areas such as agriculture, nutrition and public health are indicators of SDGs 2 and 3, which should be prioritized for good health and well-being of the community through agricultural policies for nutritious and healthy diets (Gil et al., 2018). Therefore, achieving SDG 2 (food security), several factors might be considered.

Moreover, simultaneously pursuing actions to achieve the indicators of SDG 2 and other SDGs will lead to integrated solutions between health, food production, nutrition and other areas while considering environmental aspects (Herforth & Ballard, 2016). Agriculture is main sector which can affect each of nutrition's determinants such as: food security, care practices, health services, and adequate health

environments. Herforth and Ballard (2016) explained these pathways by this following diagram.



**Figure 2.14** Conceptual Framework Illustrating the Impact of Agricultural Interventions on Nutrition

**Source:** Herforth and Ballard, 2016.

This figure illustrates how agriculture can affect nutrition through its determinants to solve food insecurity and poverty in the community. According to this figure:

1. Access to Food: Enhanced access to nutritious food on farms; increased availability and lower prices of various nutritious foods in markets. Income generated from agricultural activities can be spent on purchasing more various nutritious foods if those foods are available, affordable and convenient.

2. Care Practices: The empowerment of women, especially through control over their income, time, and work is crucial. Integrating communication for behavior change further supports improved care practices.

3. Sanitary Environments: Effective management practices that protect natural resources, water, and soil, while preserving against health risks introduced by agricultural production (e.g. animal husbandry, stagnate water, flood, agrochemicals),

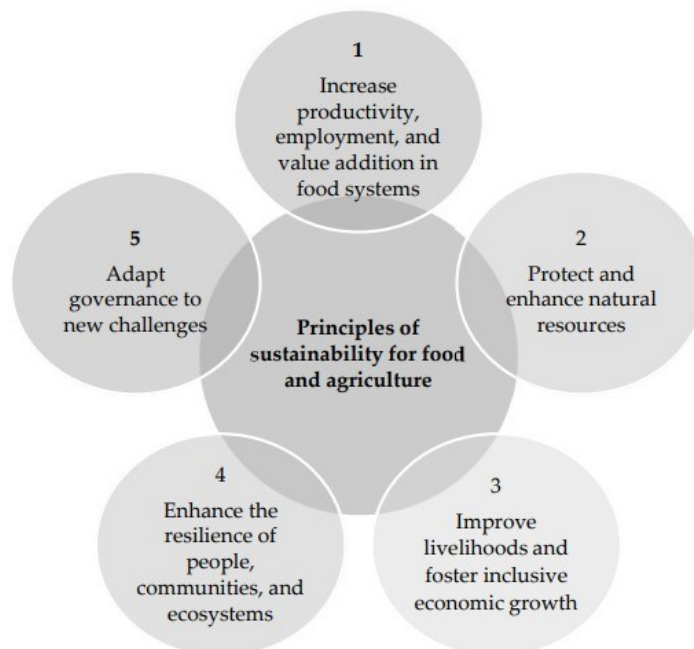


contribute to sanitary environment Agricultural income can enhance access to healthcare if it is available, affordable, and convenient.

According to the Food and Agriculture Organization of the United Nations (FAO, 2018) and Briamonte et al. (2021), the five basic principles that the FAO has established to guide the agricultural sector toward sustainability are:

1. increase productivity, employment, and value addition in food systems;
2. protect and enhance natural resources;
3. improve livelihoods and foster inclusive economic growth;
4. enhance the resilience of people, communities, and ecosystems; and
5. adapt governance to new challenges.

These principles relate to establish a transition in food production to sustainable farming. In other words, they lead to balance the process of farming activities in economic, social and environmental dimensions; resulting to durability of the livelihoods of farmers like food producers as indicated in following figure (Jeerat et al., 2023).



**Figure 2.15** Five Key Principles of Sustainability for Food and Agriculture

**Source:** Jeerat et al., 2023

Increasing food production leads to environment degradation by modifying the climate through carbon dioxide emissions that resulting to global warming and from excess nutrients that decrease natural resources quality (Tedeschi et al., 2015).

Nowadays, food and agriculture are at a critical juncture. Satisfying the food demand of a growing world population, the necessary and important things for improving agricultural productivity, including the management of natural resources, the protection of ecosystems and biodiversity, and the reduction of greenhouse gas emissions to greenhouse effect in the environment. This can lead to increase soil fertility and water quality to improve agricultural yields and human health (Food and Agriculture Organization of the United Nations, 2018).

Meeting the necessary needs of humans and animals for food, feed, fiber and fuel, the farming uses more of global workers and livelihoods to rural families totaling 2, 5 billion people (Food and Agriculture Organization of the United Nations, 2023). It also plays important role, but widely unknown, input to landscape and wildlife management, wildlife housing protection, water management and quality, flood control and flood alleviation climate change (Food and Agriculture Organization of the United Nations, 2014).

Zoologists must promote strategies to predict the rate and important of global changes and their possible influences on the food production chain. They must promote proceedings to adapt and alleviate the causes of world climate change due to animal production for food (Tedeschi et al., 2015).

Current farming production systems, policies, and institutions strategies which sustain world food secure are increasingly inappropriate (Food and Agriculture Organization of the United Nations, 2014).

The vision of sustainable food and agriculture is a world in which food is nutritious and accessible for all where natural resources are well managed to ensure balanced ecosystems and biodiversity to meet present human needs and future. To achieve this objective, the actors involved in this sector and even rural villagers must play an important and participatory role. This would lead to economic growth, availability of livelihoods and create jobs in community for women or people empowerment (Food and Agriculture Organization of the United Nations, 2017). Moreover, sustainable agriculture must meet the needs of current and future

generations, ensure profitability, support a healthy environment, and be economically viable and socially acceptable (Food and Agriculture Organization of the United Nations, 2014) as indicated the following figure.



**Figure 2.16** The Three Pillars of Sustainability based on Sustainable Development

**Source:** Makkar and Ankers (2014, as cited in Tedeschi et al., 2015).

### **Sustainable development in Belgium**

Attaining Sustainable Development Goal (SDG) 6, which focuses on water and sanitation, is of paramount significance and serves as a linchpin for the successful realization of all other SDGs. Nevertheless, meeting this goal by the year 2030 poses formidable challenges, particularly in regions of the Global South. Science research is foundational to sustainable development and plays a pivotal role in devising innovative solutions to address the challenges inherent in achieving SDG 6 (Ho et al., 2020).

Sustainable Development Goal 6, often referred to as SDG 6, aims to ensure universal access and sustainable management of water and sanitation for every person by 2030 according to (United Nations General Assembly, 2015).

Within SDG 6, there are eight global targets that comprehensively address the entire water cycle. These include:

1. ensuring access to safe drinking water
  2. providing sanitation and hygiene services
  3. promoting the treatment and reuse of wastewater and improving ambient water quality
  4. enhancing water-use efficiency and addressing issues of scarcity
  5. fostering integrated water resources management (IWRM), which includes transboundary cooperation
  6. safeguarding and rejuvenating water-related ecosystems
  7. encouraging international collaboration and capacity building
  8. facilitating community engagement in water and sanitation management
- (UN World Water Development Report, 2016)

As articulated in the report of (UN-Water Annual Report, 2018), the availability and quality of water stand as fundamental factors in the advancement of human society, the preservation of environmental health, and the promotion of economic well-being. Nonetheless, multiple reports have affirmed that the world is not making sufficient progress toward attaining this objective, as determined by the Independent Group of Scientists appointed for this purpose (Nilsson et al., 2015).

As a case in point, in 2015, a staggering 1.8 billion individuals were still reliant on drinking water that was contaminated with fecal impurities, while a substantial 80% of wastewater resulting from human activities continued to be discharged directly into ecosystems associated with water resources (United Nations World Water Development Report, 2015). As a result, the prevalence of diarrheal diseases is increasing and resulting in the tragic loss of approximately 801,000 children under the age of 5 in developing countries each year (Lui et al., 2012).

Therefore, there has been a significant focus on addressing the issues of water scarcity, improving water utilization efficiency, and promoting soil and water conservation. A substantial portion of research conducted in Belgium and the Global South pertains to the various functions of water in agricultural production, which encompass aspects such as farming, irrigation, and crop management (Ho et al., 2020). This highlights the crucial role that agriculture plays in the economic and social



development of the Global South, accentuate the close connection between water resources and food security (FAO, 2019). For instance, rainfed agriculture has been the primary source of food production for rural communities in developing nations. This is evident in statistics such as 95% of cultivated land in sub-Saharan Africa, nearly 90% in Latin America, and approximately 60% in South and East Asia (Rockström et al., 2010; Sakho-Jimbira & Hathie, 2020).

In Belgium, the provision of water services is an integral component of the country's commitment to ensuring public health and fostering sustainable development. The nation boasts a well-developed water infrastructure that delivers clean and safe drinking water to its residents. Additionally, wastewater treatment facilities play a crucial role in maintaining environmental health by managing and purifying used water before its return to natural water bodies. Health initiatives in Belgium are closely linked to water quality and sanitation. The government places a strong emphasis on ensuring that citizens have access to high-quality drinking water, which is essential for safeguarding public health. Additionally, wastewater management contributes to preventing waterborne diseases and maintaining a hygienic environment. Belgium's approach to sustainable development includes a focus on responsible water use and conservation. Policies and practices encourage efficient water management in various sectors, including agriculture and industry. This holistic approach aligns with broader sustainability goals, addressing environmental concerns and promoting the well-being of present and future generations.

## **The Notion of Quality of Life**

### **1. Quality of Life definition and its important**

Quality of life is defined as an individual's perception of the community in which they live in terms of cultural contexts and values related to societal objectives and expectations according to World Health Organization (WHOQOL, 2020). Moreover, quality of life is individual satisfactions in terms of socio-economic and environment conditions (Janmaimool & Denpaiboon, 2016). Quality of life is characteristic by good life which is based on religion, by human satisfaction by and individual perception (Hajduová, Andrejovský, & Beslerová, 2014).

According to Mohit (2013), the Quality of Life (QoL) is a concept used in multidiscipline in different fields. Indeed, quality of life is widely known in the world as the happiness and well-being of people in their environment. It is large concept which affected by many factors, among of these factors is quality of environment (Hajduová, Andrejovský, & Beslerová, 2014). According to Beslerová, and Dzuričková (2014), the quality of life is the important fields which are assessed on human well-being in the worldwide and is first defined by World Health Organization as a life which reflects the people perception in their living conditions, financial satisfaction.

Quality of life is ability of the people to satisfy or provide the basis needs through education, able to have information about what they want, good health, good environment and employment (Mohit, 2013). If the economic growth of a country or a community is good, it seems that the quality of life of an individual in that country is much better. In this case, greenhouse gas emissions are increased at risk of human diseases (Hajduová, Andrejovský, & Beslerová; 2014). This leads to worst quality of environment. Mohit (2013) and Hajduová Andrejovský and Beslerová (2014) stated that Quality of Life is changed into a potential marketing tool for cities across the country.

## **2. Quality of Life indicators and the measurement**

The life of the people in the community is touched in terms of living conditions and physical contexts. The factors which affected human quality of life in rural and urban areas are income, job, environmental quality, physical and mental health, living conditions, size of household, social relationship and time of leisure (Gheitarani et al., 2019). Quality of life is touched manly two pillars of sustainable development such as economic and environment. Le concept of Quality of Life aims to measure the well- being of the people in several dimensions, social, economic and environmental (Beslerová & Dzuričková 2014). The quality of life is not linked to the financial well-being but has individual attributes and value in different cultures (Hajduová, Andrejovský, & Beslerová, 2014).

Quality of Life in this study refers to individuals' satisfactions with their socioeconomic conditions as well as satisfaction with their living environment. Then we will study socio-economic variables and environmental variables. However, the socio-economic variables are characterized by income and job, housing, education,

relationship among family members, food supply (quantity and quality), Work-Life Balance and public health. Environmental variables are characterized by environmental quality including soil quality, water supply and forest. All these characteristics are the indicators that will be studied and which depend on the socio-demographic characteristics of the households. We will focus on these variables, then explain more every variable in this study. The change in rural villagers' quality of life after their implementation of sufficiency economic philosophy will be explored.

### 3. Quality of Life construction

Understanding quality of Life concept its index is constructed which is objective include socio-economic indicators (well-being) and subjective or non-economic indicators as well as happiness. This index is used to appreciate the quality of life in all dimensions across the Africa countries as well as worldwide (Greyling & Tregenna, 2016). Some countries in Africa have low income which characterized them low quality of life.

To assess the quality of life in order to appreciate the development of the country, Hajduová Andrejovský, and Beslerová (2014) considered indicators in three indices: Human Development Index (HDI), Environmental Performance Index (EPI) and Corruption Perception Index (CPI). Therefore, assessing quality of life of some countries of Union European Human Development Index and Legatum Prosperity Index were selected to appreciate economic, non-economic conditions and opportunities of countries around the world (Beslerová, 2014; Mohit, 2013).



**Figure 2.17** Human Development Index as Described by Beslerová (2014)

**Source:** Human Development Reports

**Figure 2.18****Source:**

The Legatum Prosperity Engine

Methodology Report, The Legatum Prosperity Index™, 2016

According to Methodology Report (2016), Legatum Prosperity Index made covering 149 countries in the world to measure economic conditions of their citizens. While Human Development index was founded by Pakistan economist Mahbub ul Haq in 1990 to assess quality of life in 187 countries (Beslerová & Dzuríčková, 2014).

#### **4. Quality of Life and its relation to sustainable development.**

According to Mohit (2013), sustainable development has for purpose to enhance to much better the quality of life for everyone at today and for future generations. Moreover, well-being, economic and environment are sustainable development pillars which are dependent to each other. Quality of life is characterized by the perception of individual or societal about good-life and well-being. Mohit and AlKhan (2014) considered social, economic and environmental indicators. Indeed, these components are assessed on social well-being or social conditions, on the performance of the country and to check the pressures created by social and economic growth on the environment respectively. The measurement of environment allows researchers or leaders of community to know the balance of development or sustainability of the country. Therefore, quality of life is measured by considering



objective indicator included economic status and social (well-being) and subjective indicator included happiness (Mohit,2013; Beslerová & Dzuríčková,2014; & Hajduová,Andrejovský, & Beslerová 2014).

### **Acceptance of Innovation concept**

Innovation is defined by Rogers (2003) as an idea, practice or object that is perceived as newness by an individual or another unit of adoption. Newness in innovation could be expressed as knowledge, persuasion or decision to adopt (Mohamad, 2021). Researchers have put on efforts to increase the understanding of the innovation adoption process over the past two decades. As SEP is considered as an innovation, theories based on innovation have been applied empirically in examining the factors influencing users' acceptance of SEP. Examining the processes of users' acceptance is vital to successful acceptance and adoption.

There are many innovation adoption theories such as Diffusion of Innovation (DOI) theory, Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB). All have been widely used in IT innovation adoption studies. DOI was more extensively used in the studies that performed organizational analysis and TAM, TRA, TPB were utilized mainly for individual level analysis (Hameed, Counsell, & Swift, 2012).

SEP which could be classified as an innovation technology can apply DOI theory to determine farmers' acceptance and adoption of SEP into practice in Djakotomey District.

Rogers (2003) defined diffusion as a process of innovation communicated through certain channels over a period of time among the members of a social system. He used the adoption in the context of the decision to accept and use innovation. Hence, DOI was initially formulated to consider the analysis of individual level adoption behavior, but recent work has been applied to studies assessing organizational level adoption (Mohamad, 2021). Rogers defined some attributes of innovation that were perceived as supporting the diffusion of technological innovation and proposed five attributes of innovation which play a key role in an individual's attitudes towards innovation adoption.

Previous innovation diffusion studies have suggested that innovation attributes affect an individual's attitude of the innovation prior to adoption and may consequently influence the speed of adoptions. These DOI factors include relative advantage, compatibility, complexity, trialability and observability (Rogers, 1995). Technological innovation then may be adopted and diffused with these five attributes.

DOI has a solid theoretical foundation that remains a popular model for investigating the adoption of innovation in organizations or communities; however, it has received substantial criticism in its application at an organizational or community level. The five attributes in DOI are viewed to determine the rate of innovation adoption; these attributes are shown in Table 2.1. These are the five attributes of innovation that may lead to the adoption rate as perceived by the user. The rate of adoption is the speed at how innovation is adopted by the social system. Moreover, the type of decision process may also impact the rate of adoption (Rogers, 2003).

**Table 2.1 Five attributes in DOI**

<b>Attribute</b>	<b>Description</b>
Relative advantage	The degree to which an innovation is perceived as being better than the practice it supersedes.
Compatibility	The degree to which an innovation is perceived as consistent with the existing values, past experiences and need of potential adopters.
Complexity	The degree to which an innovation is perceived as relative difficulty in using and understanding the new technology innovation.
Trialability	The degree to which an innovation can be experimented with on a limited basis before making an adoption or rejection.
Observability	The degree to which the results of innovation to others.

**Source:** Rogers, 2003

The DOI theory categorizes adopters into five groups: Innovators, Early Adopters, Early Majority, Later Majority and Laggards, as shown in Figure 2.7. According to Rogers (2003), innovators, described as Venturesome, are very eager to try new ideas. Innovator shall be able to cope with the high degree of uncertainty about innovation at the time that the Innovator adopts and should be willing to accept when one of the new ideas he or she adopts proves unsuccessful. Early Adopters are part of the local social systems; additionally, the Innovators are cosmopolites while the Early Adopters are localities. This adopter category has opinion leadership in most social systems. Potential adopters may look at the Early Adopters for advice and information about the innovation. The Early Adopter is known as "the individual to check with" before using a new idea or decision. Early Majority, characterized as deliberate, adopts new ideas just before the average member of a social system. The Early Majority frequently interact with their peers but seldom hold leadership positions. Their innovation-decision period is relatively 50 longer compared to the Innovator and the Early Adopter. The Late Majority may adopt new ideas when the average member of a social system has been involved. Adoption may be both an economic necessity and the answer to increase network pressures. Laggards, identified as Traditional, are the last to adopt an innovation. They possess almost no opinion leadership and isolates in social networks. The person may interact with those who also have relatively traditional values.



**Figure 2.19** Adopter categorization on the basis of innovativeness.

**Source:** Roger, 1995.

The innovation-decision process is the process in which an individual passes the knowledge of an innovation to forming an attitude towards the innovation and ultimately deciding whether to adopt or to reject it. In the implementing stage, the new idea is put into practice to confirm the decision. Table 2.2 illustrates the stages, and the definition involves innovation-decision process: knowledge, persuasion, decision, implementation, and confirmation. The decision-making process is influenced by the socioeconomic factors, personality qualities, and communication behavior all play a role in the decision-making process. (Mohamad, 2021).

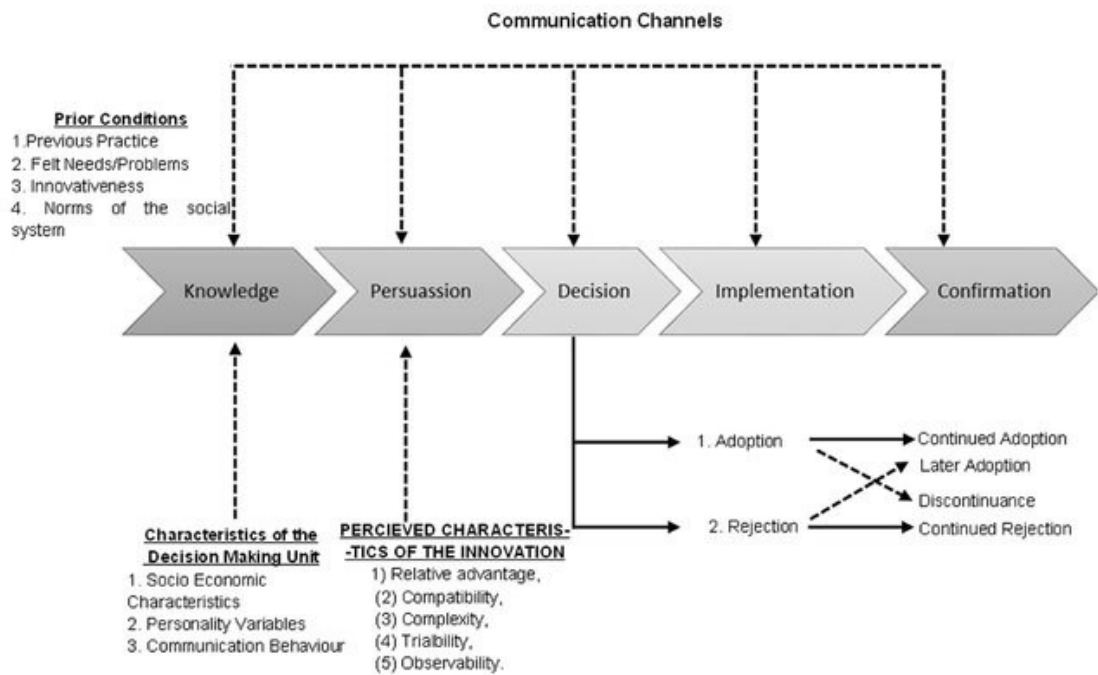
**Table 2.2 Innovation-decision process definitions**

Stage	Definition
Knowledge	The individual is exposed to the innovation and gains an understanding of its functions.
Persuasion	The individual has a form of interest in seeking innovation.
Decision	The individual engages and decides whether to adopt or reject the innovation.
Implementation	The individual adopts the innovation.
Confirmation	The individual seeks the reinforcement of the decision made; however, the previous decision made may be reversed if exposed to a conflicting message on the innovation idea.

**Source:** Rogers, 2003.

As illustrated in Figure 2.8, the process comprises of a set of decisions and actions over time through which an individual or system analyses a new concept and determines whether or not to adopt the innovation into ongoing practice.





**Figure 2.20** A Model of Five Stages in the Innovation-Decision Process  
**Source:** Rogers, 1983, p. 165.

## Case of Study Contexts

### 1. Huay Tong Village, Thailand

Thailand, located in Southeast Asia, boasts a diverse physical geography that encompasses lush tropical forests, mountainous terrain in the north, and expansive coastal areas along the Gulf of Thailand and the Andaman Sea. The country has a constitutional monarchy, with a political landscape characterized by periods of political stability and transitions (Hafner, Keyes, & Keyes, 2024). In terms of socioeconomic factors, Thailand has experienced significant economic growth, emerging as a regional economic hub with a diverse economy, including robust tourism and manufacturing sectors (World Bank in Thailand, 2024). Natural resources, such as fertile land, fisheries, and a rich biodiversity contribute to the nation's prosperity (Open Development Thailand, 2017). However, environmental challenges, including deforestation and issues related to water resources, present ongoing concerns that require sustainable management strategies to balance development and environmental conservation.

Nestled in the picturesque landscapes of Mae Win Sub-district, Mae Wang District in Chiang Mai Province, Thailand, Huay Tong Village stands as a vibrant community with a unique blend of cultural richness and natural beauty. Surrounded by lush greenery and the distinctive charm of northern Thailand, this village offers a glimpse into the local way of life (Thung Luang Royal Project Development Center, 2024). Residents of Huay Tong engage in a variety of activities, including traditional agricultural practices and the preservation of local customs. The village is known for its warm hospitality, and visitors can experience the essence of Thai rural life while enjoying the serene atmosphere and scenic vistas that characterize this idyllic setting. Huay Tong Village serves as a testament to the harmonious coexistence of community traditions and the natural wonders that define the northern region of Thailand.

### **1.1 Physical geography**

Situated at a pivotal crossroads in Southeast Asia, the Kingdom of Thailand spans an expansive area of over 200,000 square miles or 510,890 Km<sup>2</sup> (Worldometer, 2024), establishing itself as the second-largest nation in the region (Thailand Geography, 2024). Thailand exhibits a diverse topography, featuring forested mountains, arid plateaus, fertile river plains, and sandy beaches. Mountainous ranges extend along the borders with Myanmar and extend down towards Malaysia, while an additional range bisects the country from its northern to southern regions (Thailand Geography, 2024). Thailand is geographically positioned in the heart of Southeast Asia, sharing borders with Myanmar (Burma) to the west, Laos to the north and east, and Cambodia to the southeast. To the south, the country is bordered by the Gulf of Thailand (Hafner, Keyes, & Keyes, 2024). This central location places Thailand at the crossroads of the region, influencing its cultural, economic, and geopolitical significance.

According to Thailand Demographic (2024) and Worldometer (2024), as of Tuesday, March 5, 2024, the present population of Thailand stands at 71,858,673, according to Worldometer's analysis of the most recent United Nations data. This population is classified in three ethnic groups, 75 % are Thai, 14 % Chinese and 11 % other. The population growth rate is 0.52 % while the urban population rate is 34.1 %. Indeed, Thailand holds the 20th position in the global list of countries ranked by population (Worldometer, 2024). Estimates for this nation explicitly consider the impact of excess mortality attributed to AIDS (Thailand demographic, 2024). This factor can

lead to variations such as lower life expectancy, elevated infant mortality, increased death rates, lower population growth rates, and alterations in the distribution of the population concerning age and gender compared to expectations in the absence of this health challenge (Thailand demographic, 2024). Life expectancy rate at birth, both sexes is 79.91 years, infant mortality (infant deaths) rate per 1,000 live births is 6.9 while deaths under age 5 is 8.1 (Worldometer, 2024).

Originating in the northern region, the Chao Phraya River meanders southward, irrigating the fertile rice fields of the Central Plains through an intricate network of canals known as "klongs." Serving as a crucial water transportation route, this extensive river traverses the central part of the country before ultimately emptying into the Gulf of Thailand approximately 35 miles south of Bangkok (Thailand Geography, 2024). Situated at approximately 20 degrees north latitude, Thailand experiences a predominantly hot and humid climate classified as tropical monsoon. The country undergoes a distinct rainy season extending from July to October. Following this, from November to February, the northeast monsoon introduces a cooler and drier period, characterized by a decrease in humidity from an average high of 95 percent to an average low of 58 percent. During this season, temperatures typically range from the mid-60s in the early morning to the mid-80s during the day. The period between March and June constitutes Bangkok's summer, marked by intense heat and humidity, with temperatures occasionally soaring to 100°F (Thailand Geography, 2024). Thailand faces environmental challenges stemming from various sources, including air pollution caused by vehicle emissions, water pollution resulting from both organic and industrial waste discharge, deforestation, soil erosion, and the endangerment of wildlife populations due to illegal hunting (Thailand Geography, 2024).

## **1.2 Politics, democracy governance and development**

His Majesty Late King Bhumibol Adulyadej served as the Chief of State from June 9, 1946, until his passing on October 13, 2016. Following his demise, his son, King Vajiralongkorn, ascended to the throne on December 1, 2016 (Thailand Government, 2024). The head of the government is Prime Minister Prayut Chan-ocha, who assumed office on August 25, 2014. The Deputy Prime Ministers include Prawit Wongsuwan (since August 31, 2014), Wissanu Krea-ngam (since August 31, 2014), Somkhith Chatusiphithak (since August 20, 2015), Churin Laksanawisit (since

November 2019), and Anuthin Chanwirakun (since November, 2019) (Thailand Government, 2024). In the Thai political system, the monarchy is hereditary, and the process involves the House of Representatives and Senate approving a candidate for Prime Minister, who is then appointed by the King, as outlined in the transitory provision of the 2017 constitution. The term for the office of the Prime Minister is limited to a total of 8 years (Thailand Government, 2024). The interim constitution of Kingdom of Thailand, which replaced the 2007 permanent constitution, was signed by the king on 22 July 2014. The new constitution was finalized on 17 April 2015 after being initially rejected by the drafting committee on 6 September 2015. It was later accepted and adopted by the new drafting committee on 29 March 2016, with the public endorsing it through a referendum on 7 August 2016 (Thailand Government, 2024).

The judicial system in Thailand comprises several key components: the Supreme Court of Justice, which includes a court president, 6 vice-presidents, and 60-70 judges organized into 10 divisions; the Constitutional Court, consisting of a court president and 8 judges; and the Supreme Administrative Court, with the number of judges determined by the Judicial Commission of the Administrative Courts. Democracy, development, and decentralization in Thailand represent key aspects of the country's governance and socio-economic policies (Kulachai, 2023).

Thailand practices a constitutional monarchy with a parliamentary system. The democratic principles guide political processes, ensuring the participation of citizens in decision-making. Elections are held to choose representatives at various levels, allowing people to have a voice in shaping policies that affect their lives (Nissen, 2021). According to the 13th National Economic and Social Development Plan (NESDP) (2023-2027), economic and social development is a crucial aspect of Thailand's agenda. Policies and programs are designed to foster economic growth, reduce poverty, and improve the overall standard of living. Initiatives often include infrastructure development, investment promotion, and support for key sectors such as agriculture, industry, and services. Decentralization refers to the delegation of administrative and fiscal responsibilities to regional and local authorities (Khambule, 2021). In Thailand, efforts have been made to empower provincial and local governments, allowing them greater autonomy in decision-making and resource management (OECD Investment Policy Reviews Thailand, n. d.). The decentralization



process aims to address the specific needs and challenges faced by different regions, promoting more efficient and responsive governance. However, these three components, democracy, development and decentralization contribute to the governance framework that guides Thailand's provincial development. By embracing democratic principles, fostering sustainable development, and decentralizing decision-making, the government seeks to create an environment that promotes the well-being of citizens across the diverse provinces of the country. However, the effectiveness of these policies may vary, and ongoing efforts are made to address challenges and improve the overall governance structure. Thailand's democracy and government policies are aimed at enhancing the quality of life for its people. The country follows a constitutional monarchy, where the King is the head of state, and there is a parliamentary system in place. The government, led by the Prime Minister, is responsible for formulating and implementing policies that address various aspects of citizens' well-being.

Additionally, government initiatives focus on economic development, social welfare, education, healthcare, and infrastructure projects. Efforts are made to reduce poverty, improve healthcare services, enhance education, and stimulate economic growth. Policies are often designed to create a conducive environment for businesses, attract investments, and foster job creation to uplift the overall standard of living. In recent years, there have been reforms and adjustments to the political structure to address the changing needs of the population. The government's commitment to sustainable development, as seen through programs like the Sufficiency Economy Philosophy, reflects a holistic approach to improving the quality of life by balancing economic, social, and environmental considerations.

### **1.3 Socio-economic situation**

#### **Education**

Education in Thailand is administered by the government through the Ministry of Education, covering the entire spectrum from preschool to senior high school. The constitution mandates the government to offer free basic education for twelve years, ensuring a minimum of nine years of compulsory school attendance for children. Consequently, nearly every village boasts its own primary school, sub-districts (Tambon) host schools for ages 6 through 14, and districts (Amphoe)

accommodate secondary schools catering to students aged 12 through 17. Typically, a classroom accommodates 30 to 40 students, guided by a single teacher (Thailand Education, 2024). This comprehensive education system underscores Thailand's commitment to providing accessible and compulsory education for its youth. The government furnishes a standard classroom with books, tables, and chairs (Thailand Education, 2024). Certain classrooms are equipped with televisions, allowing children to access ETV programs. In contrast, many private schools possess computers and other audiovisual equipment for instructional purposes (Thailand Education, 2024).

Thailand's national budget allocates significant funds for education, primarily focusing on urban areas. However, many schools, particularly in rural regions, lack essential resources such as computers and audiovisual equipment. In certain instances, children in rural areas face overcrowded classrooms, and the shortage of textbooks poses a challenge to quality education delivery. To address these issues, the Education Minister has initiated a program aiming to provide free textbooks and learning materials to Thai children throughout their 15 years of free education from the government. This initiative aims to ensure that learning extends beyond the classroom walls and continues at home (Thailand Education, 2024).

Education holds a pivotal role in the lives of children and their families in Thailand. It is perceived as the key to success, and this value is evident in the commitment to sending children to school and actively assisting them with their assignments. Beyond academic pursuits, education serves as a means for Thais to preserve their rich cultural heritage. The history, traditions, beliefs, and language of the Thai people find expression in the educational materials, such as books, used in schools (Thailand Education, 2024). The primary curriculum in Thailand incorporates arts and music to encourage children in discovering and nurturing their talents. These subjects offer opportunities for children to express their creativity and imagination. The educational system organizes art exhibits to showcase children's creations and hosts competitions in various artistic endeavors, including drawing and singing (Thailand Education, 2024). The academic year in Thailand is structured into two semesters, with primary and secondary school classes commencing on May 15 and concluding in March. A two to three-week vacation is observed between the two semesters. Holidays encompass public holidays, Buddhist religious observances, and other significant

celebrations, including Christian holidays like Christmas and New Year, as well as international holidays (Thailand Education, 2024).

Thailand boasts an impressive literacy rate, averaging around 95%. The government's provision of free secondary education encourages the majority of children to continue their studies beyond the primary level. Within each school, the school principal holds a position of authority, ensuring the strict enforcement of rules and regulations (Thailand Education, 2024). The principal plays a pivotal role in maintaining a peaceful and harmonious school environment, conducting regular visits to each classroom and observing classes. Meanwhile, classroom teachers are responsible for disciplining the students within their respective classes.

### **Economy**

Thailand economy relies heavily on international trade, with exports making up approximately two-thirds of its GDP. Key export sectors include electronics, agricultural commodities, automobiles and parts, and processed foods. The industry and service sectors combined contribute around 90% to the GDP. In contrast, the agricultural sector, primarily composed of small-scale farms, makes up 10% of the GDP but employs about one-third of the labor force. The country has drawn an estimated 3.0-4.5 million migrant workers, largely from neighboring nations (Thailand Economy, 2024). In recent decades, Thailand has successfully diminished poverty levels. In 2013, the Thai Government introduced a nationwide minimum wage policy of 300 baht (approximately \$10) per day and initiated tax reforms targeting reduced rates for middle-income earners (Thailand Economy, 2024).

Thailand maintains strong economic fundamentals, characterized by low inflation, minimal unemployment, and reasonable levels of public and external debt. Economic stimulation from tourism, government spending (particularly on infrastructure and short-term stimulus measures), and support from The Bank of Thailand through interest rate reductions have contributed to the recovery (Thailand Economy, 2024). The poverty rate in Thailand stands at 9.6%, while the inflation rate is recorded at 3.3%. The agriculture products are rice, cassava (tapioca), rubber, corn, sugarcane, coconuts, soybeans (Thailand Economy, 2024).

From this scenario, Sufficiency Economy Philosophy (SEP) is not a direct economic policy, its principles have influenced various aspects of economic practices in Thailand, especially at the community level. The application of SEP can vary across different contexts, and its impact on the overall economy is indirect. However, by fostering a mindset of balance, sustainability, and self-reliance, the SEP contributes to shaping economic practices in Thailand at both individual and community levels through economic activities diversification and self-sufficiency, community development, and sustainable agriculture, and social responsibility.

#### **1.4 Natural resources and environment**

Thailand boasts abundant natural resources that have been pivotal in sustaining local communities and fueling economic expansion. The diverse ecosystems, including forests, watersheds, marine areas, and mineral deposits, have been essential contributors to the manufacturing, export, and tourism sectors. Nevertheless, the swift economic progress witnessed in recent decades has, at times, been accompanied by unsustainable practices, leading to the overexploitation of these valuable natural resources (Open Development Thailand, 2017). To attain sustainable development, it is crucial to comprehend the trade-offs between economic growth and environmental values. In Thailand, various tools have been employed to assess the value of ecosystem services, facilitating well-informed decisions regarding the implications of environmental impacts (Open Development Thailand, 2017), see in 3- Sufficiency Economy Philosophy for Sustainable Development/ Environmental Dimension.

#### **2. Djakotomey District, Republic of Benin**

The Republic of Benin, a West African nation, has established a governance system aimed at fostering social and economic stability. Operating as a presidential representative democratic republic, the political structure comprises a President as the head of state and government, a National Assembly overseeing legislation, and an independent judiciary ensuring the rule of law (International Monetary Fund [IMF], 2019). Key pillars include sound economic policies, corruption control, and robust social programs, addressing poverty, education, and healthcare. Infrastructure development, political stability, and international relations also play crucial roles, while responsible natural resource management contributes to long-term economic sustainability. Benin's commitment to inclusive governance involves



collaboration between government, civil society, and the private sector to adapt policies for optimal effectiveness (World Bank, 2018, 2019).

Located in the Couffo department of Benin, the community of Djakotomey radiates the cultural and historical richness that characterizes this West African nation (Djakotomey Geography, 2024). The community is a micro-society of Beninese diversity, characterized by a mixture of traditional practices and contemporary influences. The inhabitants of Djakotomey carry out various economic activities, with agriculture playing a central role in local livelihoods. The community is known for its communal spirit, where residents come together to celebrate cultural festivals and share the collective identity that defines Djakotomey. With its vibrant colors, living traditions and strong sense of community, Djakotomey embodies the essence of Benin's cultural tapestry while navigating the challenges and opportunities of the modern era (Commune de Djakotomey, 2017).

### **2.1 Physical geography**

The Republic of Benin, situated in West Africa shares its borders with Nigeria to the east, Niger to the north, Togo to the west, and Burkina Faso to the northwest (Atihou, 2018; World Bank, 2023; International Fund for Agricultural Development [IFAD]-Benin, n.d.). The country covers a total surface area of 112,622 square kilometers, with a 121-kilometer-long coastline along the Gulf of Guinea (World Bank, 2023; the International Fund for Agricultural Development [IFAD]-Benin, n. d.). As of 2022, Benin's population reached 13.35 million, characterized by a fertility rate of 5.7 children per woman and a life expectancy of 61.2 years. The country's population is expanding at a rate of 2.73 % annually (International Fund for Agricultural Development [IFAD]-Benin, n. d.; Merem et al., 2019) as of 2020 with 52.14 % residing in rural areas. Benin grapples with a predominantly youthful age structure, with almost 65 % of its population below the age of 25. This swift pace of population growth poses a considerable challenge for Benin, contributing to its status as one of the world's poorest countries. In terms of the 2020 Human Development Index, Benin ranks 163rd out of 189 countries, with a score of 0.520 (United Nations Department of Economic and Social Affairs, Social Inclusion [UN DESA], 2021 the International Fund for Agricultural Development (IFAD)-Benin, n. d.).

The Republic of Benin's position on the United Nations Human Development Index (HDI) persists at a low level, despite noticeable improvements over time. In the year 2020, the country held the 166th rank out of 191 nations, registering an HDI of 0.525. This ranking is influenced by factors such as a relatively low life expectancy at birth and limited expected and average years of schooling (10.8 years and 4.4 years, respectively). Despite advancements in education and health, Benin's Human Capital Index score for 2020 still reflects a low level of achievement (World Bank, 2023). The Republic of Benin's strategically efficient port services and open trade policies position it as a crucial hub in the regional trade network with neighboring countries. Notably, Benin benefits from Nigeria's restrictive import policies and inefficient customs operations, as a significant portion of exports destined for Nigeria pass through Benin (Global Agriculture Information Network [GAIN], 2014). The Republic of Benin, strategically positioned at the intersection of two significant regional corridors, namely the Abidjan-Lagos and Cotonou-Niamey corridors, serves as a pivotal commercial and tourism hub in West Africa. Benin, primarily a rural society, relies on agriculture for employment, with over 70% of the population engaged in this sector. Agriculture plays a significant role in Benin's economy, contributing approximately 35% of the country's GDP and accounting for 80% of export income. Despite efforts by the Government of Benin (GOB) to diversify agricultural production, the nation remains underdeveloped, with its economy primarily reliant on subsistence farming. Approximately 35.2% of the population in Benin lives in poverty, with rural households experiencing a higher poverty rate (38.4%) compared to urban households (29.8%). Around 36% of households rely solely on crop production for their income, while an additional 30% depend on a combination of crop production, livestock, or fishing as their livelihood (World Bank, 2023; Global Agriculture Information Network [GAIN], 2014; the International Fund for Agricultural Development [IFAD]-Benin, n. d). In 2022, fiscal policy continued to follow an expansionary path for the third consecutive year, resulting in a slightly narrowed deficit of 5.5% of GDP compared to 5.7% in 2021. The ongoing implementation of the domestic resource mobilization strategy is expected to contribute to a gradual increase in tax revenues, thereby aiding in the reduction of the public deficit starting from 2023. The ultimate goal is to achieve

the regional convergence criterion of limiting the deficit to 3% of GDP by 2025 (World Bank, 2023).

To enhance food security and self-sufficiency, the GOB has prioritized the cultivation of corn and rice. These coarse grains, including corn, sorghum, and millet, along with rice, are predominantly grown by independent small-scale farmers. Remarkably, these farmers contribute to 90% of the total output, utilizing approximately 7% to 10% of the available farmland (World Bank, 2023; Global Agriculture Information Network [GAIN], 2014; the International Fund for Agricultural Development [IFAD]-Benin, n. d.).

However, it grapples with a multitude of economic and developmental challenges. The nation's economic growth hinges significantly on agriculture, but it faces several hurdles: unpredictable rainfall patterns, the steep cost of agricultural inputs, and a lack of mechanization, all of which directly impact the country's food security. The World Food Program (WFP) and the World Bank recently are backing Benin's strategy for poverty reduction, aiming to enhance economic growth, improve access to basic services, and strengthen governance and institutional capacities, assessed Benin's situation and found United Nations World Food Program (UN WFP, n. d.; World Bank, 2023) that:

1. Approximately 2.3 million people, constituting 23 % of households, experience limited food security.
2. An additional 11 % face severe to moderately bad food security.
3. About 1.1 million individuals are considered food insecure, affecting 34 % of households.
4. Only 55 % of the population is deemed food secure.

Addressing these challenges is crucial for ensuring a more resilient and nourished Benin. In Benin, the departments of Couffo, Mono, and Atacora face the highest levels of food insecurity (United Nations World Food Program [UN WFP], n. d.; the World Bank, 2023). Specifically:

1. Couffo: 29% of households are considered food insecure.
2. Mono: 28% of households experience food insecurity.
3. Atacora: 25% of households are affected by food insecurity.

Among these departments, Atacora, Donga, and exhibit the most pronounced food insecurity. Key observations include (United Nations World Food Program [UN WFP], n. d; the World Bank, 2023; World Bank, 2023):

1. Diet Diversity: These regions exhibit the weakest diversity of diet. Food-insecure households predominantly rely on cereals and tubers, supplemented by legumes and vegetable oil.

2. Market Dependency: Over 85% of households primarily source their food from local markets, rather than being self-sufficient. This reliance on markets impacts their access to diverse food options.

3. Crops for Consumption: While many households grow crops for their own consumption, they still depend on the market for variety, especially during times of famine.

Addressing these patterns is crucial for improving food security and resilience in these areas. Vegetable production in Benin occurs through various systems and across different locations. Broadly, we can categorize it into two distinct types (United Nations Department of Economic and Social Affairs, Social Inclusion [UN DESA], 2021):

1. Lowland Vegetable Farming System (Rural Areas): In rural regions, lowland cultivation prevails. Here, traditional vegetables take center stage. These include tomatoes, peppers, onions, okra, and various leafy greens. These crops dominate the agricultural landscape, contributing significantly to local food security.

2. Urban and Peri-Urban Production System: In urban and peri-urban areas, vegetable production adapts to the bustling environment. Here, farmers engage in practices that cater to city dwellers' needs. The proximity to markets and consumers influences the choice of vegetables grown.

Poverty reduction trends face potential disruption due to various global and regional socioeconomic shocks. The repercussions of the COVID-19 pandemic, the consequences of WAEMU sanctions imposed on neighboring Niger, the aftermath of the Russian invasion of Ukraine, political instability in neighboring Sahel countries, escalating insecurity, and social tensions in the North all contribute to a climate of uncertainty. These factors could lead to ongoing fluctuations in the prices of essential commodities such as food, energy, and fertilizers. Consequently, this volatility may



adversely impact impoverished and vulnerable households, impeding the pace of poverty reduction and pushing more households into fragile situations (World Bank, 2023).

Africa possesses significant agricultural potential, with over half of the world's fertile yet unused land. Despite this, Benin, West Africa country is becoming more reliant on food imports from other parts of the world. Governments in West Africa including Benin's, backed by revenue from commodity sales, import substantial quantities of staples such as rice, maize, cassava, and millet as essential sources of calories in the region (World Bank, 2015) and (World Bank Group Report, 2015). Due to the absence of effective regional policies, trade across borders in West Africa faces challenges such as poorly managed transport and storing, inadequate financing, and fragmented supply chains, especially for perishable goods. These obstacles hinder the sale of essential food staples. Moreover, this fragmentation poses difficulties for smallholder farmers and small traders, preventing them from producing surplus crops for sale to the food industry (World Bank, 2015). Enhancing Benin trade in West Africa is crucial for ensuring food security and promoting agricultural development. Robust policies and commitments from neighboring countries can significantly contribute to this effort. Cross-border trade will foster economies of scale in food production, broaden opportunities for producers, and markedly decrease the vulnerability of families particularly those in poverty to price fluctuations, drought, and other shocks (World Bank, 2015). Challenges such as import restrictions, elevated transport expenses, and a deficiency in standards and quality policies hinder the sharing of resources and essential food staples among West African countries. Establishing steps towards an integrated trade market can enhance food security by enabling the efficient transfer of surplus supply from one region to meet high demand in another part of the community (World Bank, 2015). Addressing the food supply challenge is particularly crucial in West Africa, given the region's rapid population growth, particularly in urban areas. There is a growing reliance on imported food to meet consumption needs, despite Africa's substantial agricultural potential (World Bank Group Report, 2015). The rise is also indicative of shifting consumption patterns as the proportion of rural to urban population decreases. Additionally, there is an increase in non-traditional consumption

of staples like rice and meat among the wealthier segments of the urban population (World Bank Group Report, 2015).

The agricultural sector, which contributes to around 70 % of employment and 30 % of GDP, is a critical component of Benin's economy. However, its reliance on rainfall makes it susceptible to climate change impacts. Approximately 550,000 smallholdings, averaging 1.7 hectares, dominate subsistence farming, focusing on cereals and tubers (Statista, 2023; the International Fund for Agricultural Development [IFAD]-Benin, n. d.).

The rural areas face a chronic job shortage, prompting many young individuals to migrate to urban centers in search of employment. Market gardening emerges as a significant source of both direct and indirect employment for young people and women in towns, their surroundings, and rural regions. This sector holds the potential for further development to address the shortage of vegetables across the sub-region (International Fund for Agricultural Development [IFAD]-Benin, n. d.).

## **2.2 Politics, democracy governance and development**

The Republic of Benin is a poor country, but very rich in political events and democracy (World Bank, 2023; &Atihou, 2018). The Republic of Benin, West Africa country, stands as one of the continent's most stable democracies (The World Bank, 2023). For instance, during the era of slavery, it was called "The Slave Coast". Additionally, after its putative independence on August 1, 1960, it became a hotbed of military coups (Atihou, 2018). The Republic of Benin is a relatively young democracy, having transitioned from a history of kingdoms to French colonial rule starting in the 1870s. The country gained independence from French colonial rule officially becoming the Republic of Dahomey. The post-independence period witnessed significant instability marked by frequent changes in government and military coups. Major Kérékou took power in a military coup in 1972 and remained in office until 1991. During Kérékou's regime, the country aligned itself with the socialist bloc, adopting Marxism-Leninism as the official ideology, establishing one-party rule, and changing the country's name to the People's Republic of Benin (Lisa, 2018). The transition to democracy in the Republic of Benin was significantly influenced by the active participation of civil society. The democratization process gained momentum in 1989 as public discontent with the government's corruption and policies intensified, leading

to widespread strikes and protests. Key contributors to these protests were student organizations, independent trade unions that had emerged during mobilization efforts (especially among teachers and public service employees), and, to some extent, the Catholic Church and organizations of Catholic intellectuals. Faced with mounting protests in 1989, President Kérékou made the decision to abandon Marxism-Leninism as the official ideology and dismantle the one-party monopoly. Shortly afterward, the Conférence Nationale des Forces Vives de la Nation (National Conference of the Living Forces of the Nation) charted the course for the country's transition to a multi-party system and established a democratic constitution. The Beninese National Conference served as a model for similar conferences in other African nations. The inaugural democratic elections occurred in 1991. Since then, the Republic of Benin has experienced multiple peaceful and democratic transfers of power, establishing itself as a positive example of democratic transition in Africa (Lisa, 2018). Active involvement in politics holds a crucial role in our society, significantly influencing our lives in an increasingly interconnected world. Within a democratic framework, political participation provides citizens with a platform to convey their concerns and preferences to government officials. It serves as a means to exert pressure on authorities, compelling them to address the needs and desires of the public (Oloruntoba & Falola, 2018). While integral to democracy, not all individuals exercise their right to participate in political processes. The rate of non-participation fluctuates based on factors such as time, location, circumstances, and the type of engagement involved. It is noteworthy that a larger number of people engage in political discussions compared to those who actually vote, and even fewer choose to join political parties or actively participate in campaigns. Those who do participate likely anticipate, or at least hope, that their involvement will influence government policies. However, the impact of political participation extends beyond policy outcomes; it may also play a role in shaping individual life satisfaction and happiness (Fayomi & Adebayo, 2017). Citizenship encompasses concerns related to social justice, human rights, community unity, and global interdependence. It fosters a commitment to confronting injustice, inequality, and discrimination. Citizenship education aids young individuals in honing critical thinking skills, encouraging them to examine a diverse array of political, social, ethical, and moral issues. It also promotes the exploration of opinions and ideas beyond their personal perspectives. Through this

process, individuals learn to assess information, make informed judgments, and reflect on the potential consequences of their actions, both in the present and future (Fayomi & Adebayo, 2017; García de Velazco, Jaimes, & Hernández, 2021).

From February 18th to 28th, 1990, a national conference was organized in order to find solutions to the economic and political difficulties facing the country. During the conference, the delegates decided to put an end to the Kerekou's and pave the way for a democratic government (Atihou, 2018). The political landscape of the Republic of Benin has been marked by tensions and developments over time. The country's political system constitutes the foundation on which its governance and development are based (Adohounde & Agonnoude, 2020).

The evolution of the Beninese political system took place through four important stages, this includes (Atihou, 2018; Adohounde & Agonnoude, 2020):

1. Pre-Colonial Era: before European colonization, the Kingdom of Dahomey thrived, governed by an "Oba." And French colonial rule persisted from 1892 to 1960, culminating in the Republic of Benin's independence.

2. Post-Independence Transitions: between 1960 and 1972, the Republic of Benin (then known as the Republic of Dahomey) experienced military coups, leading to frequent changes in government. In the early 1990s, President Mathieu Kérékou initiated a pivotal shift. A National Conference facilitated the transition to democracy, making The Republic of Benin become the first African country to successfully transition from dictatorship to a pluralistic political system. And the 1990 Constitution aimed to promote accountability, transparency, freedom of religion, freedom of the press, separation of powers, and universal suffrage.

3. 1990 Constitution and Democracy: Republic of Benin's political landscape shifted toward a presidential representative democratic republic with a multi-party system, and the President holds dual roles as head of state and head of government.

4. Current Framework: As of 2022, Benin's political system remains a work in progress; the challenges persist, but the country continues its journey toward stability and progress.

The Republic of Benin's political journey has been marked by the transition from monarchy to military rule and, ultimately, to a democratic framework.



While challenges persist, the country continues to navigate its path toward stability and progress (Adohounde & Agonnoude 2020). The development of a State's political system is a complex process that demands meticulous examination. Each stage, from historical roots to constitutional frameworks, shapes the governance and trajectory of a nation (Mohammed, 2023). Despite the successful transition to democracy, the Republic of Benin's democratic system grapples with numerous challenges. Operating as a semi-presidential system, the national political landscape heavily favors the executive branch, especially the president. Political relations are marked by neopatrimonialism, extensive corruption, and the influential roles of ethnicity and regionalism in shaping the political landscape. "Political transhumance," where individual leaders frequently switch party affiliations for strategic reasons, is a prevalent feature in Benin politics. For these leaders, building personal support bases for a political career and eventual government positions takes precedence over party loyalty. Larger parties actively vie for the allegiance of individual politicians with significant voter bases, independently of their previous political affiliations. Additionally, the party system is highly fragmented, with more than 100 officially registered parties (Lisa, 2018). Political parties in the country (Benin) often revolve around individual politicians or coalitions of influential figures, especially in the case of larger parties ("big men"), who possess the financial means to establish a party. Intra-party conflicts are typically resolved by factions splitting, particularly when the dissenting group has the financial resources to form a new party. There are few nationally significant large parties, with the majority being small entities relevant only in specific regions or localities. All parties maintain a distinct regional base (Lisa, 2018; Fayomi & Adebayo, 2017). The process of party-building relies heavily on financial capabilities and less on political values or ideas. As a result, the party system is highly unstable, and party names change frequently. The concept of "political transhumance" is essential for understanding the often-uneasy relationship between politicians and civil society in Benin. Politicians frequently characterize civil society as "politicized," leading to a relationship characterized by mistrust (Lisa, 2018). Therefore, encouraging citizen participation in a political climate marked by mistrust between political entities and civil society necessitates a keen political awareness on the part of donors. Collaborating with specific civil society groups can have significant implications for the political landscape of the municipality

and impact the success of the project. Therefore, international actors must be mindful of potential political motivations among civil society actors and recognize dependency relationships between politicians and civil society representatives (Fayomi & Adebayo, 2017) and (García de Velazco, Jaimes, & Hernández, 2021).

From its independence to the present day, Benin has undergone significant transformations in its political system. These changes represent a pivotal shift from sometimes inefficient or outdated governance to a new system that aligns with the realities of the present. Notably, the current administration under President Patrice Talon exemplifies this evolution. Political change is intricately tied to social progress, aiming to enhance the well-being of citizens within a secure and effective framework. It involves a complex interplay of altering political institutions, standards, values, and models of political behavior (Adohounde & Agonnoude, 2020).

1. Creation of a New Political System: Visionaries and leaders collaborate to design a fresh system; strong institutions and adaptive laws are crafted to address contemporary issues, this phase involves drafting constitutions, establishing democratic processes, and defining roles.

2. Relative Consolidation: the new system takes root, gradually replacing the old, citizens adapt to the changes, and institutions gain legitimacy. The Stability and effectiveness become the cornerstones of the transformed political landscape.

The Republic of Benin's journey reflects the dynamic interplay between tradition and progress, as it navigates toward a more efficient and suitable political system.

The 1990 conference marked a significant turning point in the political landscape of the Republic of Benin. It effectively discontinued the ideology of Marxism-Leninism, which had been introduced by President Mathieu Kérékou. The conference's primary objective was to establish multi-partism while decentralizing power (Adohounde & Agonnoude, 2020). During this pivotal event:

1. A new Constitution was adopted, reshaping the country's governance.
2. Notably, the Presidential eligibility criteria underwent crucial changes:

- 2.1 The President of the Republic could now serve two terms.

2.2 Eligibility spanned from age 40 to age 70.

This constitutional transformation aimed to create a more dynamic and responsive political system, fostering democratic principles and adaptability.

In 2016, Patrice Talon assumed power in Benin with the slogan 'Nouveau Depart,' signaling a departure from the governance style of his predecessor, Thomas Boni Yayi (2006-2016). Patrice Talon's administration is credited with initiating reforms and introducing legislation to set Benin on a developmental trajectory (Lisa, 2018) and (Adohounde & Agonnoude 2020). These reforms touch various aspects of the country, including:

1. Judicial Administration:

1.2 Talon's focus on judicial reforms seeks to enhance fairness, efficiency, and accountability within the legal system.

1.3 The goal is to establish a judiciary that upholds democratic principles and safeguards citizens' rights.

2. Public Administration:

2.1 Reforms in public administration aim to streamline bureaucracy, improve service delivery, and foster transparency.

2.2 By optimizing administrative processes, the government aims to better serve its citizens.

3. Media:

3.1 Talon recognizes the pivotal role of media in a democratic society.

3.2 Efforts have been made to promote press freedom, responsible journalism, and access to information.

4. Security and Defense:

4.1 Ensuring national security is paramount.

4.2 Reforms focus on modernizing security forces, countering threats, and safeguarding citizens.

5. International Cooperation and Diplomacy:

5.1 Benin seeks to strengthen its global partnerships.

5.2 Talon's administration engages in diplomatic efforts to foster collaboration, trade, and mutual understanding.

In essence, Patrice Talon's presidency underscores a commitment to rebuilding a democratic state one that respects due process, empowers its citizens, and charts a course toward sustainable progress.

The Constitution of December 11th, 1990 bestowed considerable authority upon the President of the Republic. This authority extended to various national institutions, as the President controlled state resources. However, to safeguard democracy, citizens' rights, and liberty, the government under Patrice Talon implemented critical reforms within Benin's political system (Kohnert & Preuss, 2019). These reforms targeted several key institutions:

1. Constitutional Court:

- 1.1 The role and independence of the Constitutional Court were redefined.

- 1.2 Measures were taken to ensure that it operates as a check and balance on executive power.

2. Supreme Court:

- 2.1 Reforms at the Supreme Court aimed to enhance its impartiality and efficiency.

- 2.2 Transparency and adherence to legal principles were prioritized.

3. High Authority of Audiovisual and Communication (HAAC):

- 3.1 The HAAC underwent changes to promote media freedom and responsible journalism.

- 3.2 Ensuring a diverse and unbiased media landscape became a focal point.

4. Presidency of the Republic:

- 4.1 The powers of the presidency were restrained to prevent undue concentration.

- 4.2 Accountability mechanisms were strengthened.

5. Political Parties:

- 5.1 Reforms encouraged the emergence of vibrant political pluralism.

- 5.2 Political parties gained greater autonomy and influence.



These measures collectively aimed at reinvigorating democratic processes and fostering a political system that serves the interests of all citizens.

Good governance and inclusive economic development are essential prerequisites for constructing and solidifying democracies. Despite undermined institutions giving the impression that democratic development is not an immediate concern, it is crucial to recognize that formal elections, while necessary, are not sufficient on their own to ensure meaningful participation of the population in political decisions. Recent instances of African social movements led by predominantly young activists successfully advocating for a democratic renaissance in Africa and beyond offer hopeful signs of progressive social forces countering global trends toward the resurgence of rightwing nationalism and autocratic rule. Rather than solely focusing on the surface-level aspects of a democratic system, such as the presence of multi-party elections, there is a need to prioritize factors like good governance, social participation, and integration. Collectively, these efforts should contribute to an ongoing and sustainable process of establishing genuine democratic institutions that go beyond being mere constitutional facades, fostering the development of societal countervailing power.

Local governance entails that elected officials within a community take proactive measures to enhance the local economy and the overall well-being of their constituents. It serves as a strategic response to the development challenges encountered by African states (Samson & Houessou, 2018). Effective local governance involves the creation of rules, procedures, institutions, and mechanisms that empower citizens to voice their interests, assert their rights, and actively contribute to the progress of their community. In the Republic of Benin, decentralization has emerged as a crucial driver of development since the establishment of the first communal and municipal councils in February 2003 (Samson & Houessou, 2018). These local bodies have assumed responsibilities that were previously centralized, including tasks like maintaining local marketplaces, ensuring community hygiene, issuing bicycle licenses, and collecting certain taxes. To oversee the financial resources allocated to these local entities, the central state introduced the Communal Development Support Fund in 2008. Through the transfer of responsibilities and administrative units to the local level, decentralization provides an avenue to tailor public services to local requirements. It

also affords citizens the space for active participation in local politics, mitigating the concentration of political power at the national level (Lisa, 2018).

The Sufficiency Economy Philosophy's (SEP's) emphasis on moderation and self-reliance could encourage political leaders in Benin to adopt policies that address the needs of diverse segments of society. This inclusivity may contribute to social cohesion and reduce potential sources of political instability (Boman, 2022).

The SEP can play a crucial role in the system of decentralization and governance at the Djakotomey District and national level in the Republic of Benin. Decentralization involves the transfer of power, responsibilities and resources from central government to local authorities, thereby empowering communities to make decisions that have a direct impact on their development. The integration of the SEP in the decentralization process can contribute to the sustainable development of the community. Implementing SEP into the decentralization system, Djakotomey District can develop as a more sustainable and self-reliant community. This approach ensures that local decision-making considers the principles of balance, moderation, and resilience advocated by SEP, leading to holistic and community-driven development.

### **2.3 Socio-economic situation in Benin**

The 17 Sustainable Development Goals (SDGs) and their 169 targets delineate the aims to be accomplished by 2030. Nevertheless, they do not provide specific details on how governments should structure their efforts to achieve these goals (Rapport sur le Developpement Durable pour le Benin, 2023). The 17 SDGs can be achieved through six important transformations as shows figure 2.23 (Sachs et al., 2019; Rapport sur le Developpement Durable pour le Benin, 2023, 2022):

1. education, gender, and inequality,
2. health, well-being, and demography,
3. clean energy and industry,
4. sustainable use of land and oceans,
5. sustainable cities, and
6. digital technologies



**Figure 2.21** Six Transformations for SDGs

**Source :** Sachs et al., 2019

### 1. Transformation 1

The initial transformation involves dedicating resources to education, including early childhood development, primary and secondary education, vocational training, and higher education. It also involves strengthening social protection systems, adhering to labor standards, and investing in Research and Development. This transformation is specifically targeted at addressing SDGs 1, 2, 4, 5, 8, 9, and 10, while simultaneously bolstering other achievements aligned with the Sustainable Development Goals (Rapport sur le Développement Durable pour le Benin, 2023, 2022).

### 2. Transformation 2

This transformation includes interventions designed to achieve universal health coverage (UHC), encourage healthy behaviors, and tackle the social determinants of health and well-being. It specifically focuses on SDGs 2, 3, and 5, demonstrating robust synergies with various other objectives (Rapport sur le Développement Durable pour le Benin, 2023, 2022).

### **3. Transformation 3**

This transformation includes allocating investments to enhance access to energy, decarbonize electricity, transform transportation, improve buildings and industry sustainability, and reduce industrial pollution. It specifically addresses SDGs 3, 6, 7, 9, and 11 to 15, concurrently reinforcing several other SDGs (Rapport sur le Développement Durable pour le Bénin, 2023, 2022).

### **4. Transformation 4**

Efforts directed at improving the productivity and resilience of food, agricultural, or forestry production systems in response to climate change need to be harmonized with initiatives focused on conserving and restoring biodiversity. Simultaneously, the promotion of healthy diets, coupled with substantial reductions in food losses and waste, is of paramount importance. Notably, there are significant trade-offs involved in these interventions. This holistic transformation explicitly aligns with SDGs 2, 3, 6, and 12 to 15, while concurrently reinforcing various other SDGs (Rapport sur le Développement Durable pour le Bénin, 2023, 2022).

### **5. Transformation 5**

Integrated investments in infrastructure, urban services, and climate change resilience are essential for cities and communities. These interventions primarily address SDG 11 while directly contributing to goals 6 and 9. This transformation indirectly supports virtually all SDGs.

### **6. Transformation 6**

The strategic deployment of digital technologies, such as artificial intelligence and modern communication tools, can significantly advance the achievement of nearly all SDGs. Moreover, Transformation 1 and Transformation 2, focusing on education, gender, and inequalities, and health, well-being, and demography, respectively, aim to enhance human capital and reduce socio-economic and gender inequalities (Rapport sur le Développement Durable pour le Bénin, 2023, 2022).

The foundation of the "Six Transformations" rests on two core principles. Every transformation should be crafted, executed, and overseen with the commitment to "leave no one behind," aiming to strengthen justice, equity, and social inclusion. This principle is especially relevant to public services like health and education,



infrastructure services (transport, water, sanitation, energy), and the sustainable use of environmental resources (Rapport sur le Développement Durable pour le Bénin, 2023, 2022). The second principle involves ensuring "circularity and decoupling." In other words, achieving the SDGs requires a shift in consumption and production patterns to separate the use of environmental resources and pollution from growth and human well-being. Each transformation must be designed, implemented, and monitored to reduce the ecological footprint by promoting circular flows, reusing, recycling, using more durable materials, and efficiently utilizing natural resources. Good governance and the absence of conflicts are essential conditions for realizing the "Six Transformations" (Rapport sur le Développement Durable pour le Bénin, 2023, 2022). Progress towards the Sustainable Development Goals (SDGs) has come to a standstill since the onset of the COVID-19 pandemic (Sachs et al., 2023).

Rural areas continue to face significant challenges with poverty, as evidenced by the fact that 80 % of those living in impoverished conditions reside in such regions. Numerous developing nations exhibit a significant proportion of their population residing in rural areas, contributing to this disparity. In 2013, approximately 18 % of rural inhabitants experienced extreme poverty, a stark contrast to the around 5 % observed in urban settings (Castañeda & Selwyn, 2018). Parallel to national trends, sub-Saharan Africa records the highest rural poverty rates, with over 50 % of the rural population in numerous countries facing extreme poverty (United Nations Department of Economic and Social Affairs, Social Inclusion (UN DESA), 2021).

The aim of transformations 1 (education, gender, and inequality) and 2 (health, well-being, and demography) is to enhance human capital. This involves ensuring universal access to quality education, establishing social protection systems, improving labor standards, promoting research and development, and guaranteeing universal access to healthcare. There are positive synergies among these three primary axes of human capital transformation, reinforcing each other (Rapport sur le Développement Durable pour le Bénin, 2023, 2022). Human capital development relies on education, particularly for Benin, where nearly half of the population is under the age of 15 (INStaD, 2022). The Republic of Benin educational system requires transformative measures to ensure both quality and accessibility for all. The average number of years of schooling serves as an indicator of the average level of education in

the Beninese population. It has progressed, rising from approximately 3.7 years in 2015 to almost 4.3 years in 2021 in Benin, signifying a growth of 15.9% (PNUD, 2022). The Republic of Benin has a higher net primary school enrollment rate than most ECOWAS countries, with nearly 96.9% of children of primary school age enrolled. However, akin to Niger, the Republic of Benin has witnessed a decline in the primary education completion rate between 2015 and 2021 (Rapport sur le Développement Durable pour le Bénin, 2023).

The Republic of Benin must be able to benefit from the impacts and outcomes of policies aimed at developing human capital. To achieve this, the transformation of the employment context, entrepreneurship, as well as support for research and development, complements the education transformation.

The Republic of Benin, a West African nation, has been navigating various socio-economic challenges and opportunities. The country has made strides in certain areas, such as poverty reduction initiatives and improvements in education and health. However, persistent issues include a relatively high poverty rate, challenges in economic diversification, and the impact of global and regional factors on its economy (International Monetary Fund (IMF), 2019; World Bank, 2018, 2019, 2023). IN response, the government has implemented strategies to boost domestic resource mobilization, improve governance, and enhance institutional capacity. Benin's fiscal policy and efforts toward regional convergence criteria, particularly in reducing the public deficit, have been key focal points. The country's socio-economic landscape is influenced by factors such as regional geopolitical dynamics, global economic trends, and efforts to address internal challenges (IMF, 2019).

The challenging economic conditions impact the potential for fostering citizen participation in Benin. Municipalities in Benin operate within constrained budgets, limiting their capacity to respond to citizens' requests for enhanced public services or improved local governance. Additionally, the economic struggles of individual citizens create strong dependencies on patrons or political authorities, often hindering them from freely expressing criticism towards those in power (Lisa, 2018). Sustainable development in Benin, like in any other country, requires a comprehensive approach that addresses various socio-economic factors. Benin, a West African country, faces challenges such as poverty, limited access to education, healthcare, and

infrastructure, as well as environmental concerns (World Bank, 2023; IMF, 2019). Here are key socio-economic factors for sustainable development in the Republic of Benin:

1. **Poverty Alleviation:** Implementing strategies to reduce poverty and income inequality is crucial. This may include social safety nets, targeted employment programs, and support for small and medium-sized enterprises (SMEs) (United Nations Department of Economic and Social Affairs, Social Inclusion (UN DESA), 2021). The World Bank is actively endorsing Benin's strategy to alleviate poverty by promoting growth, enhancing access to basic services, improving governance, and strengthening institutional capacity (World Bank, 2023).

2. **Education:** Promoting universal access to quality education is essential. This involves improving school infrastructure, teacher training, and ensuring that education is accessible to all, especially girls and marginalized communities.

3. **Healthcare:** Strengthening healthcare systems is vital for sustainable development. This includes increasing access to healthcare services, improving sanitation and hygiene, and addressing issues like maternal and child health.

4. **Infrastructure Development:** Investing in infrastructure, such as transportation, energy, and water supply, can enhance economic productivity and improve the overall quality of life for the population.

5. **Agricultural Development:** Given that agriculture plays a significant role in Benin's economy, promoting sustainable agricultural practices, improving irrigation systems, and providing support to smallholder farmers can boost food security and economic growth. Encourage diversification of livelihoods in rural areas. This can include promoting sustainable agricultural practices, supporting small-scale enterprises, and exploring alternative income sources to reduce dependency on a single sector.

6. **Environmental Sustainability:** Benin faces environmental challenges, including deforestation and climate change impacts. Encouraging sustainable practices, such as reforestation, renewable energy adoption, and climate-resilient agriculture, is essential for long-term development.

7. **Access to Clean Water and Sanitation:** Ensuring access to clean water and sanitation facilities is critical for public health. Investments in water infrastructure and hygiene education can improve living conditions.

8. Good Governance: Promoting transparency, accountability, and the rule of law is fundamental for sustainable development. Efficient and corruption-free governance systems contribute to a conducive environment for economic growth.

9. Private Sector Development: Fostering a supportive environment for the private sector, including SMEs, can stimulate economic growth and job creation. This involves reducing bureaucratic hurdles, providing access to finance, and promoting entrepreneurship.

10. Social Inclusion and Gender Equality: Ensuring social inclusion and gender equality are crucial for sustainable development. Policies that address discrimination, promote equal opportunities, and empower women contribute to a more equitable society.

11. Capacity Building and Skills Development: Investing in human capital through education and skills development programs enhances the workforce's capabilities, fostering innovation and economic diversification.

12. Community Engagement: Involving local communities in decision-making processes and development initiatives ensures that projects are tailored to their needs, promoting a sense of ownership and sustainability.

However, recent trends indicate a rising disparity in wealth distribution within the country. The Gini index, a measure of inequality, climbed from 38.6 in 2003 to 47.8 in 2015, marking one of the highest levels in West Africa, according to (World Bank, 2019).

Addressing these socio-economic factors collectively can contribute to the sustainable development of Benin, fostering economic growth while safeguarding the environment and improving the well-being of its citizens. It is important to note that these efforts often require collaboration between government, non-governmental organizations, the private sector, and local communities. Implementing the Sufficiency Economy Philosophy in the Republic of Benin would require a collaborative effort involving government agencies, local communities, non-governmental organizations, and the private sector. By incorporating the principles of moderation, self-reliance, and resilience, the Republic of Benin can work towards achieving socio-economic sustainability in a manner that respects its unique cultural and environmental context.



As defined above, the Sufficiency Economy Philosophy (SEP) is a local governance concept for inclusive and sustainable economic growth. SEP is a holistic approach to development that was introduced by the late King Bhumibol Adulyadej of Thailand. It emphasizes the importance of moderation, resilience, and self-reliance in achieving sustainable socio-economic development. While originally developed in the context of Thailand, the principles of the Sufficiency Economy Philosophy can be adapted and applied to various countries, including Benin. Implementing SEP successfully in Benin involves applying essential patterns for socio-economic sustainability to enhance people's quality of life. These strategies include:

#### 1. Governance Approach

Implementing SEP principles in governance could lead to a more holistic approach, considering the long-term well-being of citizens. Policymakers might prioritize sustainable development, balanced decision-making, and environmental considerations in policy formulation (Mongsawad & Thongpakde, 2016).

SEP underscores good governance. The Republic of Benin can strengthen its institutions and governance structures, fostering transparency, accountability, and efficiency in decision-making processes.

#### 2. Economic Development and Stability

SEP's focus on sustainable economic practices may help mitigate economic vulnerabilities. Policies encouraging responsible financial management and reducing reliance on external factors could enhance economic stability in Benin (Niaz, 2021).

SEP promotes economic diversification, reducing dependence on a single sector. Benin can explore diverse economic activities, fostering resilience and reducing vulnerability to external economic shocks. SEP emphasizes community-based development. Implementing community-driven projects can enhance local economies and empower communities to take charge of their development.

#### 3. Social Development

By addressing poverty, education, and healthcare in line with SEP principles, Benin could foster social development. This might involve policies that prioritize access to education and healthcare, contributing to the overall well-being of the population (United Nations Report of the Secretary-General, 2019). SEP promotes

social well-being and inclusivity. Benin can use SEP to design policies and programs that ensure inclusive growth, addressing social disparities and enhancing overall well-being. Implementing SEP requires public awareness and understanding. Benin can invest in educational programs to inform citizens, businesses, and policymakers about the principles and benefits of SEP.

#### 4. Community Empowerment

SEP's emphasis on community participation and empowerment could lead to governance structures that involve local communities in decision-making processes. This could strengthen social bonds and reduce the risk of social unrest (Kamruzzaman and White, 2018).

#### 5. Collaboration Between Sectors

SEP encourages collaboration between government, civil society, and the private sector. If applied in Benin, this could lead to more inclusive governance structures, fostering collaboration and a shared responsibility for national development (Modara and Bennet, 2017). Regional Collaboration: Benin, within the UEMOA context, can use SEP to foster regional collaboration. The philosophy encourages sharing experiences and knowledge, contributing to regional stability and growth.

However, it is crucial to note that the success of implementing SEP principles depends on various factors, including the commitment of political leaders, the adaptability of the philosophy to Benin's specific context, and the involvement of diverse stakeholders. Thus, the implementation of SEP in the Republic of Benin would play a crucial role in every sector public service, private and political system.

The quality of life has emerged as a pressing concern across diverse backgrounds, encompassing individuals, communities, and governments. It revolves around the pursuit of satisfaction, happiness, and fulfillment in life. This heightened focus on quality of life contributes to the ever-evolving landscape of our world and environment (Ighodaro & Ajayi, 2019). Our lives have been significantly influenced by various factors, especially technology. These advancements have reshaped our daily existence, altering how we live, communicate, and learn (Ighodaro & Ajayi, 2019).

In simpler terms, the dynamic shifts in our contemporary world significantly influence individuals' quality of life. This heightened awareness has prompted people to actively seek and uphold a specific standard of living (Ighodaro &

Ajayi, 2019). According to Santos, Ivan and Fernanda (2007), quality of life encompasses the intricate interplay between various factors:

Social Life: The quality of our relationships, community bonds, and sense of belonging.

1. Health: Physical well-being, mental health, and overall vitality.
2. Economic Conditions: Financial stability, access to resources, and opportunities.
3. Environmental Factors: The impact of surroundings on our physical, emotional, and social development (Ighodaro & Ajayi, 2019).

The growth and progress of both individuals and their communities hinge significantly on the quality of life they experience. When people enjoy a good quality of life, it leads to feelings of happiness, satisfaction, fulfillment, and increased productivity. Such positive emotions often foster a favorable outlook on life, encouraging individuals to seize opportunities and enhance their own well-being (Ighodaro & Ajayi, 2019). A diminished quality of life can indeed result in significant adverse outcomes. When individuals experience a poor quality of life, they may encounter challenges such as:

1. Health Issues: Physical and mental well-being may deteriorate, affecting overall vitality.
2. Unhappiness: A lack of satisfaction and fulfillment can lead to emotional distress.
3. Reduced Productivity: Struggles with motivation and decreased efficiency.
4. Missed Opportunities: Limited access to resources and inability to seize life's chances.

So, prioritizing and enhancing quality of life is crucial for personal and communal well-being. The quality of life experienced by the residents of Benin in rural areas is unfortunately lowest. This unfavorable situation can result in feelings of dejection, with individuals lacking a sense of life fulfillment. Ultimately, this downward trend in quality of life may contribute to a decline in the overall standard of living for the people (Ighodaro & Ajayi, 2019).

The mitigation of food insecurity and poverty in Benin, particularly in rural regions, stands as a central national objective. The Government's strategic development plan for the agricultural sector in 2017-2021 underscores the importance of enhancing the capabilities of smallholder farmers to foster local production and ensure food security. Central to this plan is the Strategic Development Plan for Food and Nutrition (Plan stratégique de développement de l'alimentation et de la nutrition), where nutrition is prioritized as a fundamental component of development initiatives (Organisations des Nations Unies pour l'Alimentation et l'Agriculture (FAO), 2017). This plan outlines specific activities and nutrition-sensitive interventions within a multisectoral framework. Notably, one of the key priorities emphasized in this plan is the implementation of nutrition-sensitive initiatives at the community level. The Government has implemented a social protection policy with the aim of offering social safety nets. Within this framework, the school meals program serves as the primary vehicle for social transfers within the education sector. It plays a crucial role in enhancing and sustaining access to education. Building upon the success of the WFP's school meals program, the Government of Benin sought WFP's assistance in implementing and coordinating its national integrated school meals program (known as Programme national d'alimentation scolaire intégré, or PNASI). With WFP's support, the Government took concrete steps, investing USD 47 million to expand and fortify the program (UN WFP, (n. d). In 2017, this initiative covered 1,579 of the country's 7,616 primary schools. Subsequently, in 2018, the Government increased its contribution to USD 50 million, further extending the program to 3,179 schools. This expansion commenced during the 2018–2019 school year and is currently being implemented by WFP.

#### **2.4 Natural resources and environment**

The imperative to address population growth leads to the establishment of resource-intensive production systems in numerous countries. Nevertheless, the lack of suitable policies results in adverse impacts on the environment and the efficacy of agricultural and rural sectors. In the Benin Republic, the Strategic Plan for Agricultural Sector Development (PSDSA) is dedicated to enhancing food and nutrition security, elevating farm-level income, and fortifying resilience to climate change under the Government Action Plan (PAG Bénin Révélé) 2016-2021 (Dayou et al., 2020). The



influence of agricultural policies on food security, poverty alleviation, and resource management is significant. The management and productivity of agriculture, in terms of resource and input utilization, play a crucial role in determining the rate of depletion and degradation of soils and water, the emission of harmful substances into soils, water, air, and the atmosphere, as well as the quantity and quality of plant and animal resources, and landscape features (Dayou et al., 2020). This sector is characterized by low productivity due to the use of traditional tools, a low adoption rate of improved seeds, insufficient water management, poor organization of value chains, inadequate technical support, limited infrastructure, insufficient funding for production activities, and limited consideration of gender in development policies (Ministere de L'Agriculture de l'Elevage et de la Pêche (MAEP), 2017). Common manifestations of agricultural-related environmental degradation include deforestation and soil erosion. The overall consequences involve the loss of biodiversity, depletion of surface and groundwater resources, and threats to food security. The industrial model, with its focus on high production, has contributed to soil and water degradation, diminishing crucial elements of biodiversity essential for food security (Dayou et al., 2020).

The repercussions of agricultural environmental degradation often extend beyond the agricultural regions. To address this issue, especially in the Guinean zone where Benin is situated and experiences rainfall erosion, there should be a particular focus on adopting equipment and techniques that conserve water and soil. Achieving sustainable agricultural policies for food security inevitably relies on maintaining a sustainable and productive resource base. Consequently, the current challenge revolves around increasing productivity while enhancing the productive capacity of the natural resources base in a sustainable manner. Benin aims to emerge as an economy of note by 2025 (Dayou et al., 2020). To accomplish this goal, efficient environmental management is essential to address environmental challenges, promote sustainable development, and alleviate poverty in the country (Dayou et al., 2020). An expansion in cultivation area is evident, coupled with increased yields of various crops, which will necessitate the utilization of machinery and fertilizers. However, there is a potential risk of soil degradation and environmental pollution associated with the implementation of this plan.

Under the PAG (Bénin Révélé) 2016-2021 framework, the PSDSA and the accompanying PNIASAN specifically emphasize enhancing food and nutrition security, increasing farm-level income, and fostering resilience to climate change (Dayou et al., 2020).

The forestry and natural resources sector play a crucial role in the PAG 2016-2021, focusing on biodiversity conservation, protection of natural resources, and the sustainable use of forest resources. These aspects are essential foundations to underpin the anticipated agricultural and economic development by 2025. The government is dedicated to improving the overall governance of the forestry sector and implementing effective tools and practices for the sustainable management of forest resources (Organisations des Nations Unies pour l'Alimentation et l'Agriculture (FAO), 2017). The framework places a significant emphasis on climate change adaptation and considers the sustainable management of resources and the resilience of populations.

Poverty and environmental degradation are frequently intertwined in many developing countries. It is well-established that the utilization of land for agricultural production is one of the foremost factors influencing environmental quality. Despite the recognized and crucial role of the environment in agricultural production for the economy, insufficient attention is often devoted to the proper use of the environment to realize maximum benefits (Dayou et al., 2020). In the early 1990s, environmental issues started to garner significant attention in Benin. This heightened awareness led to the incorporation of these concerns into the constitution, followed by the adoption of Agenda 21, the Convention on Climate Change, Biodiversity, and Combating Desertification, culminating in the enactment of the Framework Law on the Environment in 1999 (Dayou et al., 2020).

The Government prioritizes environmental protection. The Republic of Benin has adopted a proactive environmental policy that includes Agenda 21, an Environmental Action Plan, and a National Environmental Management Program. The Poverty Reduction Strategy has been evaluated with the aim of incorporating environmental considerations. Environmental management is deeply rooted in the culture of Benin, and despite potential disruptions to socio-cultural practices, they continue to serve as valuable references in the participative management of natural resources (Dayou et al., 2020). Agricultural production is fundamentally linked to the

utilization of land. Meaningful agricultural activities cannot commence without productive land resources. Likewise, profitable crop and livestock production can only flourish when elements such as sunlight, water, soil nutrients, and plant nutrients from chemical fertilizers are present in the appropriate proportion and quality. Moreover, enhanced agricultural and industrial output thrives in environments with conducive man-made socio-economic conditions. Therefore, natural resources must be managed to provide a foundation for sustained development (Dayou et al., 2020).

The water sector in the Republic of Benin, encompassing resource management, drinking water supply, and sanitation, is among the areas where the impacts on poverty reduction, improvement of living conditions, and sustainable environmental management are most evident. Agriculture heavily depends on rainfall water, and pesticides are prevalent in nearly all water sources surrounding farms (Dayou et al., 2020). Confronted with the degradation of water quality and its diverse uses, a comprehensive approach must be formulated: providing drinking water, water for food production (agriculture, livestock, fishing), water for various productive purposes (industry, mining, transport, energy, crafts, tourism), water and health, water and natural hazards, and water and cultural aspects, including religion and the natural environment (Dayou et al., 2020). To prevent deforestation, soil degradation, water and air pollution, it is essential to emphasize training on land use under specific farming and grazing conditions, pest control, proper use of pesticides, and sustainable forest exploitation.

The National Climate Change Management Policy (NCCMP) is a comprehensive national initiative with a timeframe spanning from 2021 to 2030. The overarching vision of this policy is for Benin to become, by 2030, a resilient nation in the face of climate change. It aims to achieve this resilience by fostering sufficient adaptive capacity and implementing suitable mechanisms for anticipating and responding to climate risks. Additionally, the policy envisions promoting low-carbon growth and encouraging institutions, organizations, businesses, and citizens to adopt climate-sensitive practices, attitudes, and behaviors. The specific objectives of the policy (République du Bénin, 2022) include:

1. Enhancing the resilience and adaptive capacity of local communities, fostering economic and social transformation at the national level by 2030, thereby reducing vulnerability to the impacts of climate change.

2. Systematically integrating climate change adaptation into various policies, programs, and activities, whether they are new initiatives or ongoing endeavors. This integration is particularly emphasized in development planning, budgeting processes, and overall strategies.

To achieve these objectives, the policy outlines three strategic orientations:

1. Encouraging sustainable consumption and production patterns.
2. Advocating for the prudent and sustainable management of natural resources and ecosystems.
3. Establishing a comprehensive multi-risk system for early warning and effective management of disasters and natural calamities, including floods and rising sea levels.

Emerging from these strategic orientations are several pivotal objectives:

1. Fostering a resilient system of governance in development sectors.
2. Advocating for a resilient system of management and utilization of natural resources.
3. Establishing sustainable and inclusive socio-economic mechanisms for climate risk management.

Climate change impacts the resources and livelihoods across the entire national territory, presenting a significant concern over the past thirty years in Benin, Africa, and globally. The responses initiated by communities, characterized by urgency and organization, align with a programmatic approach aimed at devising immediate solutions for future challenges (République du Bénin, 2022).

In the Republic of Benin, agricultural production heavily relies on rain-fed systems, with occasional manual irrigation for farms situated near significant water sources. This dependence leads to seasonal fluctuations in produce availability. During the rainy seasons, there is an abundance of crops, which in turn drives lower prices in the market (Global Agriculture Information Network (GAIN), 2014). Within the



agricultural sector, there are notable challenges related to low productivity and environmental resource management. These issues raise valid concerns about the long-term sustainability of farms in Benin (Amoussou et al., 2016; Assogba et al., 2017). Recent assessments of the agricultural sector reveal alarming trends. Agricultural land faces occupancy and degradation, with increasing scarcity. Farms are also becoming more vulnerable to the impacts of climate change. According to World Bank (2020), agricultural land use has doubled its pace over the past three decades compared to the previous period, leading to intense land pressure and migration of agricultural communities. In Benin, agricultural production grapples with significant challenges, including pest infestations, soil depletion, and post-harvest preservation. To address these issues, farmers embrace agro-ecological production systems. These practices vary from one producer to another, shaped by individual innovations and discoveries (Olounlade et al., 2017).

Agroforestry stands out as a crucial sustainable agricultural practice, especially beneficial for farmers in developing countries, as it addresses challenges such as pest infestations and soil depletion. Integrating Sufficiency Economy Philosophy activities into sustainable agriculture can play a pivotal role in helping farmers in the Republic of Benin enhance the management of natural resources, including water and soil. This, in turn, contributes to the increased productivity of their crop yields.

Farmers in the Republic of Benin encounter numerous challenges, exacerbated by the absence of extension services. Without expert guidance, they grapple with pest and disease issues independently (Global Agriculture Information Network (GAIN), 2014).

1. Limited Chemical Pesticides: While chemical pesticides are in use, their availability remains moderate. Access is often restricted to those connected to cotton input supplies.

2. Organic Alternatives: Over time, international NGOs have made strides by introducing organic pesticides, including extracts from the Neem tree. These natural solutions offer promising results in pest control.

Addressing these challenges and promoting sustainable practices are essential for the resilience of the Republic of Benin's agricultural sector.

The vision of sustainable agricultural development is integral to the primary objectives of agricultural policies. While the sector's diagnosis does not explicitly align with the pillars of sustainability, the defined strategic orientations (SOs) shed light on actions contributing to this vision. An analysis of sustainability within these strategic orientations reveals a predominant focus on viability and livability. However, aspects related to transmissibility and reproducibility receive comparatively less attention (N'Goye, Egah, & Baco, 2021). Organic agriculture is a method of production that avoids the use of synthetic agro-chemicals. It is an integral part of the green economy, seeking to harmonize economic, environmental, and social considerations (Bonou-zin, Allali, & Fadlaoui, 2019). Organic farming places high value on ecosystem services and relies on technologies that align with environmental preservation. By adopting environmentally friendly practices, organic agriculture contributes to long-term sustainability (N'Goye, Egah, & Baco, 2021).

Organic farming serves as an environmentally friendly approach that offers solutions for efficient resource utilization. It achieves this by addressing key areas such as:

2.1 Nutrient management: Organic practices focus on optimizing nutrient cycles, promoting soil health, and minimizing nutrient losses.

2.2 Energy use: By reducing reliance on synthetic inputs and emphasizing natural processes, organic farming contributes to energy efficiency.

Organic methods prioritize water conservation, minimizing wastage and promoting sustainable irrigation practices (Bonou-zin, Allali, & Fadlaoui, 2019). So, organic agriculture not only benefits the environment but also enhances resource efficiency across these critical dimensions (Bonou-zin, Allali, & Fadlaoui, 2019).

Moreover, to address climate change issue for Benin development socio-economic inclusive and sustainable the government has plan covering 2016-2025, called "Benin ALLAFIA". The Low Carbon and Climate-Resilient Development Strategy is an intersectoral thematic strategy for the medium and short term, covering the period 2016-2025. It addresses the dual need of Benin to confront the adverse effects of climate change, including the identification, adoption, dissemination, and appropriation of adaptation measures, as well as the desire to contribute to the reduction of greenhouse gas emissions République du Benin, (n. d.). The strategy envisions that

by 2025, Benin will be a nation whose development is resilient to climate change and characterized by low carbon intensity. This vision is based on the Benin ALLAFIA 2025 vision and has the overall objective of contributing to the sustainable development of Benin by integrating climate considerations into the country's strategic operational sector plans. More specifically, it aims to strengthen one of the eight themes of the Benin ALLAFIA 2025 strategy, particularly the theme related to the "Human and Material Foundations of Sustainable Development," which covers the following three sub-themes: Environmental and urban management, addressing increasing environmental degradation and unplanned urbanization; Technology promotion, aimed at overcoming significant technological lag; and Economy promotion, focusing on overcoming challenges related to productivity and prosperity. The formulation of the present strategy relies on evaluating both vulnerability and the potential for mitigating greenhouse gas (GHG) emissions in the six primary development sectors associated with the aforementioned sub-themes. The overarching goal of this strategy is delineated into three specific objectives République du Benin, (n. d.):

1. Enhancing the resilience of local communities and economic production systems,
2. Decreasing emissions of anthropogenic greenhouse gases, and
3. Strengthening the protection of communities, particularly those most vulnerable, in the face of natural disasters.

In many sub-Saharan African nations, agricultural development serves as the cornerstone for economic growth and significantly impacts social transformation (N'Goye, Egah, & Baco, 2021). Consequently, agriculture remains a vital sector in Benin, employing approximately 70% of the active population. It contributes around 33% of the Gross Domestic Product (GDP), generates about 75% of export earnings, and accounts for 15% of state revenues (INSAE, 2015). Given this significance, the State is enacting policies to support agricultural development and enhance its sustainability (N'Goye, Egah, & Baco, 2021). Over the past three decades, two key ideologies have driven political reforms within the agricultural sector: the advent of new democracy post or after 1990 and the subsequent shift in political leadership from 2006 onward (Sossou, Nassi, & Hinnou, 2023). These ideologies have influenced political decisions regarding the trajectory of agriculture, significantly shaping the

sector's development and providing the necessary momentum it requires today (N'Goye, Egah, & Baco, 2021). While there have been notable shifts in production systems in recent years, the scale of agriculture in Benin has remained relatively unchanged (MAEP, 2017). In this context, the discussions around sustainable agriculture have predominantly focused on ensuring the sustainability of organizational, technical, and economic practices at the farm level. However, there has been less emphasis on exploring policy decisions that could lead to truly sustainable systems (N'Goye, Egah, & Baco, 2021).

To strengthen the nation's economy, the Beninese government's 2016–2021 action program is operated concurrently across political, administrative, economic, and social domains. It places significant emphasis on educational excellence and social safety nets. In pursuit of achieving zero hunger by 2030, the program strategically formulates priority projects and initiatives spanning critical sectors, with a particular focus on decentralization (World Food Program (WFP), 2019). Both the strategic development plan for the agriculture sector and the national plan for agricultural investment and food and nutrition security for 2017–2021 share a common goal: to strengthen the connection between agricultural performance and social and economic development. These plans prioritize community participation and emphasize the modernization and enhancement of food value chains and information systems.

The Sufficiency Economy Philosophy (SEP) is a holistic approach that originated in Thailand, designed to achieve balanced and sustainable development across economic, social, and environmental dimensions. Although initially developed within the Thai context, the principles of SEP can be adapted and applied in various settings, including the Republic of Benin through several key areas:

#### 1. Environmental Sustainability

1.1 SEP emphasizes prudent resource use and management. Benin can adopt sustainable practices in agriculture, forestry, and fisheries to ensure the conservation of natural resources and biodiversity.

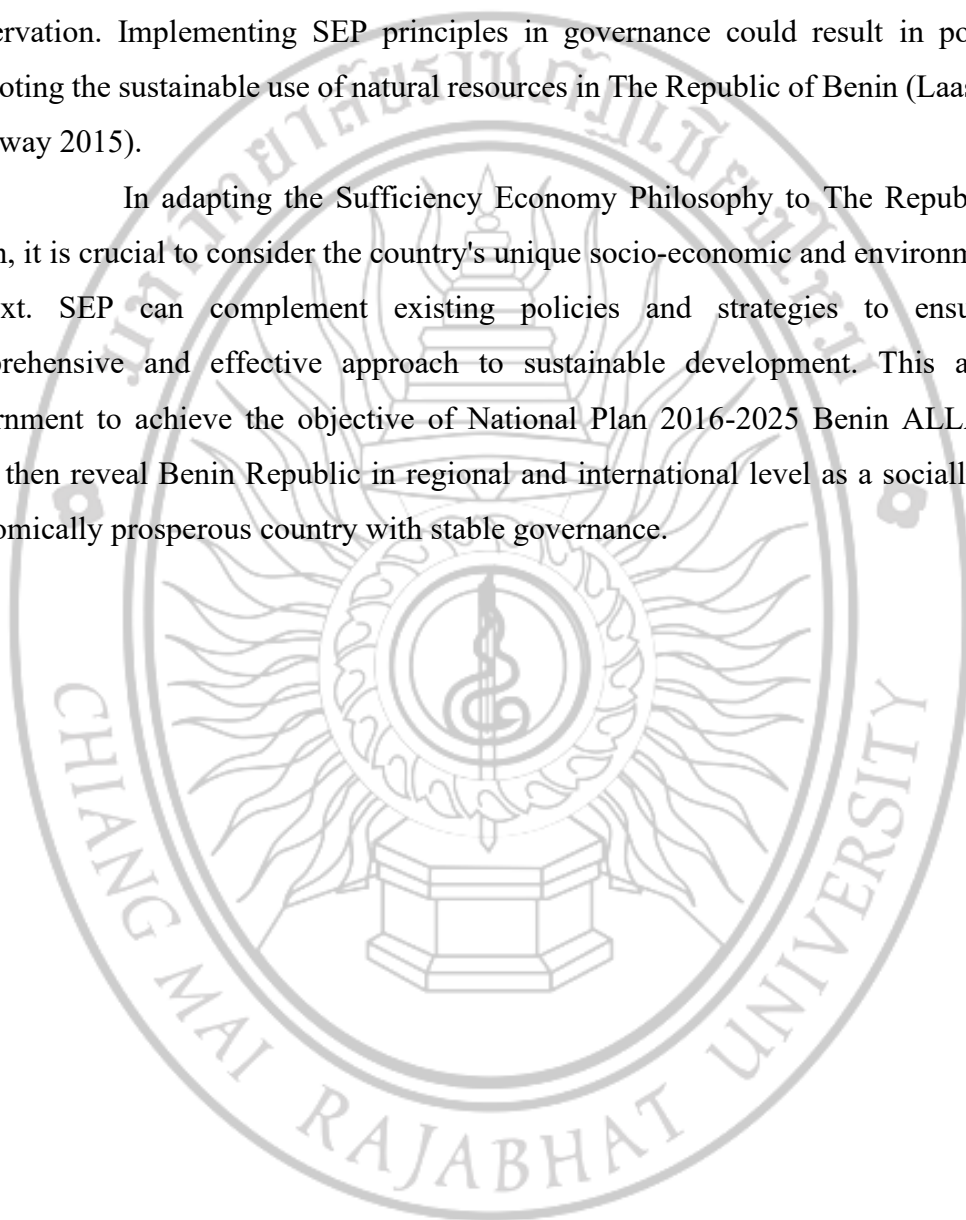
1.2 SEP encourages resilience to external shocks. The Republic of Benin can integrate SEP principles in climate change adaptation strategies, promoting practices that enhance resilience in the face of climate-related challenges.



1.3 SEP aligns with sustainable and responsible economic practices. The Republic of Benin can leverage SEP to attract international partnerships and investments that align with the principles of environmental and social responsibility.

The philosophy's focus on responsible resource management aligns with the need for sustainable practices, especially in agriculture and environmental conservation. Implementing SEP principles in governance could result in policies promoting the sustainable use of natural resources in The Republic of Benin (Laasch & Conaway 2015).

In adapting the Sufficiency Economy Philosophy to The Republic of Benin, it is crucial to consider the country's unique socio-economic and environmental context. SEP can complement existing policies and strategies to ensure a comprehensive and effective approach to sustainable development. This allows government to achieve the objective of National Plan 2016-2025 Benin ALLAFIA 2025 then reveal Benin Republic in regional and international level as a socially and economically prosperous country with stable governance.



## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

This chapter presents the methodological framework used to explore how agricultural practices informed by the Sufficiency Economy Philosophy (SEP) impact the Quality of Life (QoL) of individuals. The research objectives were to: explore the learned lessons of success from SEP implementation that have enhanced the QoL of the people in Thailand; analyze the affecting factors in adopting SEP into practice in the Republic of Benin; and investigate the appropriate guidelines for the adoption of SEP into practice in the Republic of Benin.

#### **Research Design**

This study was conducted in both the Djakotomey community of the Republic of Benin and Huay Tong Village in Thailand, selected to provide a comprehensive examination aligned with the stated objectives. The data collection involved conducting 24 in-depth interviews with household heads in the Republic of Benin and 17 in Thailand. Additionally, each site facilitated two focus group discussions, engaging a minimum of eight participants per group. These qualitative methodologies enabled a comprehensive exploration of the adoption of agricultural activities practices under the SEP and its impact on the QoL of community members in both locations.

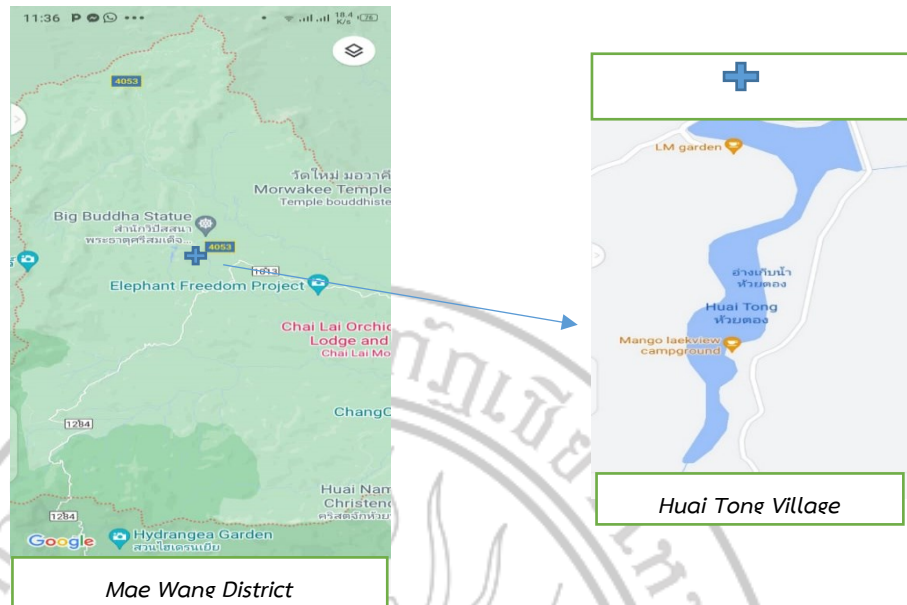
A mixed-methods approach was utilized, incorporating both quantitative and qualitative data collection techniques. Quantitative data were collected through a specifically developed questionnaire that gathered detailed information on QoL and understanding of SEP. These data were analyzed using descriptive and inferential statistics to explore the relationship between these two variables. Qualitative data, on the other hand, were obtained through content analysis, causal analysis, and network analysis techniques. Additionally, secondary data sources and observations were utilized to supplement the primary data collection.

## **Study Area Selection**

### **Huay Tong, Thailand**

Baan Huay Tong is located in Mae Wang district in the central part of Chiang Mai province, northern Thailand. The largest settlement and administrative seat of Mae Wang is Ban Kad, a satellite town of Chiang Mai. Across Mae Wang district, the ethnic Hill Tribe people are more present than in other parts of Thailand, as reported by the Mae Win Subdistrict Administration Organization (2022).

Huay Tong Village (Moo 10), located in Mae Win Sub-district, Mae Wang District, Chiang Mai, had 7.18 Square Kilometers or about 4,487.50 Rai. There are 138 households with a total population of 548 individuals. Figure 3.1 below depicts the map of the area. The population of the village depends on the products of the agriculture and grants a particular importance to this sector whose production is based on Sufficiency Economy Philosophy (SEP), as noted by the Mae Win Sub-district Administration Organization (2022). The selection of Huay Tong Village as a study site is also justified by its role as a model for the implementing of SEP within agricultural practices, under a royal project initiative. Furthermore, the quality of life in Huay Tong, characterized by homelessness, poverty, and food insecurity before King Rama IX, closely resembled that of people in the Republic of Benin. These similarities have provided valuable insights into potential strategies for enhancing the quality of life in the Djakotomey community through the implementation of SEP.



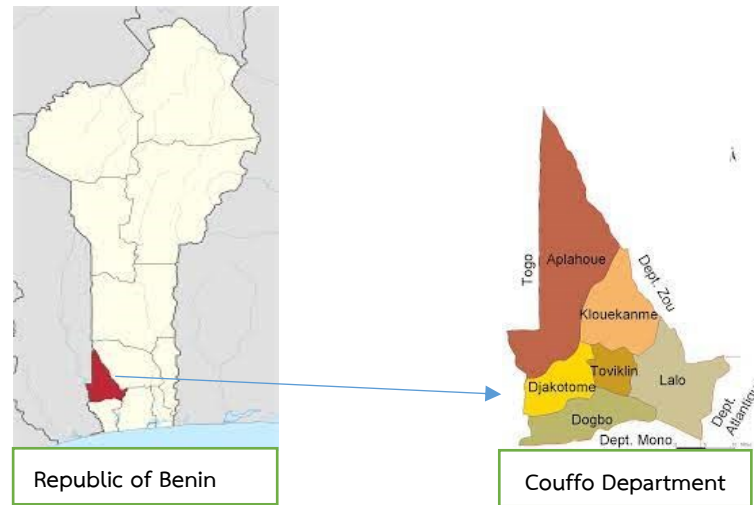
**Figure 3.1** Map of Huay Tong Village

### **Djakotomey Community, Republic of Benin**

Republic of Benin is a West African country which is subdivided into twelve departments, including Couffo. Located in the southwest of the Republic of Benin, the department of Couffo covers an area of 2,404 square kilometers and includes six municipalities. The Commune of Djakotomey, one of these municipalities, spans 325 square kilometers and, as of 2013, had a population of 134,704, according to data from the Djakotomey Commune Administration Organization (2023) and the Republique du Benin, Departement du Couffo (2017). Figure 3.2 below shows the community map.

The selection of Djakotomey District as a study site was primarily informed by its heavy reliance on agriculture and the intervention by the Thailand International Cooperation Agency (TICA) in establishing a Community Learning Center (CLC). This extension service aimed to assist farmers in managing agricultural challenges and alleviating poverty and food insecurity. Prior to the integration of the Sufficiency Economy Philosophy (SEP) into agricultural practices through the CLC, the quality of life of community members was notably poor and marked by significant suffering. This backdrop underscored the rationale for choosing the Djakotomey community as a focal point for this study.





**Figure 3.2** Map of Djakotomey Community

### **Population and Sample**

#### **Population**

The population for this study was derived from the research objectives. Specifically, in Djakotomey, Benin, the study population consisted of farmers who have engaged in agricultural practices under the Sufficiency Economy Philosophy (SEP), facilitated by the Thailand International Cooperation Agency (TICA) since 2019. The total population was 43, distributed across the areas of Betoumey, Djakotomey 1, Djakotomey 2, Kinkinhoue, and Sokouhoue.

Conversely, in Huai Tong, Mae Wang District, Thailand, the population comprised farmers who have integrated SEP into their agricultural practices. The total population in this area was 138.

#### **Sample Group**

##### **Thailand**

Baan Huay Tong was selected as the studied area due to its reliance on an integrated farming system, which aligns with the research objective of examining the application of SEP to improve the quality of life. The population of the study was the heads of the 138 households. Considering of all these factors, the research used probability or random sampling technique, only 17 heads of the household were purposively selected for interviewing due for their willingness, availability and language barrier.

### Djakotomey Community

In the Djakotomey community, the sample included 24 heads of household from the 43 farmers who participated in TICA's SEP training activities. These individuals were randomly selected across the regions of Betoumey, Djakotomey 1 and 2, Kinkinhoue and Sokouhoue, for interviewing. The sampling decision was influenced by constraints related to time, transportation, participant willingness, and availability, as detailed in Table 3.1.

**Table 3.1 Population and Sample in the Study Area**

Study area	Djakotomey District					Total
Sub-districts	Betoumey	Djakotomey 1	Djakotomey 2	Kinkinhoue	Sokouhoue	
Participate in SEP activities	02	03	33	03	02	43
Interview participants	02	03	14	03	02	24

**Source:** INSAE, fourth General Census of Population and Housing CGPH 4, 2013

### Data and Sources of Data

To address the research objectives outlined in Chapter 1, data collection is required from both countries, Republic of Benin and Thailand. For the Republic of Benin, the necessary data can be divided into three parts. The first part is a sort of personal data of the respondents. The second part is the data involving the socio-economic characteristics of the respondents. The last part consists of data related to the experiences and lessons learned from implementing the Sufficiency Economy Philosophy (SEP) to enhance quality of life, as evidenced in the Thai context. The primary data source for this segment is 24 farmers who were selected as the study samples. In the case of Thailand, the required data are mainly the quality of life of the villagers both before and after SEP has been taken into practice. The main data source here includes 17 farmers from Baan Huay Tong, who were selected as the study's sample group.

### **1. Tools for Collecting the Needed Data**

The data collection tools employed for this research study are as follows:

**Questionnaire:** This tool was primarily used to gather data from the heads of households in the Republic of Benin. It consisted of three parts: personal data of the respondents, their socio-economic characteristics, and their experiences and lessons learned in applying the Sufficiency Economy Philosophy (SEP). Each section of the survey consists of 25 to 35 questions. The study also used focus group discussions, observation, field note and secondary data in both communities Thailand and Benin. In addition, each group contained at least eight members.

The questionnaire was initially reviewed by thesis advisors to ensure its accuracy and relevance. Subsequently, it was evaluated by three experts in curriculum and instruction, critical thinking promotion, and measurement and evaluation, to ensure the validity and appropriate use of language. The criterion for selecting the listed items is based on having an Index of Consistency (IOC) above 0.5, with a specific requirement of a score exceeding 0.5. Upon examination, the results indicated that the list has achieved a perfect IOC score of 1.00. Recommendations included revising some negatively phrased questions to affirmative ones for clarity. The reliability of the questionnaire was assessed using the Cronbach alpha method, resulting in a high reliability score of 0.99. **Observation:** These methods were utilized in Baan Huay Tong community. The focus group consisted of at least eight members. Non-participant observations were specifically conducted in Baan Huay Tong to monitor the ongoing implementation of SEP.

**Interviews:** In Huay Tong Village, interviews were conducted with the villagers, facilitated by interpreters, to delve into how SEP was introduced and has evolved within the community. These interviews were conducted in conjunction with observations to provide a comprehensive understanding of the local context.

**Literature Review:** A review of related literature was undertaken to acquire secondary data, which helped support and corroborate the primary data collected from the field.

## **2. Data Collection Methods**

### **Djakotomey Community, Republic of Benin**

In case of the Republic of Benin, in this research, interviews were done online with the TICA representative in Benin and researcher's friend through WhatsApp. The researcher used Social Medias to communicate with the farmers to obtain some more necessary information.

### **Huay Tong Village, Thailand**

In Thailand, data collection utilized observation and interviewing as primary methods. Observations were conducted in the study area approximately four to five times, sometimes accompanied by lecturers (Ajarns) and at other times by friends and interpreters. Interviews were conducted with key informants, initially involving five individuals. Focus group discussions were also employed to explore the successes and challenges encountered in the implementation of the Sufficiency Economy Philosophy (SEP). To ensure ethical data collection, the study used participant information sheets and obtained informed consent from all participants. In this case, researcher obtained voluntary and informed consent from participants before their involvement in the study. This process ensured that participants were fully aware of the study's purpose, procedures, potential risks, benefits, and their right to withdraw at any time. Researcher conducted study with honesty, transparency, and integrity and promised to farmers that their name will not put in the findings and in report as well. This approach allowed to get participant attention and their freedom to provide the information according to interview question. Additionally, the researcher complied with institutional research ethics by obtaining approval from the Institute Research Ethics Development (IRD) at CMRU and participating in related training sessions, which included receiving a certificate of approval.

### **Data Analysis**

The qualitative data collected through interviews, observations, and literature review were analyzed using various qualitative techniques. Content Analysis, Causal Analysis, and Network Analysis or some others where they can be applied.

On the other hand, quantitative data, primarily sourced from questionnaires, were subjected to descriptive statistical analysis. Techniques such as mean, standard



deviation, Chi-Square tests, t-tests, and probability P-values set at 0.05 were utilized to analyze the data. Additionally, correlation or regression coefficients, along with frequency and percentage distributions, were calculated to provide a comprehensive statistical overview. The interpretation of responses on Likert's five-point rating scale was clarified according to Piroj (2018), providing a structured framework for understanding the gradations of participant responses within the study.

**Table 3.2 Likert Scale Rating and Interpretation**

Mean Range	Interpretation
4.50 - 5.00	A level of practice, understanding, or need at the "Highest level," significantly above average.
3.50 – 4.49	A level of practice, understanding, or need at the "High level," above average.
2.50 – 3.49	A level of practice, understanding, or need at the "Moderate level," or neutral.
1.50 – 2.49	A level of practice, understanding, or need at the "Low level," below average.
1.00 - 1.49	A level of practice, understanding, or need at the "Lowest level," significantly below average.

**Source:** Researcher

## **CHAPTER 4**

### **RESEARCH FINDINGS**

This chapter presents the findings from the data collection described in Chapter 3, which was designed to achieve the following research objectives: to experience the lesson learned from successful implementations of the Sufficiency Economy Philosophy (SEP) that have improved the Quality of Life (QoL) in Thailand; to investigate the factors influencing the adoption of SEP in the Republic of Benin; and to analytically suggest the appropriate guidelines for the implementing SEP to enhance the Quality of Life (QoL) in the Republic of Benin. Achieving above objectives, qualitative study was carried out in both communities, Benin and Thailand, interviewing the participants regarding the specific questions. The semi-structured interview of 24 and 17 farmers were conducted in both communities, Djakotomey District (Republic of Benin) and Huay Tong Village (Thailand), conducted from August to October 2023, as documented in Table 4.1.

In Djakotomey District, Republic of Benin, a qualitative study was conducted through questionnaires and individual interviews involving 24 participants who underwent training in utilizing the SEP concept for agricultural practices. Two separate focus group discussions were included. The first group was consisted of eight members, age of 48-73 years old, and had more than one year of training. Another group comprised of seven members, age of 23-47 years old, with had less than one year of training.

In Ban Huay Tong Village, Thailand, the data collection involved questionnaires and individual interviews with 17 participants actively applying the SEP concept in their living activities. Two separate focus group discussions were conducted, one consisting of nine participants, age 48-74 years old, with had been training and adopted SEP concept from the Royal project started. The other group was the youth

generation, age 31-47 years old, who continued to apply the SEP concept in their activities, based on the influence of their relatives from the first group.

**Table 4.1 Participant groups in Djakotomey District, Republic of Benin and Huay Tong Village, Thailand**

	<b>Djakotomey, Benin</b>		<b>Huay Tong, Thailand</b>	
<b>Group</b>	<b>(1<sup>st</sup> group)</b>	<b>(2<sup>nd</sup> group)</b>	<b>(1<sup>st</sup> group)</b>	<b>(2<sup>nd</sup> group)</b>
<b>Categories/Number</b>	<b>&gt; 1 year of training</b>	<b>&lt; 1 year of training</b>	<b>Old SEP group (48-74)</b>	<b>Young SEP group (31-47)</b>
Total Participants (%)	24 (100.0)		17 (100.0)	
Individual interview in each category (%)	14 (58.3)	10 (41.7)	11 (64.7)	6 (35.3)
Total Focus group (%)	15 (100.0)		15 (100.0)	
Focus group in each category (%)	8 (33.3)	7 (29.2)	9 (60.0)	6 (40.0)

**Socio-demographic and Economic Data of Communities in Djakotomey District, Republic of Benin and Huay Tong Village, Thailand**

Agriculture plays a pivotal role in Benin's economy, primarily involving subsistence farming with smaller landholdings and traditional methods. Commonly cultivated crops include maize, cassava, yams, and cocoa. Access to modern agricultural technologies may be limited. On the other hand, Thai's farmer has a more diverse agricultural sector, with a focus on both subsistence and commercial farming. Key agricultural products include rice, sugarcane, rubber, fresh vegetables, and fruits. There is a mix of smallholder farmers and larger commercial farms. The adoption of modern agricultural practices and technologies is relatively high. The socio-economic conditions of farmers in both countries are diverse, influenced by factors such as education, healthcare, and access to financial services. These variables play crucial

roles in the well-being and productivity of farmers. In this study, socio-demographic data of a community in Djakotomey District, Republic of Benin and Huay Tong Village, Thailand are presented in Table 4.2

**Table 4.2 Demographic and Socio-economic Characteristics of Participants in Djakotomey District, Republic of Benin and Huay Tong Village, Thailand**

Community		Djakotomey community		Huay Tong Community	
Question		Frequency	(%)	Frequency	(%)
Number of participants		24		17	
Head/leader of house	Yes (man)	13	54.2	9	52.9
	No (female)	11	45.8	8	47.1
Marital status	Single	1	4.2	1	5.9
	Married	23	95.8	13	76.5
	Divorced	0	0.0	3	17.6
Ethnicity	Adja (Thai)	24	100	6	35.3
	Mina (Karen)	0	0.0	11	64.7
Religion	Christianity	18	75	17	100.0
	Animism	6	25.0	0	0.0
Time of living in the community	0<20 years	8	33.3	2	11.8
	Over 20 years	16	66.7	15	88.2
Member of Cooperative	Yes	24	100	12	70.6
	No	0	0.0	5	29.4
Education level	No schooling	11	45.8	0	0.0
	Schooling	13	54.2	17	100
Access microcredit	Yes	6	25.0	12	70.6
	No	18	75.0	5	29.4



Table 4.2 (Cont.)

Community		Djakotomey community		Huay Tong Community	
Question		Frequency	(%)	Frequency	(%)
<b>Water supply</b>	Underground	17	70.8	17	100.0
	Tap water	3	12.5	12	70.5
	River water	4	16.7	10	58.8
	Rainwater	17	70.8	15	88.2
<b>Work day</b>	5 days per week (not include weekend)	12	50.0	6	35.3
	Every day include weekend	12	50.0	11	64.7
<b>Leisure or take rest</b>	No have time to do	2	8.3	0	0.0
	Some hours per week	22	91.7	17	100.0
<b>Agricultural area</b>	Less than 1 ha	18	75.0	8	47.1
	More than 1 ha	6	25.0	9	52.9
<b>Animal possession</b>	Chicken	17	70.8	15	62.5
	Pig	6	25.0	6	25.0
	Cattle	15	62.5	15	62.5
	Rabbit	2	8.3	2	8.3
<b>Extension service</b>	Yes	24	100.0	17	100.0
	No	0	0.0	0	0.0

Table 4.2 depicts the socio-demographic information collected from 24 participants in a community of Djakotomey, Republic of Benin. These individuals received training in agricultural practices under the Sufficiency Economy Philosophy (SEP) concept, supported by the Benin government and the Thailand International

Cooperative Agency (TICA) in Djakotomey from 2019 to the present. On the other hands, the 17 participants from Huay Tong, irrespective of age, recognized the King's Theory, which includes SEP principles, as an integral aspect of the Karen people's lifestyle. This theory, pivotal to the Karen people—a small hill tribe in Thailand known for their emphasis on self-sustainability—is acknowledged as an easily implementable local development tool. It was initially introduced to the community in 1979 by the late King Rama IX, facilitated by contributions from the Royal Project Development Center. Subsequently, the younger generation in Huay Tong reported inheriting knowledge of the King's Theory from their parents or previous generations, often disseminated by the village head leader. Notably, the majority of respondents in both communities were male heads of households, comprising 54.2% in Djakotomey District and 52.9% in Huay Tong Village. In terms of education, a contrast emerged between the two communities. In Djakotomey District, 45.8% of participants reported no formal education, whereas in Huay Tong, all participants had received formal schooling (100%). This indicates a higher level of education among participants in Thailand compared to the Republic of Benin. Moreover, microcredit access for agricultural and trade activities was reported by 25.0% of Djakotomey participants, primarily through institutions such as Caisse Locale de Credit Agricole Mutuel (CLCAM) and ALLAFIA (government bank). This percentage was significantly lower than the 70.6% of Huay Tong participants who had gained access to microcredit ( $\chi^2 = 8.39$ , df 1,  $P < 0.05$ ). Both communities were characterized by smallholder farmers, contributing significantly to local food supply. In Djakotomey District, 75.0% of members cultivated in a small land which less than one hectare. The small land owner in the Republic of Benin tended to be more than that observed in Huay Tong Village (47.1%) ( $\chi^2 = 3.34$ , df 1,  $P = 0.06$ ). In term of extension training, all participants (100.0%) in Djakotomey District were members of cooperatives and actively engaged with extension services and SEP agricultural training activities. These activities conducted in Community Learning Centers (CLC), established through a collaboration between the Benin government and TICA, with support from the Observatory of Social Change (OSC). Similarly, in Huay Tong Village, all participants (100.0%) availed themselves of extension services with the royal project activities.

Regarding the socio-economic factors presented in table 4.4, 45.8% of participants in Djakotomey District held vocational training certificates, a percentage less than that of Huay Tong Village (70.6%). However, this difference was not statistically significant ( $\chi^2 = 2.47$ , df 1,  $P > 0.05$ ). Consequently, only 29.2% of Djakotomey participants were employed or owned a business, a lower proportion compared to the 58.8% reported in Huay Tong ( $\chi^2 = 3.60$ , df 1,  $P = 0.06$ ). Furthermore, among Djakotomey participants, only 37.5% reported having sufficient income, which was an average of 74.14 US dollars per month. This was significantly lower than Huay Tong participants, where 70.6% reported having enough income which an, average of 223.3 US dollars per month ( $\chi^2 = 4.36$ , df 1,  $P < 0.05$ ). The savings behavior also differed, with 52.9% of Huay Tong members saving income, tended to be higher than the 25.0% reported by Djakotomey members ( $\chi^2 = 3.34$ , df 1,  $P = 0.06$ ).

**Table 4.3      Socio-economic data in Huay Tong Village, Thailand**

Community		Huay Tong	
Question		Frequency	(%)
<b>Field of vocational training certificate</b>	Training	12	70.6
	-Sewing	1	
	- Hairstyle	11	
	- Carpentry	0	
	- Other	0	
	No training	5	29.4
<b>Employment/Business owner</b>	Employed /business owner	10	58.8
	Unemployed	7	41.2

Table 4.3 (Cont.)

Community		Huay Tong	
Question		Frequency	(%)
Sources of income	Crop production	17	100.0
	Trader	8	47.1
	Civil servant	2	11.8
	Processing Food	-	
	Beekeeping	1	5.9
	Animal husbandry	15	88.2
	Taxi driver	0	0.0
	Craftsmanship	0	0.0
	Other	0	0.0
Is your activity provided enough income?	Yes	12	70.6
	No	5	29.4
Does your income allow you to save money?	Yes	9	52.9
	No	8	47.1
Income per month	Average	7,617.6470 Thai Baht (223.3 US dollars)	

Table 4.4 Socio-economic Data of Djakotomey District, Republic of Benin

Community		Djakotomey district	
Question		Frequency	(%)
Field of vocational training certificate	Training	11	45.8
	-Sewing	4	
	- Hairstyle	1	
	- Carpentry	2	
	- Other	4	
	No training	13	54.2



Table 4.4 (Cont.)

Community		Djakotomey district	
Question		Frequency	(%)
<b>Employment/Business owner</b>	Employed /business owner	7	29.2
	Unemployed	17	70.8
<b>Sources of income</b>	Crop production	24	100.0
	Trader	8	33.3
	Civil servant	1	4.2
	Processing Food	5	20.8
	Beekeeping	1	4.2
	Animal husbandry	20	83.3
	Taxi driver	1	4.2
	Craftsmanship	4	16.7
	Other	2	8.3
<b>Is your activity provided enough income?</b>	Yes	9	37.5
	No	15	62.5
<b>Does your income allow you to save money?</b>	Yes	6	25.0
	No	18	75.0
<b>Income per month</b>	Average	44,000 f cfa (74.14 US dollars)	

F CFA = 'Franc des Colonies Françaises d'Afrique' or 'French Colonies of Africa'

### **Learned Lesson of Success in Improving the Quality of Life of the People through the Practice of the Sufficiency Economy Philosophy (SEP) in Thailand**

According to the first objective, in Huay Tong Thailand, participants were categorized into two groups: youth and older participants. Data collection primarily focused on understanding the participants' adopted the Sufficiency Economy Philosophy (SEP) into practice. The inquiry included questions about who introduced SEP, reasons for embracing it, the duration of time it took to achieve success, and any encountered obstacles during the adopted of SEP.

Analysis of the table results revealed that the majority (64.7%) of the participants in the continuous practicing group were from the older generation. Historically, prior to the reign of King Rama IX, the village's livelihood depended on opium and rice production using conventional farming methods. Despite owning agricultural lands, villagers struggled with poverty, hunger, homelessness, and food shortages. During periods of famine or scarcity, they turned to “Luk Niang” (*Archidendron pauciflorum*), also known as dog fruit or jering, as a substitute for rice, their primary staple. Traditional agriculture and opium cultivation were widespread, with families owning multiple plots of land and rotating cultivation each year. Some villagers lived in forests, while others resided in bamboo houses. Villagers lacked knowledge of sustainable agriculture, and struggled to provide for the five vital necessities: food, clothing, housing, healthcare, and transport. This resulted in persistent poverty, food insecurity, and homelessness (Seeloy-ounkaew & Khamyong 2016). Thus, the quality of life in Huay Tong Village was significantly low before the adoption of the Sufficiency Economy Philosophy (SEP).

In 1979, King Rama IX visited the village with the goal of addressing various issues, including food insecurity and infertile land. From the group interview, the motivation to adopt SEP stemmed from its perceived role in local development and livelihood generation. Success in implementing SEP was closely associated with effective water and land management. Construction of dams and land management spanned approximately five years, from 1979 to 1984 under the leadership of King Rama IX. The second generation, inheriting SEP practices from their parents, continued the success from their parents' farms. Participants emphasized the importance of water and land management in agricultural production. They highlighted the critical role of rice and water in sustaining life, indicating the significance of these resources in addressing hunger and ensuring well-being.

A participant (T1.1) in the first group and Royal Project stated that “Water and land management play vital role in agricultural production. If you succeed in managing water and land you win in agriculture. So, you should pay attention carefully in local resource management.”

A participant (T1.2) claimed that “Rice and water are life.” When a child cried for starving, you put rice in its mouth, he/she stops.

From the focus group discussions, the participants diligently followed the principles of the Sufficiency Economy Philosophy (SEP) through specific practices:

1. Capacity building through engagement in training activities, particularly from the Royal Project:

Participants actively engaged in training activities organized by the Royal Project.

2. Knowledge sharing on agricultural practices, herbal medicine, and food within the community:

They shared insights on agricultural practices, herbal medicines, and food with their neighbors.

3. Production of organic fertilizers to promote sustainable agriculture and reduce costs:

The participants produced organic fertilizers to promote sustainable agriculture and reduce the cost of production.

4. Enhanced financial management skills:

Balancing expenditures with income was a key practice, ensuring financial stability.

The first group of participants highlighted the significance of continuous learning, perseverance, and gradual growth in successfully adopting SEP. They stressed the need for patience, considering obstacles like natural disasters, insect infestations, bacterial attacks, and animal damage. The use of chemical fertilizers was identified as a cause for insect and bacteria attacks. Furthermore, villagers were advised to resist the allure of a more civilized and luxurious lifestyle to thrive in SEP practices.

Despite challenges, the Thai government, through the Royal Project, acted as an extension service, providing support to villagers. To mitigate crop loss risks, participants diversified their crops. The government and universities especially Chiang Mai Rajabhat University offered comprehensive support, including technical, financial, and material assistance, aiming to ensure protein availability in daily meals, aligning with the King's objective for the well-being of the people. Consequently, SEP contributed to local development and governance by fostering relationships within the community, among families, and with neighbors. Participants stressed the importance of comprehending SEP practices, gaining insights, accessing SEP adoption, and

actively engaging in development, highlighting the significance of the nine steps of community sustainable development for promoting economic growth.

Traditional agricultural practices in Huay Tong Village were deeply rooted in indigenous knowledge and experience developed over centuries. Practices included agroforestry, intercropping, crop rotation, cover cropping, traditional organic composting, integrated crop-animal farming, shifting cultivation, and slash-and-burn farming. While these practices offered benefits like improved soil fertility, carbon sequestration, resource utilization, biodiversity maintenance, sustainability, and environment protection, some negative implications were associated, such as slash-and-burn activities in shifting agriculture. Traditional farming gained global attention as a source of sustainable food production amid global environmental crises (Hamadani et al., 2021).

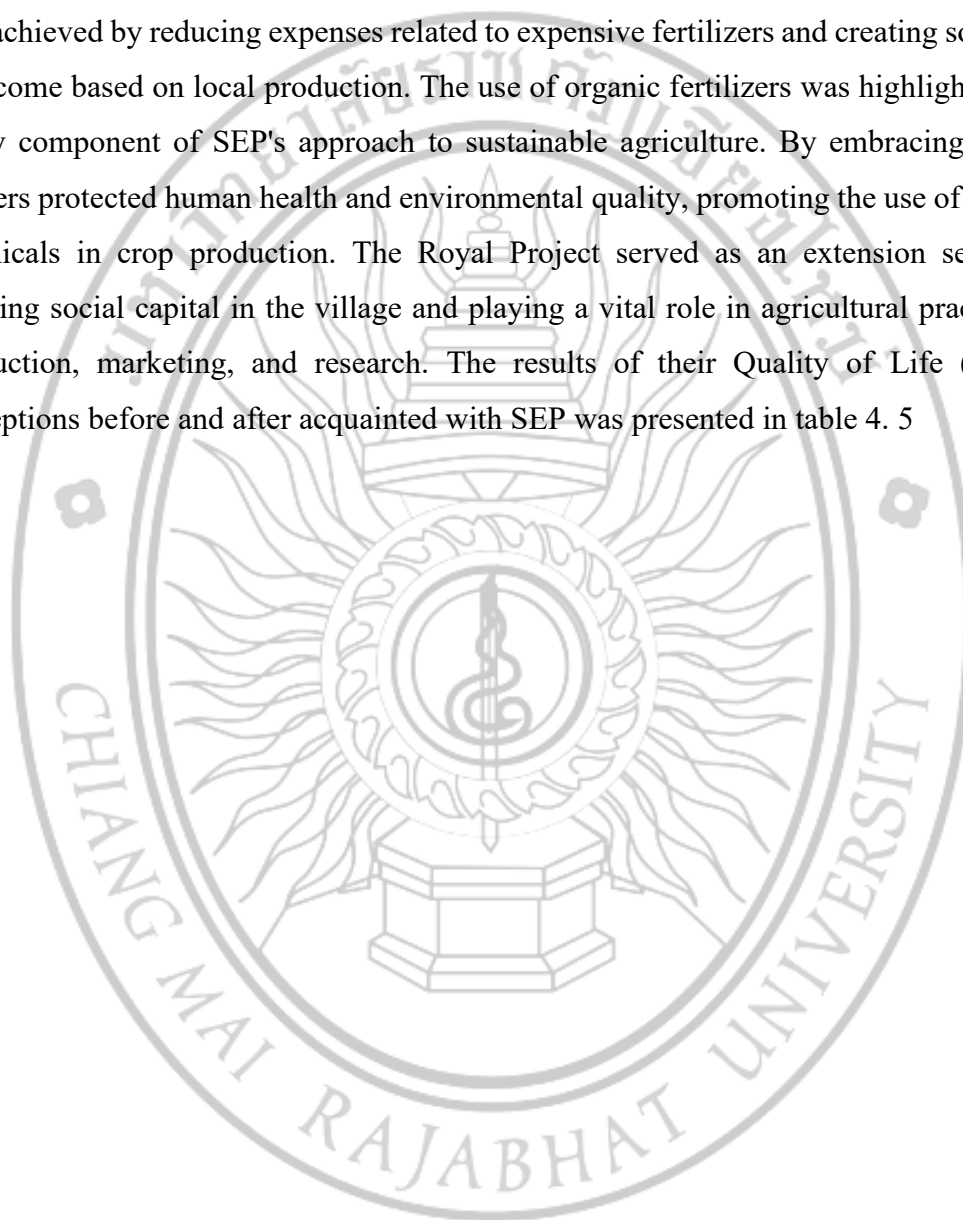
Since 1979, farmers in Huay Tong Village began applying SEP in their practical endeavors. Sufficiency agricultural practices, such as cultivating stable rice, vegetables, flowers, fruit trees, and managing livestock, such as fish cultivation, raising buffaloes, and cows, became widespread throughout the village for sustenance and income. An integrated farming system was implemented, utilizing animal manure as fertilizer and liquid fertilizers for mixed crops. The Royal Project established a dam for local resource management and provided animals to farmers, facilitating integrated farming practices. This led to increased yields and income, subsequently reducing poverty and food insecurity. Additionally, the King provided a school to the village, contributing to the social capital of the community, with education being offered free of charge. Villagers formed saving money groups, enabling them to invest in projects. They now lived in improved houses, had enough food, and shared resources within the family and with neighbors. The practice of glass growing protected the soil from erosion, and the forest began to fulfill necessary needs. Overall, the quality of life in Huay Tong Village significantly improved after the implementation of SEP.

When asked how they became acquainted with SEP, participants explained that SEP represents a self-sufficient economy, where a community or an individual produces enough food and necessities to sustain themselves without relying on external sources. To achieve self-sufficiency, one must have a reliable source of income, produce enough food, and manage money wisely. Making organic inputs proved



effective in enhancing soil fertility and reducing reliance on chemical fertilizers. Balancing expenditures with income was deemed essential for financial stability in agriculture. Confidence in one's ability to solve agricultural problems and obstacles was crucial for success in SEP.

Furthermore, the first group of participants emphasized that self-reliance was achieved by reducing expenses related to expensive fertilizers and creating sources of income based on local production. The use of organic fertilizers was highlighted as a key component of SEP's approach to sustainable agriculture. By embracing SEP, farmers protected human health and environmental quality, promoting the use of fewer chemicals in crop production. The Royal Project served as an extension service, building social capital in the village and playing a vital role in agricultural practices, production, marketing, and research. The results of their Quality of Life (QoL) perceptions before and after acquainted with SEP was presented in table 4. 5



**Table 4.5 The frequency (%) of participants' perception of Quality of Life (QoL) Before and After acquainted with SEP in Huay Tong, Thailand.**

		Before						After						T-test	P-Value	df.
Q No.	Variables	5	4	3	2	1	$\bar{X}$ (S.D.)	5	4	3	2	1	$\bar{X}$ (S.D.)			
	Economic															
Q1	You are happy with the house quality you live in.				6 (35.3)	11 (64.7)	1.41 (0.507)	15 (88.2)	2 (11.8)				4.88 (0.332)	20.284	0.000	16
Q2	Your income is sufficient for you and your family				2 (11.8)	15 (88.2)	1.11 (0.332)	17 (100)					5.0 (0.000)	48.200	0.000	16
Q3	Your income allows you to save money				2 (58.3)	15 (88.2)	1.11 (0.332)		9 (52.9)		8 (47.1)		4.82 (0.393)	8.282	0.000	16

**Table 4.5 (Cont.)**

Q No.	Variables	Before						After						T-test	P-Value	df
		5	4	3	2	1	$\bar{X}$ (S.D.)	5	4	3	2	1	$\bar{X}$ (S.D.)			
Q1 3	You can construct an irrigation system in the farm for water supply by applying local knowledge and wisdom				15 (88.2)	2 (11.8)	1.82 (0.393)	15 (88.2)	2 (11.8)				4.52 (0.514)	24.73 9	0.000	16
Q1 4	You do agricultural activities in moderate way according to your capacity				17 (100)		1.82 (0.393)	14 (82.4)	3 (17.6)				4.82 (0.332)	29.62 6	0.000	16

**Table 4.5 (Cont.)**

Q No.	Variables	Before						After						T-test	P-Value	df.
		5	4	3	2	1	$\bar{X}$ (S.D.)	5	4	3	2	1	$\bar{X}$ (S.D.)			
Q1 5	You do each agriculture activities with reason				3 (17.6)	14 (82.4)	2 (0.000)	15 (88.2)	2 (11.8)				4.76 (0.000)	32.533	0.000	16
Q1 7	You have confident to deal with the problems that might take place in agriculture in the future.				15 (88.2)	2 (11.8)	1.88 (0.332)	13 (76.5)	4 (23.5)				4.82 (0.393)	19.799	0.000	16
Q1 8	You always have plan for running agriculture farm with risk management		5 (29.4)		12 (70.6)		2.58 (0.939)	14 (82.4)	3 (17.6)				4.82 (0.393)	8.033	0.000	16
	<b>Average/Economic</b>						<b>1.71 (0.493)</b>						<b>4.80 (0.135)</b>			



**Table 4.5 (Cont.)**

		Before						After						T-test	P-Value	df.
Q No.	Variables	5	4	3	2	1	$\bar{X}$ (S.D.)	5	4	3	2	1	$\bar{X}$ (S.D.)			
	Social/culture															
Q4	You always share with neighbors				3 (29.2)	14 (70.8)	1.17 (0.393)	14 (82.4)	3 (17.6)				4.88 (0.332)	30.527	0.000	16
Q9	You are satisfied with your personal relationship with your family members.				14 (88.3)	3 (17.6)	1.29 (0.470)	15 (88.2)	2 (11.8)				5.0 (0.000)	29.416	0.000	16
Q12	You are satisfied with your knowledge sharing on agriculture production with neighbors				17 (100)		2 (0.000)	15 (88.2)	2 (11.8)				4.88 (0.332)	35.785	0.000	16

**Table 4.5 (Cont.)**

Q No.	Variables	Before						After						T-test	P-Value	df.
		5	4	3	2	1	$\bar{X}$ (S.D.)	5	4	3	2	1	$\bar{X}$ (S.D.)			
Q1 6	To improve village quality in agricultural production way, you need to be honest, sincere to improve your quality of life				3 (17.6)	14 (82.4)	2 (0.000)	17 (100)					5.0 (0.437)			
	<b>Average (Social/culture)</b>						<b>1.61 (0.447)</b>						<b>4.94 (0.069)</b>			

**Table 4.5 (Cont.)**

		Before						After						T-test	P-Value	df.
Q No.	Variables	5	4	3	2	1	$\bar{X}$ (S.D.)	5	4	3	2	1	$\bar{X}$ (S.D.)			
	Environment															
Q10	The forest can provide necessary needs to the villagers and protects them from environmental degradation by planting				5 (29.4)	12 (70.6)	1.29 (0.470)	17 (100)					4.11 (0.332)	22.024	0.000	16
Q11	The soil quality of your farm is almost enhanced by using fewer chemicals, organic fertilizers, and compost				5 (29.4)	12 (70.6)	1.29 (0.470)	2 (11.8)	15 (88.2)				4.88 (0.332)	18.306	0.000	16
	Average/Environment	1.29 (0.000)						4.49 (0.544)								
	Food/Health															

**Table 4.5 (Cont.)**

Q No.	Variables	Before						After						T-test	P-Value	df.
		5	4	3	2	1	$\bar{X}$ (S.D.)	5	4	3	2	1	$\bar{X}$ (S.D.)			
Q5	Your family's daily diet is good for your family's health				15 (88.2)	2 (11.8)	1.88 (0.332)	15 (88.2)	2 (11.8)				4.88 (0.332)	24.739	0.000	16
Q6	You have good physical and mental health				5 (29.4)	12 (70.6)	1.29 (0.470)	12 (70.6)	5 (29.4)				4.88 (0.332)	19.749	0.000	16
Q7	You have enough food for your family members				15 (88.2)	2 (11.8)	1.82 (0.393)	15 (88.2)	2 (11.8)				4.88 (0.332)	24.739	0.000	16
Q8	Your daily meal contains the necessary nutrition and diversity.				14 (82.4)	3 (17.6)	1.82 (0.393)	15 (88.2)	2 (11.8)				4.88 (0.332)	22.695	0.000	16
	<b>Average (Food/Health)</b>						<b>1.70 (0.276)</b>						<b>4.88 (0.000)</b>			

4.51-5: Much better, 3.51-4.50 = Better, 2.51-3.50 = Neutral, 1.51-2.50 = Lower, 1.00-1.50 = Quite lower (Piroj, 2018)



Table 4. 5 displayed the frequency (%) of participants' perception of quality of life before and after their involvement in Royal Project activities in Huay Tong Village, Thailand. The data revealed that prior to the King's intervention, the participants' quality of life was comparatively low. Following the intervention, there was a significant improvement in the quality of life across all variables and individual participants, as evidenced by statistically significant results ( $P < 0.05$ ).

**Table 4.6 Comparison of Quality of Life Perceptions among Participants in Huay Tong Village, Thailand Before and After Participation in Royal Project Activities N=17**

Number of participants	Average Perceptions of Quality of Life Among Participants in Huay Tong, Thailand Before and After Participation					
	Before			After		
	Average	SD	Meaning	Average	SD	Meaning
T1	1.83	0.707	Lower	4.66	1.123	Much better
T2	1.83	0.923	Lower	4.66	0.772	Much better
T3	1.55	0.783	Lower	4.66	1.123	Much better
T4	1.61	0.777	Lower	4.55	1.116	Much better
T5	1.77	0.942	Lower	4.72	1.123	Much better
T6	1.83	0.707	Lower	4.72	0.768	Much better
T7	1.83	0.923	Lower	4.61	0.772	Much better
T8	1.82	0.707	Lower	4.77	0.961	Much better
T9	1.88	0.676	Lower	4.66	0.964	Much better
T10	1.88	0.900	Lower	4.66	0.964	Much better
T11	1.61	0.777	Lower	4.72	0.964	Much better
T12	1.66	0.766	Lower	4.66	1.123	Much better
T13	1.83	0.923	Lower	4.77	0.961	Much better
T14	1.66	0.766	Lower	4.61	0.964	Much better
T15	1.72	0.751	Lower	4.61	1.121	Much better
T16	1.66	0.766	Lower	4.72	0.964	Much better

**Table 4. 6 (Cont.)**

Number of participants	Average Perceptions of Quality of Life Among Participants in Huay Tong, Thailand Before and After Participation					
	Before			After		
	Average	SD	Meaning	Average	SD	Meaning
T17	1.77	0.732	Lower	4.77	0.760	Much better
<b>Overall average</b>	<b>1.74</b>	<b>0.104</b>	<b>Lower</b>	<b>4.67</b>	<b>0.063</b>	Much better
<b>t-test</b>	112.579					
<b>P</b>	<0.05					
<b>df.</b>	16					

4.51-5: Much better, 3.51-4.50 = Better, 2.51-3.50 = Neutral, 1.51-2.50 = Lower, 1.00-1.50 = Quite lower (Piroj, 2018)

Attendance at Royal Project activities had become a pivotal way for farmers to learn about new agricultural practices and technologies, thus improving their quality of life in economic, social, and environmental dimensions. The dissemination of knowledge about agricultural practices, herbal medicines, and food within the community has played a significant role in building a strong community and promoting sustainable agriculture. However, the adoption of the Sufficiency Economy Philosophy (SEP) has encountered numerous challenges, including attacks by insects and bacteria on crops. Additionally, traditional practices such as slash-and-burn agriculture, natural disasters, and the allure of a luxurious lifestyle persisted. Nevertheless, they developed the ability to solve these problems, demonstrating the importance of confidence in one's abilities.

In conclusion, the implementation of SEP in Huay Tong Village significantly impacted the quality of life of villagers by promoting self-sustainability, organic farming practices, financial stability, and environmental conservation. The Royal Project, extension services, and knowledge-sharing within the community played crucial roles in the success of SEP implementation. The principles of SEP, as well as its nine steps for Sustainable Development Goals, contributed to positive changes in the community's way of life. However, challenges such as slash-and-burn practices, natural disasters, and the allure of a

luxurious lifestyle persisted. The study underscored the transformative impact of SEP on individual, community, and environmental well-being, while acknowledging the ongoing efforts needed to address obstacles and ensure sustained success. Overcoming obstacles and building confidence were essential elements in achieving success with SEP.

### **Factors Influencing the Adoption of SEP in Practice in Republic of Benin**

According to Objective 2, data collection in the Djakotomey community was characterized by socio-demographic, socio-economic factors, and assessments of the quality of life before and after the adoption of the Sufficiency Economy Philosophy (SEP). Participants in the sampling were members of cooperatives and actively attended SEP activities in the Community Learning Centers, established by the government through the Observatory of Social Change (OSC). Each participant visited the extension services at the Tohouehoue and Ameganhoue community learning centers.

The government of Benin played a crucial role in supporting farmers by organizing learning activities in the community. These activities aimed to build the capacity and knowledge skills of participants in agricultural practices, particularly in adopting the principles of the SEP. Furthermore, 25% of participants had access to microcredit from institutions such as Caisse Locale de Credit Agricole Mutuel (CLCAM) and ALLAFIA (a government bank). Access to this microcredit required participants to visit Community Learning Centers multiple times and have at least a secondary school level of education.

Apart from crop production, participants engaged in at least one more economic activity to supplement their income. However, for the majority of farmers (75%), these activities did not provide sufficient income. Women with access to microcredit were involved in trade and food processing, while some men and women with qualified professional skills faced challenges in setting up income-generating activities due to financial constraints. The economic situation in Djakotomey District was characterized by low-income levels, leading to food insecurity and malnutrition.

The objective of promoting the SEP concept in the Republic of Benin was to foster self-sufficiency in food production and stimulate economic growth. To achieve this aim, individuals needed to have a clear understanding of the concept and its practical

implementation in their daily lives. However, compared to the Huay Tong community, which efficiently utilized the SEP concept, the Republic of Benin had only applied the concept for four years. To assess the participants' comprehension of the SEP concepts and their potential adoption into practice in both communities, the table below presents the scores of SEP understanding in Djakotomey District and Huay Tong Village, respectively.





**Table 4.7 Comparison of understanding Sufficiency Economy Philosophy concepts between Djakotomey community and Huay Tong community**

Statements		Djakotomey community			Huay Tong Community		
		Average	SD	Meaning	Average	SD	Meaning
B-01	His Majesty King Bhumibol Adulyadej, The Great, had guided the way of life for people on the path of the Sufficiency Economy Philosophy.	4.12	0.338	Moderate understanding	4.64	0.493	Highest understanding
B-02	SEP stands for Sufficiency Economy Philosophy.	3.75	0.676	Moderate understanding	5.00	0.000	Highest understanding
B-03	Sufficiency in SEP means moderation, reasonableness, and the need for self-immunity. The two conditions under the SEP will work best are appropriate knowledge, ethics, and virtues.	3.54	0.509	Moderate understanding	5.00	0.000	Highest understanding

**Table 4.7 (Cont.)**

Statements		Djakotomey community			Huay Tong Community		
		Average	SD	Meaning	Average	SD	Meaning
B-04	SEP can be applied at the level of Economy, Community, Environment, culture and at the individual level.	4.29	0.955	Moderate understanding	5.00	0.000	Highest understanding
B-05	SEP is applicable in the agricultural sector, rural areas and in the business sector.	4.00	0.000	Moderate understand	5.00	0.000	Highest understanding
B-06	SEP can be applied to improve the Quality of Life (QOL) in the community.	4.54	0.509	Highest understanding	5.00	0.000	Highest understanding
B-07	Sufficiency Economy Philosophy (SEP) is a tool or concept under Sustainable Development Goals (SDGs).	4.62	0.495	Highest understanding	5.00	0.000	Highest understanding

**Table 4.7 (Cont.)**

Statements		Djakotomey community			Huay Tong Community		
		Average	SD	Meaning	Average	SD	Meaning
B-08	Sufficiency Economy Philosophy (SEP) also emphasizes and promotes various forms of sustainable agricultural practices such as integrated farming, organic agriculture, traditional agriculture and agroforestry.	4.62	0.495	Highest understanding	5.00	0.000	Highest understanding
B-09	The SEP promotes economy growing step by step from Household to community.	4.12	0.338	Moderate understanding	5.00	0.000	Highest understanding
B-10	Morality condition is a proof of ethics and honesty.	4.12	0.338	Moderate understanding	5.00	0.000	Highest understanding
B-11	Sufficiency Economy activities promote the decreasing consumption of luxury goods.	3.62	0.495	Moderate understand	5.00	0.000	Highest understanding

**Table 4.7 (Cont.)**

Statements		Djakotomey community			Huay Tong Community		
		Average	SD	Meaning	Average	SD	Meaning
B-12	Sufficiency Economy activities promote the balancing of expenditures and income.	3.87	0.612	Moderate understanding	5.00	0.000	Highest understanding
B-13	The moderation, a core of SEP, emphasizes maintaining production and household at moderate levels by household members—neither too little nor excessive.	3.58	0.504	Moderate understanding	5.00	0.000	Highest understanding
Average		4.06	0.382	Moderate understanding	4.97	0.099	Highest understanding



Table 4.7 presents the results regarding the understanding of the Sufficiency Economy Philosophy (SEP) among participants in the Djakotomey community and Huay Tong Village, respectively, analyzed for each question. The data revealed that participants in Djakotomey District demonstrated a moderate understanding, whereas participants in Huay Tong Village exhibited the highest level of understanding for each question. The study highlighted the understanding of participants that SEP had diverse applications at different levels, including the economy, community, environment, culture, and individual levels. Additionally, SEP was found to be applicable in various sectors such as agriculture, rural areas, and business. These findings explained how SEP could have improved the Quality of Life (QoL) from the household to the community level. Furthermore, SEP was emphasized and promoted various sustainable agricultural practices such as integrated farming, organic agriculture, traditional agriculture, and agroforestry, with a focus on balancing expenditures and incomes.

**Table 4.8 Comparison of Understanding Sufficiency Economy Philosophy between Djakotomey District Participant and Huay Tong Village Participants**

Participant Number	Djakotomey SEP understanding			Huay Tong SEP understanding		
	Average score of each participant	SD	Meaning	Average score of each participant	SD	Meaning
1	4.15	0.688	Moderate understand	5.00	0.000	Highest understanding
2	4.15	0.688	Moderate understand	5.00	0.000	Highest understanding
3	3.85	0.554	Moderate understand	4.92	0.000	Highest understanding
4	3.62	0.506	Moderate understand	5.00	0.000	Highest understanding

**Table 4.8 (Cont.)**

Participant Number	Djakotomey SEP understanding			Huay Tong SEP understanding		
	Average score of each participant	SD	Meaning	Average score of each participant	SD	Meaning
5	3.92	0.493	Moderate understand	5.00	0.000	Highest understanding
6	3.92	0.640	Moderate understand	5.00	0.000	Highest understanding
7	3.85	0.554	Moderate understand	5.00	0.000	Highest understanding
8	3.77	0.438	Moderate understand	4.92	0.000	Highest understanding
9	3.77	0.599	Moderate understand	4.92	0.000	Highest understanding
10	3.69	0.480	Moderate understand	5.00	0.000	Highest understanding
11	4.15	0.554	Moderate understand	5.00	0.000	Highest understanding
12	4.62	0.650	Highest understand	5.00	0.000	Highest understanding
13	4.23	0.599	Moderate understand	4.92	0.000	Highest understanding
14	4.00	0.707	Moderate understand	4.92	0.000	Highest understanding
15	4.23	0.599	Moderate understand	5.00	0.000	Highest understanding
16	3.69	0.480	Moderate understand	4.92	0.000	Highest understanding
17	4.00	0.707	Moderate understand	5.00	0.000	Highest understanding

**Table 4.8 (Cont.)**

Participant Number	Djakotomey SEP understanding			Huay Tong SEP understanding		
	Average score of each participant	SD	Meaning	Average score of each participant	SD	Meaning
18	4.23	0.438	Moderate understand			
19	4.23	0.599	Moderate understand			
20	4.31	0.480	Moderate understand			
21	4.15	0.688	Moderate understand			
22	3.85	0.554	Understand			
23	4.69	0.480	Highest understand			
24	4.46	0.776	Understand			
<b>Overall average</b>	<b>4.06</b>		<b>Moderate understand</b>	<b>4.97</b>		<b>Highest understanding</b>

The table 4.8 presents a comparison of the understanding of the Sufficiency Economy Philosophy (SEP) of each participant from the Djakotomey community and Huay Tong Village. Each participant in Djakotomey had moderate understanding SEP with overall average 4.06 whereas participants in Huay Tong Village had significantly higher understanding SEP ( $t\text{-test} = 15.311$ ,  $P < 0.05$ ), with an overall average of 4.97.

Interviews with participants from the first group of the Republic of Benin (58.3%) provided several reasons for adopting agricultural practices under SEP concepts, highlighting potential benefits such as increased income, savings on agricultural costs, poverty reduction, and improved overall well-being. The participants indicated that the implementation of SEP had the potential to alleviate suffering, reduce poverty, and

positively impact social and economic challenges. This approach has significantly contributed to the cultivation of crops, livestock farming, fisheries, and water resource management, leading to an increased resource supply for household consumption and decreasing dependence on food imports. It has led to heightened agricultural productivity, income generation, and improved living standards (Thailand's approach for sustainable development and building back better, 2021). In this context, participants in the Republic of Benin shared their experiences: A participant (B2.1) stated, "SEP has transformed my life and empowered me to save money for future projects."

A participant (B2.2) claimed, "Since integrating SEP into food processing activities, my family life was transformed."

Moreover, the data revealed that SEP was perceived as a comprehensive initiative with the potential to address social and economic challenges. It was expected to contribute to poverty reduction, improve agricultural efficiency, increase income, ensure food security, and reduce the financial pressure on households. The emphasis on sustainable farming methods under SEP had a significant effect on environmental quality and soil fertility improvement in the context of Djakotomey District.

The application of SEP principles also encouraged the making of organic inputs at home, promoting sustainable and cost-effective ways to enhance soil fertility. Knowledge-sharing in community learning centers and with neighbors played a vital role in the adoption of SEP. The SEP placed importance on education and knowledge transfer, helping farmers reduce vulnerability to agricultural shocks.

Furthermore, community learning centers, community collaboration, and sustainable practices provided knowledge to farmers to reduce agriculture vulnerability. Balancing expenses with income was highlighted as a fundamental aspect of financial management, crucial for maintaining financial stability and avoiding debt. The data suggested that the impact of SEP on the quality of life in Djakotomey District (Table 4. 1) was influenced by the duration of using the concept. The long-term success of SEP depended on its continuous application and integration into the cultural and societal norms of the community. The practice of SEP had a significant influence on living conditions, social environment, and the profitability of participants, leading to a positive impact on the



quality of life over the years. The philosophy's commitment to a balanced and sustainable approach may lead to foundational changes in societal values and practices. Over several years, communities that consistently apply SEP principles may enjoy a higher quality of life characterized by stability, environmental harmony, and ethical well-being (O'Neil et al., 2020).

From the focus group discussion, the participants diligently followed the principles of the Sufficiency Economy Philosophy (SEP) in agricultural area through specific practices which affected their quality of life:

1. Capacity building through participation in community learning center activities

Participants attended training activities by sharing knowledge in producing organic fertilizers and managing agricultural shocks. This reduced agricultural cost and enabled them to invest in others project.

2. Effective financial management practices

Participants implemented training activities by balancing their expenses with income, belonging in savings group and being moderate.

3. Implementation of agricultural practices using new techniques.

After training under SEP, participants were enabled to do agricultural practice in moderate way, equipped with reasoning skills to effectively address agricultural challenges whenever they arose on their farms. They noted they were confident to manage risk in their farm.

4. Implementing SEP in Djakotomey District impacts QoL over time

The integration of SEP practices into agricultural activities had a progressive and positive impact on the quality of life of participants over time in Djakotomey community.

5. Understanding and integration of SEP principles into daily routines

Participants in Djakotomey community had better understanding SEP. This affected their quality of life. This comprehension and integration of SEP into practice were crucial in improving agricultural techniques, thereby reducing poverty and food insecurity in the community.

### **The Appropriate Guidelines for the Adoption of SEP in Improving Quality of Life (QoL) into Practice in the Republic of Benin**

The Sufficiency Economy Philosophy (SEP), originating developed in Thailand, has been implemented and applied to farmers in Djakotomey District, Republic of Benin. It emphasized a balanced and moderate approach to development, with a focus on self-sufficiency, resilience, and sustainability. The philosophy aimed to enhance the well-being of individuals and communities while ensuring environmental sustainability. The table below summarizes farmers' participation in SEP activities and its implementation over the period from 2019 to 2022.

**Table 4. 9    Agricultural training conducted in Djakotomey District, Republic of Benin, under the Sufficiency Economy Philosophy concepts and its utilization**

		Frequency	Percentage
<b>Participation SEP activity</b>	Yes	24	100.0
	No	0	0.0
<b>Learning Center training</b>	SEP Learning Center (Mr. Leon's Farm)	23	95.8
	SEP Learning Center (Mr. Mahouna's Farm)	1	4.1

**Table 4. 9 (Cont.)**

		<b>Frequency</b>	<b>Percentage</b>
<b>Activity participated</b>	Agricultural Practices (Making bio inputs)	24	100.0
	Food Processing	23	95.8
	Participating in Saving	14	58.3
	Making Household Utilities (e.g., Soup to reduce expenses and increase income)	3	12.5
	Supplement Household Income (Mushrooms)	9	37.5
	Making Local Fertilizer from Crop Residue and Cow Manure for Integrated Farming	18	75.0
<b>Agricultural practiced</b>	Yes	24	100.0
	No	0	0.0
<b>Processing Food</b>	Yes	24	100.0
	No	0	0.0

Table 4. 9 (Cont.)

		Frequency	Percentage
<b>Activity practiced</b>	Agricultural Practices (making bio inputs)	24	100.0
	Food Processing	24	100.0
	Savings money group	6	25.0
	Making Household Utilities (e.g., Soap to reduce expenses and increase income)	3	12.5
	Supplementing Household Income generation (by making mushrooms)	0	0.0
	Making Local Fertilizer from Crop Residue and Cow Manure for Integrated Farming	20	83.3
<b>Food processing, activity practiced</b>	Dried Pineapple	0	0.0
	Dried Tomato	8	33.3
	Cassava French Fries	4	16.6
	Soybean in Milk and Cheese		
	Other (Cassava Flour)	24	100.0
<b>Village leader behaviors to improve village quality of life</b>	Knowledge	24	100.0
	Moderate	21	87.5
	Virtual	1	4.2
	Prudence	2	8.3
	Honesty	24	100.0
	Experience Sharing	23	95.8



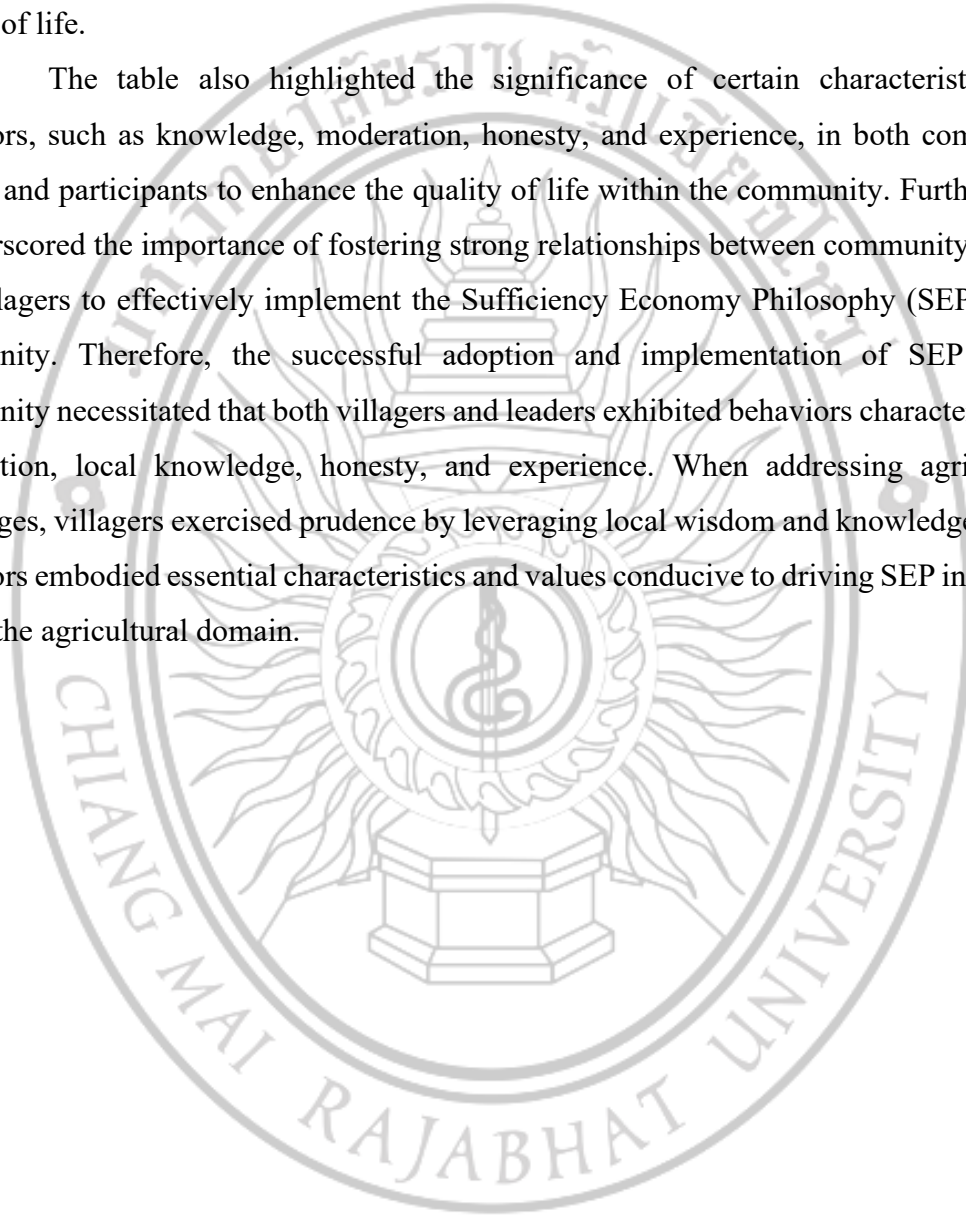
**Table 4. 9 (Cont.)**

		<b>Frequency</b>	<b>Percentage</b>
<b>Relationship between village leaders and villagers</b>	Yes	24	100.0
	No	0	0.0
<b>SEP adoption satisfaction</b>	Yes	24	100.0
	No	0	0.0
<b>SEP, environmental degradation decreasing</b>	Agree	24	100.0
	Disagree	0	0.0
<b>SEP, using local resources of living</b>	Agree	24	100.0
	Disagree	0	0.0
<b>How to solve agricultural problems?</b>	Using Bio Fertilizer	24	100.0
	Using Compost	24	100.0
	Integrated Farming	14	58.3
	Applying Local Knowledge	23	95.8
	Reducing Agricultural Cost	22	91.6
	Reducing Chemical Fertilizer Use	3	12.5

Table 4.9 provides a summary the agricultural training conducted in the Djakotomey community, utilizing the Sufficiency Economy Philosophy (SEP) concept. Of the 24 participants sampled, 95.8% engaged in SEP-related activities at the community learning center in Tohouehoue, while 4.1% participated at the Ameganhoue center. These participants actively participated in various activities aimed at addressing agricultural challenges and environmental degradation through the utilization of local resources. They produced organic inputs and compost from crop residue and cow manure for integrated farming, thereby reducing agricultural costs and improving household livelihoods.

Additionally, they processed cassava and soybean from their farms into flour, milk, and cheese to augment their income. These agricultural practices, adopted under SEP, aimed to alleviate poverty and food insecurity in the Djakotomey community. Consequently, participants witnessed improvements in soil quality, agricultural yields, and the overall quality of life.

The table also highlighted the significance of certain characteristics and behaviors, such as knowledge, moderation, honesty, and experience, in both community leaders and participants to enhance the quality of life within the community. Furthermore, it underscored the importance of fostering strong relationships between community leaders and villagers to effectively implement the Sufficiency Economy Philosophy (SEP) in the community. Therefore, the successful adoption and implementation of SEP in the community necessitated that both villagers and leaders exhibited behaviors characterized by moderation, local knowledge, honesty, and experience. When addressing agricultural challenges, villagers exercised prudence by leveraging local wisdom and knowledge. These behaviors embodied essential characteristics and values conducive to driving SEP initiatives within the agricultural domain.



**Table 4.10 Frequency of implementation following the training of participants in Djakotomey District, Republic of Benin**

Activities	Variables	Training participated	Implementation
<b>Agricultural practice</b>	Making Bio Inputs	24 (100.0)	24 (100.0)
	Processing Food	24 (100.0)	24 (100.0)
	Making Household Utilities (e.g., Soup to reduce expenses and increase income)	3 (12.5)	3 (12.5)
	Supplementing Household Income (Mushroom Production)	9 (37.5)	0(0.0)
	Making Local Fertilizer from Crop Residue and Cow Manure for Integrated Farming	18 (75.0)	18 (75.0)
<b>Processing Food</b>	Drying Pineapple	0 (0.0)	0(0.0)
	Drying Tomato	8 (33.3)	8 (33.3)
	Making Cassava French Fries	4 (16.6)	4 (16.6)
	Producing Soybean Milk and Cheese	8 (33.3)	8 (33.3)
	Other (Cassava Flour)	24 (100.0)	24 (100.0)
<b>Financial management</b>	Participating in Savings Group	14 (58.3)	6 (25.0)

**Quality of Life before and after Training in Agricultural Activities Practice under SEP**

The concept of "quality of life" encompasses a wide range of factors, including economic, social, environmental, and health-related aspects, among others, in communities such as Djakotomey District and others in the Republic of Benin. Djakotomey District is

known to be among the communities in the Republic of Benin where residents faced challenges such as extreme poverty, food insecurity, and homelessness. In response to these issues, the government of the Republic of Benin has implemented the Sufficiency Economy Philosophy (SEP) in Djakotomey District. The table below presents the scores and characteristics of quality of life before and after the adoption of SEP in the Republic of Benin, illustrating the impact of these interventions.





**Table 4.11** Frequency of Participants' Perceptions of Quality of Life Before and After Receiving Agricultural Training under the Sufficiency Economy Philosophy in Djakotomey District, Republic of Benin

		Before						After								
Q	Variables	5	4	3	2	1	$\bar{X}$ (S.D.)	5	4	3	2	1	$\bar{X}$ (S.D.)	T-test	P- Value	df
	Economic															
1	You are happy with the house quality you live in.		1 (4.2)		14 (58.3)	9 (37.5)	1.71 (0.690)		9 (37.5)		9 (37.5)	6 (25.0)	3.62 (1.345)	6.379	P<0.05	23
2	Your income is sufficient for you and your family		1 (4.2)		5 (20.8)	18 (75.0)	1.33 (0.702)		9 (37.5)		9 (37.5)	6 (25.0)	4.00 (0.000)	17.563	P<0.05	23
3	Your income allows you to save money		1 (4.2)		14 (58.3)	9 (37.5)	1.71 (0.690)		6 (25.0)		18 (75)		4.00 (0.000)	16.265	P<0.05	23

**Table 4.11 (Cont.)**

Q	Variables	Before						After						T-test	P-Value	df
		5	4	3	2	1	$\bar{X}$ (S.D.)	5	4	3	2	1	$\bar{X}$ (S.D.)			
13	You can construct an irrigation system in the farm for water supply by applying local knowledge and wisdom				15 (62.5)	9 (37.5)	1.62 (0.495)		16 (66.6)		9 (37.5)		3.50 (0.885)	6.379	P<0.05	23
14	You do agricultural activities in moderate way according to your capacity				24 (100.0)		2.00 (0.000)	1 (4.2)	23 (58.3)				4.04 (0.204)	17.563	P<0.05	23

**Table 4.11 (Cont.)**

Q	Variables	Before						After						T-test	P-Value	df
		5	4	3	2	1	$\bar{X}$ (S.D.)	5	4	3	2	1	$\bar{X}$ (S.D.)			
15	You do each agriculture activities with reason				10 (41.7)	14 (58.3)	1.42 (0.504)		14 (58.3)			10 (41.7)	4.00 (0.000)	16.265	P<0.05	23
17	You have confident to deal with the problems that might take place in agriculture in the future.				15 (62.5)	9 (37.5)	1.62 (0.495)		24 (100.0)				4.00 (0.000)	23.527	P<0.05	23

**Table 4.11 (Cont.)**

		Before						After								
Q	Variables	5	4	3	2	1	$\bar{X}$ (S.D.)	5	4	3	2	1	$\bar{X}$ (S.D.)	T-test	P- Value	df
18	You always have plan for running agriculture farm with risk management		5  (20.8)		19  (79.2)		2.41  (0.830)	1  (4.2)	23  (95.8)				4.04  (0.204)	9.094	P<0.05	23
	Average/Economic	1.72 (0.341)						3.90 (0.213)								
	Social/culture															
4	You always share with neighbors				7  (29.2)	17  (70.8)	1.29  (0.464)		9  (37.5)		15  (62.5)		4.00  (0.000)	28.576	P<0.05	23



**Table 4.11 (Cont.)**

Q	Variables	Before						After						T-test	P-Value	df
		5	4	3	2	1	$\bar{X}$ (S.D.)	5	4	3	2	1	$\bar{X}$ (S.D.)			
9	You are satisfied with your personal relationship with your family members.				21 (87.5)	3 (12.5)	1.87 (0.338)		14 (58.3)		10 (41.7)		4.00 (0.000)	30.815	P<0.05	23
12	You are satisfied with your knowledge sharing on agriculture production with neighbors				24 (100.0)		2.00 (0.000)		16 (66.6)		9 (37.5)		3.25 (0.989)	6.191	P<0.05	23

**Table 4.11 (Cont.)**

		Before						After								
16	To improve village quality in agricultural production way, you need to be honest, sincere to improve your quality of life	1 (4.2 )	23 (95. 8)				4.04 (0.204 )	23 (95. 8)	1 (4.2 )				4.95 (0.204)	15.906	P<0.05	23
	Average (Social/culture)	2.30 (1.200)						4.05 (0.696)								
10	The forest can provide necessary needs to the villagers and protects them from environmental degradation by planting				10 (41.7)	14 (58. 3)	1.41 (0.504 )	14 (58.3)		10 (41.7)			4.62 (0.495)	26.720	P<0.05	23

**Table 4. 11 (Cont.)**

		Before						After								
Q	Variables	5	4	3	2	1	$\bar{X}$ (S.D.)	5	4	3	2	1	$\bar{X}$ (S.D.)	T-test	P- Value	df
	Environment															
11	The soil quality of your farm is almost enhanced by using fewer chemicals, organic fertilizers, and compost				10 (41.7)	14 (58.3)	1.41 (0.504)		14 (58.3)		10 (41.7)		3.25 (0.989)	9.326	P<0.05	23
	Average/Environment				1.41 (0.000)						3.93 (0.968)					
	Food/Health															
5	Your family's daily diet is good for your family's health		1 (4.2)		23 (95.8)		2.08 (0.408)		1 (4.2)		15 (62.5)	8 (33.3)	4.00 (0.000)	23.000	P<0.05	23

**Table 4. 11 (Cont.)**

		Before						After								
6	You have good physical and mental health		1 (4.2)	14 (58.3)	9 (37.5)		2.66 (0.565)		9 (37.5)		15 (62.5)		4.00 (0.000)	11.568	P<0.05	23
7	You have enough food for your family members		1 (4.2)		20 (83.3)	3 (12.5)	1.95 (0.550)		9 (37.5)		15 (62.5)		3.25 (0.989)	6.334	P<0.05	23
8	Your daily meal contains the necessary nutrition and diversity.		1 (4.2)		23 (95.8)		2.08 (0.408)		3 (12.5)		9 (37.5)	12 (50.0)	4.00 (0.000)	23.000	P<0.05	23
	<b>Average (Food/Health)</b>						<b>2.19 (0.317)</b>						<b>3.81 (0.375)</b>			

**Frequency**

5 = Strongly Agree  
 4 = Agree  
 3 = Neutral  
 2 = Disagree  
 1 = Strongly disagree

**Meaning of average ( $\bar{X}$ ) of perception of Quality of Life**

4.51-5.00 = Much Better  
 3.51-4.50 = Better  
 2.51-3.50 = Neutral  
 1.51-2.50 = Lower  
 1.00-1.50 = Quite Lower (Piroj, 2018)



**Table 4. 12      Comparison of Quality of Life Perceptions Among Participants in Djakotomey District, Republic of Benin Before and After Receiving Agricultural Training Under the Sufficiency Economy Philosophy N=24.**

Participant No.	Average of perceptions of quality of life among participants in Djakotomey before and after receiving agricultural training under the Sufficiency Economy Philosophy (SEP) concept					
	Before			After		
	$\bar{X}$	SD	Meaning	$\bar{X}$	SD	Meaning
B1	1.88	0.900	Lower	4.22	0.427	Better
B2	2.00	0.685	Lower	3.55	1.041	Better
B3	1.94	1.055	Lower	3.61	1.092	Better
B4	1.77	0.732	Lower	3.61	0.916	Better
B5	1.88	0.900	Lower	4.22	0.427	Better
B6	1.77	0.808	Lower	3.72	1.017	Better
B7	1.88	0.758	Lower	3.66	0.970	Better
B8	1.88	0.900	Lower	4.22	0.427	Better
B9	2.00	0.685	Lower	3.55	1.041	Better
B10	1.88	0.758	Lower	4.16	0.383	Better
B11	1.88	0.758	Lower	4.22	0.427	Better

**Table 4. 12 (Cont.)**

Participant No.	Average of perceptions of quality of life among participants in Djakotomey before and after receiving agricultural training under the Sufficiency Economy Philosophy (SEP) concept					
	Before			After		
	$\bar{X}$	SD	Meaning	$\bar{X}$	SD	Meaning
B12	1.88	0.758	Lower	3.55	1.041	Better
B13	1.88	0.758	Lower	4.16	0.383	Better
B14	1.88	0.758	Lower	3.55	1.041	Better
B15	1.88	0.758	Lower	4.22	0.427	Better
B16	1.88	0.758	Lower	4.16	0.383	Better
B17	1.88	0.758	Lower	4.16	0.383	Better
B18	1.88	0.758	Lower	3.55	1.041	Better
B19	1.94	0.639	Lower	4.22	0.427	Better
B20	1.77	0.732	Lower	4.16	0.383	Better
B21	1.77	0.732	Lower	4.22	0.427	Better
B22	1.77	0.732	Lower	4.16	0.383	Better
B23	1.88	0.758	Lower	4.22	0.427	Better

**Table 4. 12 (Cont.)**

Participant No.	Average of perceptions of quality of life among participants in Djakotomey before and after receiving agricultural training under the Sufficiency Economy Philosophy (SEP) concept					
	Before			After		
	$\bar{X}$	SD	Meaning	$\bar{X}$	SD	Meaning
B24	3.00	1.028	Neutral	4.22	0.427	Better
<b>Overall average</b>	<b>1.91</b>	<b>0.239</b>	<b>Lower</b>	<b>3.97</b>	<b>0.300</b>	<b>Better</b>
t-test	27.584					
P	< 0.05					
Df	23					

4.51-5: Much better, 3.51-4.50 = Better, 2.51-3.50 = Neutral, 1.51-2.50 = Lower, 1.00-1.50 = Quite lower (Piroj, 2018)

In Table 4.11 and 4.12, an insightful comparison was presented, highlighting the shifts in participants' quality of life before and after undergoing agricultural training using SEP concepts in Djakotomey District, Republic of Benin. Initially, participants reported low satisfaction levels across various aspects, including housing, income, relationships, and overall well-being. However, significant improvements were evident following the training. Before the training, participants expressed dissatisfaction with the quality of their housing (average of  $1.71 \pm 0.690$ ). Post-training, there was a significant enhancement in their satisfaction with living conditions, evidenced by an improved average score of  $3.62 \pm 1.345$  (t-test = 6.379,  $P < 0.05$ ). Similarly, participants' income levels, which were relatively low before the training, but after undergoing SEP training, there had been a substantial improvement, enabling them even to save money.

Positive transformations were observed in relationships, both within the families and with neighbors. Before the training, participants reported low levels of sharing with neighbors, with an average score of  $2.00 \pm 0.000$ , and less satisfaction with their personal relationships, within the family (of average  $1.87 \pm 0.338$ ). Post-training, there was a notable improvement, indicating a positive impact on social interactions and community bonds (average of  $4.00 \pm 0.000$ ) and (t-test 6.191,  $P < 0.05$ ).

Challenges with food supplies were prevalent before the training, characterized by low food quantity (average of  $1.95 \pm 0.550$ ), inadequate nutrition (average  $2.08 \pm 0.408$ ), and a lack of dietary diversity (average  $2.08 \pm 0.408$ ). However, after the SEP training, participants had reported significant improvements in food quantity (average  $3.25 \pm 0.989$  t-test 0.6.334,  $P < 0.05$ ), dietary quality reached  $4.00 \pm 0.000$  (t-test = 23.000,  $P < 0.05$ ), and nutritional diversity also saw significant gains, contributing to overall better health (average  $4.00 \pm 0.000$ , t-test = 11.568,  $P < 0.05$ ). Participants' perceptions of environmental quality, specifically regarding forests and soil, were low, with both areas averaging  $1.41 \pm 0.504$ . Nevertheless, following the training, there was a significant positive shift in their opinions. They had believed that environmental quality had improved, particularly in forest and soil conditions, which were reported average of  $4.62 \pm 0.495$  (t-test 26.720,  $P < 0.05$ ) and  $3.25 \pm 0.989$  (t-test = 9.326,  $P < 0.05$ ), respectively. These enhancements were primarily attributed to reduced chemical usage and the adoption of organic fertilizers and compost.



Regarding SEP behavior, participants' satisfaction with knowledge sharing, the construction of irrigation systems significantly increased post-training, with satisfaction levels averaging  $1.62 \pm 0.495$  (t-test = 6.379,  $P < 0.05$ ). Participants also adopted more moderate (average of  $2.00 \pm 0.000$ , t-test = 17.563,  $P < 0.05$ ) and reasoned approaches (average of  $1.42 \pm 0.504$ , t-test = 16.265,  $P < 0.05$ ) to agricultural activities. Furthermore, there was a notable enhancement in participants' confidence in addressing future agricultural challenges (t-test = 23.527,  $P < 0.05$ ). Additionally, they demonstrated improved planning skills, particularly in risk management associated with farming, with an average improvement score of  $4.04 \pm 0.204$  (t-test = 9.094,  $P < 0.05$ ).

#### **Correlation and Regression Analysis between Quality of Life and Understanding of Sufficiency Economy Philosophy**

The study found a statistically significant correlation or regression coefficient between the overall quality of life and the understanding of the Sufficiency Economy Philosophy (SEP) ( $r^2 = 0.624^{**}$ ,  $P < 0.05$ ), indicating a clear relationship between these variables. This correlation suggested that an understanding of the Sufficiency Economy Philosophy (SEP) led to an increase in Quality of Life (QoL), as expressed in the equation (Figure).

$$\text{QoL} = 1.320 + 0.663 \times \text{SEP}$$

This figure illustrates the correlation and regression coefficient between the overall quality of life and the understanding of the Sufficiency Economy Philosophy (SEP) from Huay Tong and Djakotomey communities.

**Table 4.13 Descriptive Statistics**

Variables	Mean	Std. Deviation	N
Quality of Life	4.2639	0.42217	41
Sufficiency Economy Philosophy	4.4402	0.5031	41

**Table 4.14 Correlations**

		Quality of Life	Sufficiency Economy Philosophy
Pearson Correlation	Quality of Life	1	0.79
	Sufficiency Economy Philosophy	0.79	1
Sig. (1-tailed)	Quality of Life	.	0
	Sufficiency Economy Philosophy	0	.
N	Quality of Life	41	41
	Sufficiency Economy Philosophy	41	41

**Table 4.15 Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.790 <sup>a</sup>	0.624	0.615	0.26204

**Table 4.16 ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.451	1	4.451	64.825	0.000 <sup>b</sup>
	Residual	2.678	39	0.069		
	Total	7.129	40			

**Table 4.17 Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.320	0.368		3.587	0.001	0.575	2.064
	SEP	0.663	0.082	0.790	8.051	0.000	0.496	0.830

**Table 4.18 Casewise Diagnostics<sup>a</sup>**

Case Number	Std. Residual	QOL	Predicted Value	Residual
12	-3.179	3.55	4.3831	-0.83309

**Table 4.19 Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.72	4.6351	4.2639	0.33359	41
Residual	-0.83309	0.40051	0	0.25874	41
Std. Predicted Value	-1.63	1.113	0	1	41
Std. Residual	-3.179	1.528	0	0.987	41

The study showed that as individuals' understanding of the Sufficiency Economy Philosophy (SEP) increased, their participant's perceptions of QoL tended to improve. In this case, for every one unit increase in understanding of the SEP, the quality of life was predicted to increase by 0.663 units, starting from a base quality of life of 1.320.

This finding suggested that policies or interventions aimed at enhancing people's understanding of the SEP could have a positive impact on their overall quality of life. This could be due to the principles of the SEP, such as self-sufficiency, moderation, and mindfulness, which may have contributed to greater well-being and satisfaction with life.

Therefore, results had indicated substantial enhancement in people's quality of life in Djakotomey District, Republic of Benin, following SEP agricultural training. Positive changes had been observed across various dimensions, including housing satisfaction, income improvement, better relationships, improved food supplies, enhanced individual health, and a more positive perception of environmental conditions. These findings had underscored the effectiveness of SEP training in bringing about positive transformations in the lives of participants in the agricultural sector.

In conclusion, the appropriate guidelines for the adoption of SEP in improving Quality of Life (QoL) into practice in Benin, including:

1. Comprehensive understanding and adoption of SEP principles to drive sustainable development:

Awareness campaigns and training sessions were conducted to promote understanding of SEP principles. These initiatives emphasized the importance of balancing economic, social, and environmental aspects for sustainable development. Community members were motivated to implement these principles in agriculture and financial management practices. They enthusiastically participated in sustainable development projects that were in line with SEP principles. Regular monitoring and evaluation processes ensured the sustainability of positive changes, with strategies being adjusted as required.

2. Vocational and agricultural training activities using SEP as principal concepts:

Community members were encouraged to participate in training programs focused on sustainable and organic farming practices, including sessions on organic fertilizer production. These activities aimed to reduce reliance on chemical fertilizers, promote environmentally friendly farming, enhance biodiversity, improve crop resilience, and contribute to environmental conservation.



### 3. Promotion of knowledge sharing and community empowerment:

Regular community meetings or workshops facilitated the exchange of insights on effective agricultural practices, herbal medicines, and food production. This continuous knowledge-sharing fostered a culture of collaborative learning, leading to self-reliance and empowerment within the community.

### 4- Development of financial management skills for stability

Workshops on financial literacy and management were conducted to help community members balance their expenditures with income. Strategies for savings and investment were promoted to ensure long-term financial stability, reducing vulnerability to economic shocks.

### 5- Establishment of partnerships between government and community entities:

Efforts were made for government involvement in the community through extension services, providing technical assistance, financial aid, and material support to the agricultural sector. Collaborations with local authorities were established to maintain extension services that offered guidance on sustainable farming practices. Community-based organizations or cooperatives focused on agriculture were established. Networking and collaboration among community members were encouraged to strengthen social bonds and collectively address challenges.

In conclusion, improving the quality of life (QoL) in Djakotomey District using the Sufficiency Economy Philosophy (SEP) and the mentioned factors involved a holistic approach that combined sustainable agricultural practices, knowledge sharing, financial management, government support, building social capital, and adopting the principles of SEP. By combining these factors, Djakotomey District has developed a resilient and adaptive community, not only improving the current quality of life but also set the stage for sustainable development and well-being over the long term. It was essential to involve the community actively, adapt strategies to local contexts, and foster a sense of ownership for lasting positive change.

## **CHAPTER 5**

### **OVERALL FINDINGS AND CONCLUSION**

This final chapter presents a comprehensive summary of the research findings and conclusions in alignment with the research objectives outlined in Chapter 3. It provides lesson learned from farmers in Huay Tong Village, Thailand, who have long integrated the Sufficiency Economy Philosophy (SEP) into their daily lives. The chapter also provided the findings of Benin farmer's adoption of the guidelines for applying the SEP to practical aspects and their perceptions of Quality of Life (QoL) following training. Additionally, it also proposes the areas of possible further research in the future.

The Chapter is divided into three parts, including conclusions of overall results gained from the study, discussions of the results with relevant concepts as well as research, and recommendations for further studies.

#### **Overall findings**

The results presented in Chapter 4 can be summarized to address each research objective as presented below:

#### **1. Lessons Learned from Success in Improving the Quality of Life (QoL) Through the Practice of SEP in Thailand**

The lessons learned from Huay Tong Village demonstrated many successes in adopting the Sufficiency Economy Philosophy (SEP), which significantly enhanced the villagers' quality of life. The study revealed key factors contributing to these improvements: The quantitative analysis showed that through participation in Royal Project activities, villagers changed their agricultural practices through support from government, doing agriculture in moderate way and with reason by understanding SEP. In addition, participants including villagers and village leaders, shared knowledge

and local wisdom for natural resources management. They had ethic, prudence and honest which represent important values in adopting SEP into practice and improve villagers' quality of life. Moreover, there was a high level of satisfaction among participants regarding their relationships with family members and neighbors. They also had confident to deal with the agriculture problems in the future, and always had plan for running agriculture farm with risk management. In terms of Quality of Life (QoL), participants noted a significant enhancement in their overall quality of life, encompassing aspects such as financial well-being, food security, social relationships, environmental conditions, and had happier life as a result of implementing the SEP under the Royal Project.

The qualitative study revealed that participants held a deep reverence for the King, employing the Sufficiency Economy Philosophy (SEP) within the agricultural sector. They shifted from cultivating opium to growing cash crops such as vegetables, fruits, flowers, rice, and livestock, aiming for self-sufficiency. Moreover, they engaged in proper management of expenses and income by being moderate and belonging in savings group, considering the necessary utility, reducing luxury. Additionally, the village fostered social capital and cohesion through cooperative efforts, particularly through a women's cooperative initiated by the Royal Project. This cooperative engaged in group activities, such as forest cleaning during the dry season and the collection of plastics made from organic materials for recycling.

Understanding and adopting SEP in agricultural sector in Huay Tong Village involved several elements, including moderation, reasonableness, and self-immunity. Participants in Huay Tong Village understood how these principles can be applied to their agricultural practices to achieve sustainable practices, and doing agricultural activities moderate way and with reason to improve their living conditions.

## **2. Factors Influencing the Adoption of SEP in Practice in Republic of Benin**

The factors influencing the adoption of the Sufficiency Economy Philosophy (SEP) in Djakotomey community have demonstrated numerous successes in enhancing the overall Quality of Life (QoL) of the residents. The quantitative study revealed that participants participated and implemented agricultural practices training activities under SEP at Community Learning Centers (CLC) established by TICA

through government in two villages, Ameganhoue and Tohouehoue. These centers have agricultural practices such as making organic inputs and local fertilizer from crop residue and cow manure, food processing, savings group in Djakotomey community through local wisdom and knowledge sharing. Additionally, villagers and leaders had knowledge, virtual, prudence, honesty, and experiences in local resource management to improve agricultural practices which affected economic and environmental dimensions of all villagers. They also noted the impact of doing agricultural practices in moderate way, with reason and had plan for running agriculture farm with risk management through their confidence to deal with the problems that might take place in the farm in the future. Regarding participants' perception of their QoL, the results revealed that the overall QoL in Djakotomey community was improved upon training activities under SEP by reducing poverty and improved food insecurity. Understanding and adopting SEP into practice impacted significantly QoL of participants. In the community, participants used credit to improve their meal quality.

However, qualitative data revealed that participants expressed satisfaction with the adoption of SEP into practice. Through training activities under the SEP principles, participants learned to balance expenses with income, avoid luxury and food wastage, and prioritize necessary items. Additionally, participation in training proved beneficial in reducing environmental degradation, ensuring sufficient food production, and saving agricultural costs. It was observed that training activities under SEP implemented in Djakotomey District had a lasting positive impact on QoL over time.

Overall, the integration of SEP into daily practice significantly enhanced the Quality of Life for participants, leading to agricultural cost saving, improved meals, reduced extreme poverty, and alleviated food insecurity. Members of the Djakotomey community embraced SEP in agricultural practices to address various challenges such as the lack of agricultural product markets and the need for effective risk management.

### **3. Appropriate guidelines for the adoption of SEP in improving Quality of Life (QoL) into practice in Benin**

Based on the influence of training activities under SEP in the Republic of Benin, participants reported significant improvements in various dimensions of quality of life, including economic, social, environmental, and cultural aspects within



the community, as detailed in Chapter 4. Moreover, learned lessons from Huay Tong Village in practicing SEP for the adoption of SEP into practices in Benin, appropriate guidelines for enhancing quality of life described in Chapter 4 including:

1. Comprehensive understanding and adoption of SEP principles to drive sustainable development
2. Vocational and agricultural training activities using SEP as principal concepts
3. Promotion of knowledge sharing and community empowerment
4. Development of financial management skills for stability
5. Establishment of partnerships between government and community entities

## **Discussion**

### **1. Lesson Learned from Success in Improving the QOL of the people Through SEP Practicing in Thailand**

The integration of the Sufficiency Economy Philosophy (SEP) within the broader framework of sustainable development was explored, examining its alignment with sustainable development goals, impact on economic growth and stability, relevance to environmental conservation efforts, and implications for social welfare and equity.

- 1) Capacity building through engagement in training activities, particularly from the Royal Project to promote sustainable agriculture.

The main finding was attending training activities in the community learning center (CLC) in agricultural practice i.e. producing organic fertilizers to promote sustainable agriculture in affecting SEP adoption in Thailand. According to, Wattanakornsiri and Pukkalanun (2020), community learning center and local wisdom were very important as academic, learning sources of the SEP for community members. Learning centers in villages play a vital role in educating and disseminating knowledge about SEP within the community in organic fertilizer production. They are also focal points for community members to meet exchange knowledge, and collaborate on self-improvement and community development initiatives. Sompong and Rampai (2015) found that community learning center promoted human development, and efficiency in

agricultural problem management and improve the quality of life, in the environment, community, social, and capability of villagers.

However, the community learning center was a development process aimed at empowering communities, community leaders for local wisdom management, and poor rural households, in reducing poverty through investment and decision-making responsibilities. Saduak et al., (2017) and Saduak, Sangnate, and Pounsuk (2015) suggested that establishing a teaching or learning center in Praibuen Wittayakom agricultural school could enhance the teaching or training of students and their parents. Chen et al. (2023) and Saduak et al. (2019) supported previous findings and reported that utilizing farming gardens in school as a tool of education enhances experiential learning by doing. This approach led to achieve the goals of learning and knowledge skills in agricultural practices compared to those who learned only in the normal classroom and their parents. Participating agricultural practices at these learning center activities caused positive attitudes towards environmental conservation. Environmental education initiatives at these schools have led to the development of practical environmental skills through a hands-on approach, enabling active participation and the acquisition of valuable knowledge and skills in real-life agricultural situations.

Therefore, community learning centers play a pivotal role in promoting sustainable development within communities. By offering educational programs and initiatives focused on various aspects of sustainability, including environmental conservation, economic empowerment, social inclusion, and cultural preservation these centers empower community members to participate actively and shape their sustainable futures. Through a range of capacity-building activities, knowledge-sharing sessions, and skill development programs, community learning centers enable individuals to adopt sustainable practices in their daily lives, contribute to local economic growth, and foster resilient communities that thrive in harmony with their environment and society.

However, Ke (n. d.) found that public investment stands out as the primary factor driving sustainable agricultural growth in both Thailand and Vietnam. Both countries actively involved higher education institutes in the delivery of agricultural advisory services.

2) Knowledge sharing on agricultural practices, herbal medicine, and food within the community: They shared insights on agricultural practices, herbal medicines, and food with their neighbors.

Knowledge sharing played a crucial role in food security, poverty reduction, and community empowerment, fostering collaboration, and driving positive change. This research found that Huay Tong villagers shared knowledge in agricultural practices, herbal medicines, and food with their neighbors. In this scenario, the establishment of cooperatives among farmers within the community was essential for facilitating successful knowledge sharing. Wattanakornsiri and Pukkalanun, (2020) supported and found that for the purpose of community development, the villagers must cooperate and have a volunteer mentality. For example, they reported that the residents of Hong Village and Tenmee Village participated in the villages' cooperative activities and worked together. Terma et al., (n. d.) discovered that knowledge sharing was a crucial factor in the application of the SEP for community development. However, knowledge sharing plays a crucial role in the application of the training in agricultural practices activities under SEP for community development by empowering individuals, fostering collaboration, and building resilience within communities. By actively participating in dialogue and collaboration, they can identify local challenges, then develop the strategies for their solutions.

Additionally, Wattanakornsiri and Pukkalanun (2020) noted that information and knowledge exchange, which were essential to the success of SEP applications. They encouraged villages to collaborate, to find solutions to their problems. Paradiba, and Indah (2022) identified knowledge sharing through a Knowledge Management System (KMS) as a strategic approach to overcome obstacles in implementing programs for rural community empowerment, such as training, knowledge distribution, and reporting. They emphasized that knowledge sharing is an excellent instrument that rural community members should use or take into consideration when practicing agriculture in order to improve household livelihoods and the stability of the economy. Chaiphar, Sakolnakorn, and Naipinit (2013) discovered that community knowledge management could be categorized into two types: internal community knowledge management, involving the exchange of knowledge among community members, and external community knowledge

management, encompassing the exchange of knowledge between communities for sustainable environmental and natural resource management. From this scenario, knowledge management and natural resources management are interconnected concepts that play crucial roles in sustainable development and environmental management. These practices help maintain ecological balance, and ensure the well-being of communities dependent on natural resources, balancing human needs with the preservation of ecosystems.

Moreover, Chaiphar, Sakolnakorn, and Naipinit (2013) also found that community members, including the youth, actively engaged in the acquisition and preservation of indigenous knowledge related to herbal medicines, forest conservation, and food sourced from the forest. Traditional knowledge held by local communities was often a vital component in the sustainable management of natural resources. Knowledge management helped preserve and integrate this wisdom into modern practices. Liao, Nguyen and Sasaki (2022) emphasized the importance of enhancing the learning capabilities of individual farmers in environmental awareness and sustainable agricultural practices. Knowledge of the local environment, traditional practices, and scientific advancements is crucial for effective natural resources management. This can include information about sustainable farming methods, biodiversity conservation, and water resource management.

In this context, the Royal Project of King Rama IX in Thailand plays a pivotal role as an extension service, imparting knowledge and skills in health education and agricultural practices. In terms of health education, both the Royal Project and public healthcare in Nong Tao Village, Mae Win sub-district, Mae Wang district, Chiang Mai province established by King Rama IX, collaborated on the assessment of chemical levels in the blood. They guided individuals with high chemical levels, recommending the use of herbal medicine as a remedy. The annual chemical blood checks conducted by the public healthcare system in collaboration with the royal project represent a proactive and collaborative effort to enhance the health of 10 villages in Thung Luang Royal Project area and to promote of overall well-being.

### 3) Enhanced financial management skills

The results showed that following agricultural practice training activities under the SEP concept for financial management, villagers balanced their income and



expenses. They also belonged in the savings money group for future household projects. Chaiphar, Sakolnakorn, and Naipinit (2013) found that as part of community development practices, members engaged in forming specialized groups for activities, including groups dedicated to savings and handicraft production. In Huay Tong Village, older women contributed to economic stability by engaging in handicraft production. This practice served as a means for these women to contribute to the local economy by creating handmade crafts, which can be sold or traded. Handicraft production often represents a traditional skill passed down through generations, providing not only a source of income but also preserving cultural heritage. Additionally, the income generated from the sale of handicrafts can contribute to the financial well-being of these women and their families, supporting a sustainable economic. Villagers may diversify their sources of income, engaging in various economic activities such as agriculture, handicrafts, small businesses, or wage employment.

Janmaimool and Denpaiboon (2016) found that farmers observed a notable improvement in the equilibrium between their income and expenditures after engaging in training activities practices. However, balancing expenditures and income is crucial for ensuring financial stability, meeting basic needs, and achieving long-term economic well-being. In Huay Tong, households or villagers engaged in economic management by carefully balancing their expenditures and income. This practice reflects the resilience and adaptability of households in Huay Tong as they face economic challenges and work towards sustainable livelihoods. Villagers may collaborate within the community, forming savings or investment groups to pool resources for collective economic endeavors. Cooperative efforts can enhance financial resilience. Furthermore, Krisada and Piyadhida (2019) found that the savings rate in their study area was influenced by the level of income. Individuals with higher income were observed to be more inclined to save money or invest for future benefits compared to those with lower revenue. Their findings also revealed distinct patterns in the forms of savings or investments adopted by households. These patterns include: deposit in Commercial Banks, Government Saving Bank, deposit with the Cooperative or community cooperative, Mutual Fund, Village funds and funeral funds. Individuals opted for depositing in commercial banks and Government Saving Bank due to its

perceived low-risk nature, coupled with convenient access to services. This preference aligns with the principles outlined in King Rama IX's speech:

*“Economic development must be done step by step. It should begin with the strengthening of our economic foundation, by assuring that the majority of our population has enough to live on...Once reasonable progress has been achieved, we should then embark on the next steps, by pursuing more advanced levels of economic development”*

His Majesty King Bhumibol Adulyadej

Huay Tong villagers participated in savings through deposit money with the Cooperative and Mutual Fund. The community engaged in group or cooperative savings for their financial security. By pooling resources together, individuals can collectively address financial challenges. Moreover, Mongsawad (2010) indicated that Moung Wan and Koak Chareon Villages served as exemplary instances of communities that actively participated in savings schemes, effectively lowering expenditures and debt while concurrently augmenting their savings for villager self-reliance. These communities initiated a micro savings scheme that initially comprised a group of 10 individuals. Members were mandated to contribute a minimal sum of money every week. As time progressed, the group expanded significantly, growing stronger with a membership of 667 individuals and accumulating a savings account balance of 7.5 million baht (approximately 209,841.30 USD).

The scenario of group or cooperative savings in the Huay Tong community reflects a community-centric approach to financial management. It combines elements of trust, accessibility, shared goals, and social capital, providing community members with empowering way to save and invest. Community members in Huay Tong Village have the option to borrow funds from the community savings account, thereby generating interest that contributed to the overall well-being of the community. However, to effectively manage and amplify the benefits of the allocated funds, villagers must engage in proper bookkeeping, which aimed to reduce expenses and increasing income. Wattanakornsiri and Pukkalanun (2020) have substantiated this discovery, emphasizing the pivotal role of bookkeeping and creative activities in

achieving financial stability. The research by Janmaimool and Denpaiboon (2016) revealed that the reduction in the consumption of luxury items and the effort to maintain a balance between expenditures and incomes through Economic Self-Reliance Practices. This impacted the quality of life of the members of Ban Jamrung community. His Majesty King Bhumibol Adulyadej encapsulated this ethos in his thoughts:

*“Being a tiger is not important. The important thing is for us to have a sufficient economy. A sufficient economy means to have enough to support ourselves...we have to take a careful step backward...each village or district must be relative self-sufficient.”*

His Majesty King Bhumibol Adulyadej

Wanasilp and Tangvitoontham, (2015) indicated that a higher level of education and knowledge significantly impacts family income management. In regions with limited access to banking services, group savings or cooperatives are crucial for promoting financial inclusion, providing a way for community members to save and invest collectively. SEP training activities often involve community participation and collaboration. This collective engagement fosters a sense of community, mutual support, and shared goals, contributing to an improved social environment.

#### 4) Government and Community Partnership

The main finding in this case was government encouraged farmers through extension services, delivering technical assistance, financial aid, and material support to the agricultural sector. Wattanakornsiri and Pukkalanun, (2020) and Wattanakornsiri, Pukkalanun and Phimphanthavong, (2020) reported in their findings that governmental organizations, provided support to Hong and Tenmee communities for community development projects through sufficiency economy philosophy activities by giving training and power to villagers and village leaders. Governments can formulate and implement policies that encourage and support community development through training activities. In this scenario, it was found that community leaders and members must possess the necessary knowledge, competencies, and experiences in agricultural practices under SEP for community development. Governments can facilitate coordination and collaboration between different

community cooperatives involved in community development, including local communities, NGOs, and private sector organizations. This collaborative approach significantly enhanced the overall success of training programs.

The practice of training activities within the community required members to acquire knowledge, experiences, and competencies. The government played a vital role in the successful implementation of training activities for community development. By engaging in learning and exchanging experiences among farmers from diverse geo-social environments, particularly concerning drought experiences and innovative farm management techniques. Panyasing et al., (2021) observed that significant success had been achieved. This success was evident in the enhancement of their suitable, self-reliant, and environmentally friendly agricultural practices. These practices were guided by with the principles of Sufficiency Economy Philosophy.

In Huay Tong Village, government financial support at the community level in agricultural practices under the SEP was facilitated through the Royal Project. The Royal Project was a government initiative that aims to promote sustainable agriculture, community development, and the well-being of rural populations. Indeed, Mongsawad (2010) and NESDB (2007) found that the government provides financial assistance to the community in Huay Tong Village through the Royal Project. The support from government offices was pivotal in the implementation of training activities under the SEP. This funding was allocated to support agricultural practices that align with the principles of sufficiency economy, emphasizing moderation, resilience, and sustainability. However, the Royal Project often includes components focused on capacity building within the community. The government's financial assistance through the royal project may encourage economic diversification within the community. This could involve promoting alternative income-generating activities or value-added processes related to agriculture. This perspective is echoed in a speech by His Majesty King Bhumibol Adulyadej:

*“I may add that full sufficiency is impossible. If a family or even a village wants to employ a full sufficiency economy, it would be like returning to the Stone Age...This sufficiency means to have enough to live on. Sufficiency means to lead a reasonably comfortable life, without excess, or overindulgence in luxury, but enough. Some things may seem*



*to be extravagant, but if it brings happiness, it is permissible as long as it is within the means of the individual...”*

(His Majesty’s King Bhumibol Adulyadej birthday, Speech,  
4 December, 1998)

The study revealed that the public healthcare system in Nong Tao Village, situated in the Huay Tong area, collaborated with a group of 107 Village Health Volunteers (VHVs). These volunteers, who received foundational training facilitated by the Ministry of Public Health, were each responsible for providing healthcare support for groups of ten households within the village or royal project area (10 villages). This approach demonstrated that a community-engaged healthcare model in Nong Tao Village, where Village Health Volunteers, trained by the Ministry of Public Health, played a pivotal role in delivering healthcare services to specific households. This model aligns with the principles of community-based healthcare, emphasizing collaboration, training, and individualized care within the local context. Wattanakornsiri and Pukkalanun (2020) supported our finding and found that the communities of Tenmee Village and Hong Village had Volunteer Health Workers (VHVs) who effectively combated illness and assisted in managing the COVID-19 pandemic in 2020. These Village Health Volunteers played a crucial role during the COVID-19 pandemic, contributing to Thailand's ranking as the fifth country globally. The role of Village Health Volunteers (VHVs) was to encourage villagers to seek appropriate treatment at government healthcare services, advocating for hospital care.

In addition to providing employment opportunities, the Royal Project supported the Huay Tong community by offering assistance in the form of animals and seeds to enhance agricultural practices, promoting sustainability, and empowering the Huay Tong community members. This support not only helped villagers in alleviating poverty and addressing food insecurity but also enables them to engage in agricultural practices through integrating farming methods. This assistance could take the form of financial aid, training programs, access to technology, and infrastructure development. By receiving these supports, villagers were empowered to pursue agricultural activities more effectively.

##### 5) Holistic approach and network collaboration

The study conducted by Janmaimool and Denpaiboon (2016) revealed that participation in training activities under the Sufficiency Economy Philosophy (SEP) led to positive changes in interpersonal relationships within the community, both among neighbors and family members. This suggests that the training activities under the SEP had a holistic impact on the social aspect of the community, leading to enhanced relationships both within families and among neighbors. The combination of skill-building, shared experiences, and a focus on community development likely contributed to these positive changes in interpersonal dynamics. The research conducted by Choochom (2015) confirmed the earlier findings and put forth the proposition that the support from family members played a pivotal role in the effective implementation of training activities under the SEP. This crucial role was attributed to the exchange of ideas related to SEP activities within the family context. The support from family members is deemed crucial in the implementation of training activities under the SEP due to the shared understanding, values, and communication within the familial context.

These findings emphasize that such support significantly contributed to a heightened level of adoption of training activities, particularly within the agricultural sector. The mentioned supports, particularly from government offices as highlighted in the original statement, encompass a range of assistance and resources. Organization for Economic Co-operation and Development (OECD), (2002) and Park and Kim, (2010) supported Mongsawad (2010) and NESDB (2007) that the direct allocation of government funds to extension service programs had influenced the performance of training activities within the agriculture sector.

Effective collaboration between the government and communities is a manifestation of social capital. When there is mutual trust and cooperation, it contributes to the successful implementation of policies and programs. The Royal Project created employment opportunities for members of the Huay Tong community, thereby empowering the local residents by improving social capital.

Our findings in Huay Tong community showed that networking and collaboration among community members were encouraged to strengthen social bonds and address challenges. Research by Nappi (2014) strongly suggested that the

leadership of the school principals was pivotal in the establishment and advancement of successful schools. Principals play a key role in the professional development of teachers. Their ability to face crises, make informed decisions, and maintain a sense of stability contributes to the resilience of the school community. Their leadership influences various aspects, including teaching practices, student outcomes, school culture, and community engagement. Principals who effectively lead with vision, instructional expertise, and a commitment to continuous improvement contributed significantly to the success and development of their schools.

Glanz, Shulman, and Sullivan (2007) found that effective principal leadership was crucial, just as the creation of a culture that empowers and encourages collaboration among teachers was indispensable. The synergy between effective principal leadership and a culture of teacher empowerment and collaboration was fundamental in creating a dynamic and thriving educational environment. This combination enhances the professional growth of teachers, improves instructional practices, and ultimately contributes to the success of the entire school community.

Nuntaboot, Boonsawasdgulchai, and Bubpa (2019) found that the implementation of social capital in Thailand had improved relationships and trust, not only at the individual level but also among groups and networks. This contributed to the enhancement of older adults' quality of life. When individuals, groups, and networks pool their resources and energies, the resultant synergy has a profound impact on addressing the needs and enhancing the quality of life for community members. Social capital, as implemented in Thailand, was fostering community cohesion.

Moreover, in Huay Tong Village, both middlemen and the Royal Project have played critical roles in marketing. They collected vegetable and flowers and send to Chiang Mai and Bangkok. Kulkanya, (2011) suggested furthermore, that in Huay Tong Village, the involvement of middlemen, along with the significant participation of the Royal Project, was crucial role for marketing efforts. By engaging in marketing activities, community extension efforts aimed to promote and sell the products produced by community members. This not only contributed to the economic well-being of individuals but also establishes a market presence for the community's goods. Effective marketing and the establishment of product standards are pivotal in supporting economic empowerment through community extension activities.

This research indicated that the leadership provided by the Royal Project among villagers in Huay Tong Village has led to improvements in environmental quality. Specifically, women in the community collaborate in groups throughout the year, particularly during drought periods, to engage in forest cleanup activities. Cleaning up the forest contributed to biodiversity conservation, reduces the risk of wildfires, and enhances overall ecological health. The disposal of chemical plastics in an environmentally responsible manner reflected a commitment to minimizing the negative impact on the ecosystem. Their efforts involved collecting various types of plastics found within the forest, and they meticulously separated chemical plastics from organic ones. Subsequently, the chemical plastics are then disposed of in an environmentally friendly manner, while the organic materials are recycled, reducing the overall environmental footprint and promoting circular economy principles. The waste management contributed to enhance environmental quality.

In Thailand, social capital refers to the networks, relationships, and shared norms and values within the society that contribute to social cohesion, cooperation, and community well-being. It encompassed the social connections and trust that exist among individuals, groups, and institutions, fostering collaboration and mutual support. For instance, annually, the public healthcare system in Nong Tao Village in Thung Lung Royal Project area, conducts chemical blood checks in collaboration with the Royal Project. This initiative exemplifies how social capital can facilitate significant community health endeavors.

## **2. The affecting factors in adopting SEP into practice in Benin**

Research in the Djakotomey community revealed that engaging in agricultural practices with moderation, reason and prudence involves adopting a thoughtful and balanced agricultural approach, taking into consideration various factors of sustainable and responsible agricultural management. These sustainable agricultural practices include environmental consideration, resource management, crop selection and rotation, technology adoption, water conservation, community engagement, economic viability and continuous learning.



1) Moderation involves sufficiency at a level that avoids excess or deficiency at the expense of oneself or others. For example, producing and consuming at a moderate level.

Concerning agricultural practices in moderate way community members in Djakotomey District must avoid excessive use of chemical inputs, such as fertilizers and pesticides, to reduce environmental pollution. This aimed according to Republic of Benin (2022) that in rural agricultural areas, it is crucial for villagers to strive for a balanced and sustainable ecosystem. This involves implementing practices that promote efficient resource utilization, minimize waste, and align resource use with the land's carrying capacity. Maintaining soil fertility through crop rotation and diversifying plantings to enhance resilience against pests and diseases are recommended. Additionally, avoiding monoculture and promote diversified plantings can enhance resilience against pests and diseases.

Moreover, rural villagers must strive to find a balance between traditional and modern techniques that align with sustainability goals; implement water irrigation methods such as drip irrigation, and explore rainwater harvesting techniques for use in the future when needed, and avoid practices that could lead to overexploitation or economic instability. Consistent with this scenario, Saizonou et al. (2023) argued that adopting moderation in plant food production involves reducing the use of chemicals. This aligns with sustainable agricultural practices that prioritize environmental and human health.

2) Reasonableness: The decision concerning the level of sufficiency must be made rationally with consideration of the factors involved and careful anticipation of the outcomes that may be expected from such action.

Regarding agricultural practices in Djakotomey community, members must carefully assess the ecological impact of their farming methods on the environment. This assessment involves evaluating how their practices may affect soil health, water quality, and biodiversity, while also ensuring efficient use of local resources like water, energy, and land. Totin et al. (2015) found that rice farmers in Koussin-Lélé, Bamè, and Zonmon utilized both individual and group irrigation systems for uplands and lowlands, respectively, during the dry season. Farmers cleaned lowlands canals collectively in order to improve the efficiency of the lowlands

irrigation system. Moreover, assessing the ecological suitability of each crop for the specific region was vital to ensure sustainability. Additionally, evaluating the water needs of crops and the availability of water resources in the region is important to avoid potential negative impacts on local ecosystems.

Furthermore, members must consider the social and economic implications of their agricultural practices on local communities. In this case, it is essential to assess how farming activities may affect livelihoods and overall well-being in community. Moreover, evaluating the economic viability of agricultural practices, taking into account market dynamics, input costs, and potential yields, is crucial for sustainable farming. Saizonou et al. (2023) confirmed this scenario and advocated for crop rotation as a beneficial practice, particularly alternating between cotton cultivation and nitrogen-demanding food crops like corn, yam, soybean, pepper, okra, or tomato. This method, commonly practiced in Save and Djakotomey, utilizes on the rapid growth of these food crops, utilizing their nitrogen-fixing attributes in a rotating pattern to improve soil quality and enhance food security. Crops rotation were the best agricultural practices with reason in Djakotomey community, contributing to rapid growth and improved food security.

3) Prudence or Risk Management: The preparation to cope with the likely impact and changes in various aspects by considering the probability of future situations.

In our research, it was identified that farmers in the Djakotomey community need to exercise caution or prudence in agricultural production to prevent crop losses. In this case, Saizonou et al. (2023) found that the cultivation of cotton crops in association with food products, particularly maize, was a common agricultural practice in Save, Republic of Benin. In Save and Djakotomey, Republic of Benin, the practice of cultivating cotton crops alongside food products, particularly maize, or peanut with maize are a common agricultural strategy. This integrated approach involves planting cotton and maize in proximity, allowing for a symbiotic relationship between the two crops. Cotton, a cash crop, contributes to the economic aspects of farming, while maize, being a staple food, meets local dietary needs. . This dual cultivation strategy not only diversifies the agricultural output but also represents a sustainable and balanced approach to meet both economic and food security objectives

within the local community of Djakotomey, Republic of Benin. In this case, Dayou et al. (2020) found that the use of chemical fertilizers and pesticides impacted negatively the soil quality, leading to crop losses. They suggested that crops association played vital role in agricultural sustainable.

The research found that planning skills to manage agricultural shocks were vital for farmers to mitigate the impact of unexpected events, including extreme weather, pest outbreaks, market fluctuations, and other disturbances. Planning skills in this context encompass a proactive and strategic approach to risk assessment, diversification, financial planning, and collaboration. Farmers who equipped with these skills were better prepared to navigate uncertainties and cultivate resilient agricultural systems.

Dou et al. (2023) concluded that while agroforestry represents an optimal approach for sustainable farming, prioritizing risk management is equally crucial.

Another important finding related to enhancing the quality of life within a community is the significance of knowledge, moderation, honesty, and experiences was crucial among leaders and members. The interplay of these qualities, cultivated by leaders and community members, constituted the foundation for a prosperous and resilient community, ultimately enhancing the quality of life for all its members. This allows them to have good relationships.

It was found that in Djakotomey community, reducing agricultural costs and saving money played pivotal roles in creating financial resources for investment in family projects. By identifying opportunities to lower agricultural expenses through optimizing input use, adopting cost-effective technologies, and exploring efficient farming practices, families can enhance the profitability of their agricultural endeavors. This reduction in costs frees up financial resources that can be directed toward other family-oriented initiatives. Saving money from the reduced agricultural costs provides a pool of funds that can be set aside for future use. The accumulated savings, coupled with reduced agricultural costs, form a financial foundation for investing in family projects. Whether it involves starting a small business, pursuing educational opportunities, or improving household infrastructure, having resources set aside allows families to undertake ventures that contribute to their overall well-being and development.

In alignment with the SEP activities, adopting investing in family projects allows families to diversify their income sources. This diversification added resilience to the household economy, reducing dependence solely on agriculture and providing alternative avenues for financial growth and stability. The practice of reducing agricultural costs and saving money was integral to long-term financial planning. Families could allocate funds strategically while considering both immediate needs and future aspirations.

The results indicated that perseverance and patience were crucial attributes when adopting the SEP to navigate and overcome obstacles in agriculture. The agricultural landscape often presents challenges, including unpredictable weather patterns, market fluctuations, and pest outbreaks. Perseverance involved the determination to persist in the face of difficulties. In the context of adopting SEP, farmers need to remain committed to the philosophy's principles, such as moderation and self-reliance, even when faced with setbacks. Adopting SEP requires a long-term perspective, recognizing that the benefits might not be immediately apparent. Patience was crucial in implementing sustainable agricultural practices, waiting for the gradual improvements in soil health, biodiversity, and overall resilience. Perseverance and patience are integral to the successful adoption of the Sufficiency Economy Philosophy in agriculture. These qualities empower farmers to navigate obstacles, learn from experiences, and cultivate sustainable practices that contribute to the long-term resilience and prosperity of agricultural communities.

SEP training and practicing in Benin were carried out at a sufficient level depending on two conditions:

4) Knowledge: This comprises all-round knowledge in the relevant fields and prudence in bringing this knowledge into consideration to understand the relationship among the field so as to use them to aid in the planning and ensure carefulness in the operation.

In the Republic of Benin, particularly in Djakotomey community, farmers developed knowledge for pest management in their farms after participating in training activities under SEP. Togbé et al. (2015) revealed that Integrated Pest Management (IPM), cotton farmers in the Republic of Benin had the ability to identify pests as well as natural enemies. By possessing this ability, farmers are better equipped to control



pest populations in their fields and implement appropriate pest management strategies while minimizing harm to beneficial organisms and reducing environmental impact. This knowledge allowed them to protect their crops from damage, leading to more sustainable agricultural practices in Djakotomey District. They also found that knowledge about applying IPM techniques, including the use of organic fertilizers, which helped to reduce the costs associated with pest management.

The studies of by Segnon et al. (2015) in Bassila and Boukoumbé, and Fadina and Barjolle (2018) in Zou, found that farmers had knowledge about diversifying crops and managing farming systems to mitigate climate change in Benin. This showed that participants in Djakotomey District acquired a better understanding of the importance of crop rotation, intercropping, and agroforestry to enhance soil fertility, reduce pest pressure, and improve overall agricultural productivity after participating training activities under SEP. By diversifying crops, farmers mitigated risks associated with crop failure, while also promoting biodiversity and sustainable agricultural practices. Additionally, effective management of farming systems involves natural resources management such as water and land, as well as implementing practices that promote soil health and long-term sustainability. The knowledge of farmers in these areas referred their ability to sustainable farming and their ability to adapt to changing environmental conditions.

Farmers gained an understanding of overall agricultural system management after participating in training activities under the Sufficiency Economy Philosophy (SEP) referring to their understanding of sustainable farming practices. This knowledge encompasses various aspects of agricultural management, including crop selection, soil health, pest and disease management, and water conservation. Through SEP training, farmers learned to assess their farming systems by considering factors such as soil fertility, local climate conditions, and available resources. They acquired the ability to make decisions about crop rotation, intercropping, and Integrated Pest Management (IPM) techniques. This allowed them to improve productivity while minimizing environmental impacts.

5) Virtue to be promoted: The SEP training also emphasized the awareness of honesty, patience, perseverance, and intelligence in leading one's life.

Through SEP training activities, participants acquired life qualities such as honesty, patience, perseverance and intelligence. This showed that ethical behaviors were fundamental conditions for personal development and success in the future. For instance, Olounlade et al. (2019) found that rice farmers engaged in contract farming practices were motivated to maintain their honesty and sincerity to secure greater profits in the future. In contract farming arrangements, rice farmers have a strong incentive to maintain their honesty and sincerity with their buyers through quality of products. By maintaining their reputation for integrity with buyer, they increase their chances of securing more lucrative contracts and achieving greater profits in the future by keeping farmer-buyers relation for longer. This commitment to ethical conduct not only fosters trust and goodwill with their contracting partners but also enhances their long-term economic prospects in the agricultural industry.

By analogy, qualities such as honesty, patience, and perseverance were essential for farmers to share knowledge, participate in training activities, and engage in group activities. This suggested that honesty, patience and perseverance were considered important qualities for farmers to participate in various activities such as sharing knowledge, participate in training activities and collaborate in group activities. These qualities are crucial for building trust among farmers, maintaining focus and dedication during training, and fostering teamwork and cooperation within the community. Overall, they contribute to the success and effectiveness of agricultural initiatives and community development efforts.

However, the SEP training activities adoption in Djakotomey community had a significant impact on members' perception of quality of life.

### **3. Quality of Life after training activities under SEP concept in Benin**

In this study, the Human Development Index (HDI) was employed as the indicator to reflect socio-economic development on a national scale. The HDI is a comprehensive indicator employed to evaluate the well-being and quality of life within a population, encompassing factors such as education, health, and income. Introduced by the United Nations Development Program in 1990, the HDI is computed through three components: adult literacy for educational representation, life expectancy at birth

for health representation, and gross domestic product per capita for income representation.

### **3.1 Socio-Economic conditions**

In term of economic situation in the Republic of Benin, the study found that people in Djakotomey community thought economic situation was better after training activities under SEP which represented main finding. Indeed, economic situation including happiness with house quality, income sufficient to save money are better after attending training activities. World Bank, (2018), Gaspard et al. (2019), World Food Program USA, Benin (2023), and Lisa (2018) found that in 2015, a significant portion of the population in the Republic of Benin experienced extreme poverty, defined by a purchasing power of less than US \$1.90 per day. Benin fell into the classification of a lower-income country, with an approximate per capita income of US \$840, as reported by the UN Human Development Index for 2014 (UNDP, 2014). The income poverty line, set at US \$1.90 per day, became a critical metric, and 53.3% of the population found themselves living below this threshold. This indicated that more than half of the population struggled to meet even the most basic daily needs, highlighting the pressing economic challenges and the urgency for interventions to alleviate poverty and improve living standards in the Republic of Benin.

Further findings by the World Bank in Benin (2024) and World Bank 1.1 (2022) in 2019 revealed that the Republic of Benin faced a significant economic challenge with 38.5% of its population residing below the national poverty line. Indeed, several factors contributed to this situation, including an unemployment rate of 2.4%, indicating a portion of the population without gainful employment. Underemployment, affecting 72% of the population, reflected individuals engaged in jobs that did not fully utilize their skills or offered insufficient working hours. Furthermore, a substantial 90.1% of the workforce engaged in informal employment, often characterized by jobs lacking formal contracts or legal protections. This high prevalence of informal employment suggested a lack of stability and job security, contributing to the overall economic struggles and poverty rates in the country.

Gero's (2023) reported the Harmonized Survey of Household Living Conditions, the prevalence of monetary poverty exhibited disparities between urban and rural areas. In 2019, the incidence of monetary poverty in urban regions stood at

32.6%, while in rural areas, it was notably higher at 44.7%. This suggested that individuals in rural settings faced a higher likelihood of experiencing monetary poverty compared to their urban counterparts. The observed discrepancy emphasizes the need for targeted interventions and policies that address the specific economic challenges prevalent in rural areas, aiming to reduce poverty and enhance the overall well-being of individuals in these regions.

The study conducted by GBD 2019 Under-5 Mortality Collaborators (2021) highlighted the significance of having access to adequate housing for human health and overall well-being. Access to good housing was crucial as it directly impacts various aspects of individuals' health, including their physical and mental well-being. Safe and secure housing provides protection from environmental hazards, promotes hygiene, and contributes to a stable and supportive living environment. Additionally, having a suitable living space is associated with improved mental health, better sleep quality, and an overall enhanced quality of life. These findings underscore the essential role that adequate housing plays in fostering positive health outcomes and underpin the importance of addressing housing-related challenges for overall human well-being. The Ministère du Plan et du Développement (2013) confirmed finding that non-monetary poverty, as determined by housing characteristics and household assets, impacts 30.2% of the population in the Couffo region in 2013 and 33.6% of the population in Djakotomey District.

According to the data from Macrotrends (2024), the country's Gross Domestic Product (GDP) witnessed a substantial increase of 13.02% in 2021 compared to the previous year, 2020. This growth signifies a positive economic trend, indicating an expansion in the overall economic output of the country. Such an increase in GDP can be influenced by factors like improved economic activities, increased investments, or enhanced productivity across various sectors.

These findings affirmed the notion that individuals in Benin, particularly in Djakotomey District, had experienced improvements in their income levels, leading to enhancements in their living conditions through training activities. The positive outcomes suggested that economic conditions had progressed, potentially resulting in increased purchasing power, improved access to essential goods and services, and an overall quality of life for residents in Djakotomey District.



Furthermore, the World Bank's report (2022) highlighted the significant role that the implementation of agricultural activities aligned with Sustainable Environmental Practices (SEP) played in contributing to a notable 6.3% growth in GDP in 2022. The Ministère du Plan et du Développement, (2013) confirmed our research that the human poverty index calculated in 2013 affects 42% of the population of Couffo. In all the districts of Couffo, the human poverty index decreased from 45 % in 2002 to 42 % in 2013 except in the district of Aplahoué. The adoption of SEP principles in agricultural activities likely contributed to a more resilient and robust sector, fostering economic growth and contributing to the overall prosperity of the country. This emphasized the significance of sustainable agricultural practices in driving economic development under the guiding principles of the SEP.

This research indicates that training in the agricultural sector in Benin has led to improvements in food quantity, quality, and dietary diversity. World Food Program USA, Benin (2023) found that Benin, unfortunately, ranks among the world's least affluent nations, with a significant number of children grappling with severe hunger. République du Bénin (2017) found that between 2013 and 2017, there were more households with inadequate consumption including low food quantity, inadequate nutrition and lack of dietary in rural areas than in urban areas or Cotonou. From this scenario, the disparity in household consumption, particularly in terms of low food quantity, inadequate nutrition, and lack of dietary diversity, between rural and urban areas, including Cotonou, could be attributed to various socio-economic factors. Addressing these disparities required comprehensive strategies that consider the unique challenges faced by rural communities. This may include targeted interventions to improve access to resources, promote income-generating activities, enhance educational opportunities, and create awareness about nutrition and healthy dietary practices.

The GBD 2019 Under-5 Mortality Collaborators (2021) found that access to food, nutrition, and water sanitation was crucial for community health and overall well-being, contributing to the improvement of future human capital. Gero's research (2023) supported the findings of the GBD 2019 Under-5 Mortality Collaborators, (2021) and further emphasized that adequate food, nutrition, and water sanitation not only play a vital role in health outcomes but also contribute to enhancing

food security by generating income. This implied that communities with improved access to these essential elements are not only better positioned to address health challenges but also to build economic resilience. The connection between food, nutrition, water sanitation, and income generation underscores the multifaceted benefits of investing in these fundamental aspects of Djakotomey community development.

Republique du Benin (2017) and Mounirou and Lokonon (2022) supported that in 2017, a majority of the population (47.5 %) experienced food security, while 42.9% lived in borderline food security conditions, and 9.6% of the population were food insecure. Gero's (2023) research found throughout the Republic of Benin, including some households in Djakotomey District, participation in off-farm work significantly enhanced consumption frequency and energy availability. Additionally, this participation not only increased food security in terms of accessibility, utilization, and stability but also led to several positive outcomes affecting these dimensions. Training activities under Sustainable Environmental Practices (SEP) as forms of off-farm work often provide additional sources of income for households. This increase in income enhances purchasing power, allowing families to access a wider variety of food items. As a result, there was an increase in consumption frequency, ensuring that households have more regular and diverse meals. With the additional income earned through training activities, households can afford a more diverse range of food items. This contributes to enhanced dietary diversity, ensuring that family members receive a broader spectrum of essential nutrients. This, in turn, positively impacts the utilization dimension of food security by addressing nutritional needs. The extra income generated from training SEP activities employment enables households to overcome financial constraints, making it easier to access food from local markets. Improved food accessibility ensures that families can acquire the necessary food items consistently, reducing the risk of food shortages.

SEP activities diversified income sources, reducing dependency on agriculture alone. This diversification contributes to stability in the household's overall financial situation, making them more resilient to fluctuations in agricultural yields or market conditions. As a result, the stability dimension of food security is positively influenced. Higher income from training activities under SEP allows households to invest in productive assets such as improved agricultural practices, livestock, or small

businesses. These investments contribute to long-term food security by creating sustainable income-generating opportunities. Hossain and Al-Amin (2019) and Owusu, Abdulai, and Abdul-Rahman (2011) confirmed this result and argued that enhanced income from off-farm work activities resulted better household consumption expenditure, facilitating the ability to food variety and improved food quality in nutrition, and dietary in Djakotomey community.

In Djakotomey community, some villagers had microcredit for agricultural production and diversified source of income, for instance in trade activities. They used that credit to improve household meals. Mounirou and Lokonon (2022) argued that microcredit significantly helped improve household consumption and diversify foods. Microcredit played a significant role to enhance household consumption and diversify food in Djakotomey community. This credit allowed borrowers to generate additional income through various, including farming, food processing, livestock management, and trade. The increased income, in turn, improves household purchasing power.

Regarding to health, the study found in Djakotomey that people had better physical and mental health after taken into practice training activities in agricultural sector under SEP by accessing public services. It is important to recognize that economic development, healthcare policies, and governance management play vital role and influence on population health. Zeng and Niu (2023) reported in line with this research and claimed that the inequitable distribution of resources and health services, which has hindered social development and affected the health of the population. The World Bank (2024) reported that in 2022, the Republic of Benin's population grew up with a fertility rate of 5.7 children per woman and a life expectancy of 61.2 years. In 2022 Sustainable Development Report (2022) found that the life expectancy at birth was 63.4 years and improved over time, with the Universal Health Coverage (UHC) index of service coverage. A higher fertility rate contributes to a larger proportion of young people in the population. Efforts to enhance healthcare infrastructure and promote public health initiatives can contribute to further improvements in life expectancy. The Ministère du Plan et du Développement (2013) corroborated the findings of this research, indicating a decline in fertility levels within the Couffo department to an average of 5.4 children per woman in 2013. Between 2002

and 2013, the total fertility index fell by 3.1% through the efforts in the districts of Klouékanmè, Toviklin and Djakotomey. The under-five mortality rate in 2013 was notably high, with 117 out of every 1,000 children dying before reaching the age of five. Similarly, in the Djakotomey district, the under-five mortality rate ranges between 117 and 120 deaths per 1,000 children. The mortality rate was consistently higher in rural areas compared to urban ones, corroborating this research findings.

The findings of study revealed that 54.2% of participants had attended school, including 8.4 % who earned a master degree and 45.8 % who had achieved primary and secondary education levels. Additionally, 45.8 % had received training in vocational training certificate programs. The Federal Republic of Nigeria (2014) and Olawale, Olomukoro, and Oyitso (2022) supported that education and training in vocational certificate were the most viable and indispensable tool for sustainable human development to enhance economic growth, national development and improve overall quality of life. Education and training in vocational certificates served as a pivot for sustainable human development, fostering economic growth, meeting labor market needs, promoting entrepreneurship, and ultimately improving the quality of life for individuals and communities. In 2013, the Ministère du Plan et du Développement (2013) found that 66% of children aged 6-11 were enrolled in school in Couffo. The commune of Dogbo (83%) had the highest net primary school enrollment rate in the department and the rate of Djakotomay is between 66% and 83%. The net secondary school enrollment rate was 36% in Couffo and slightly higher in the Djakotomey district. These findings confirm this research.

The Sustainable Development Report (2022) found that the participation rate in pre-primary organized learning for children aged 4 to 6 was 84.8% in 2018. The net primary enrollment rate stood at 93.3% in 2020, while the lower secondary completion rate was 33.0% in the same year. From this scenario, following the training, villagers recognized the significance of education for their children, leading to a substantial increase in school enrollment rates in Djakotomey District.

### **3.2 Environmental conditions**

The findings of this study revealed that the environmental quality, including soil fertility and forest quality, were improved by using organic fertilizers and compost. These practices reduced agricultural production costs and led to economic



performances. Bonou-zin et al. (2019) supported the findings that training on production costs demonstrated that adopting environmentally-friendly organic practices for cotton production resulted in decreased costs per hectare. The implementation of training activities in agricultural practices resulted in a reduction of agricultural production costs and subsequently contributed to improved economic performance. The sustainable agricultural practices reduced production costs, enhanced productivity, and positively influenced economic performances. These practices not only contribute to the economic well-being of individual farmers but also play a role in fostering sustainable and resilient agricultural systems at the community level. Adanacioglu and Olgun (2012) confirmed that organic cotton had less environmental footprint compared to conventional cotton. Furthermore, Bonou-zin et al. (2019) reported that organic cotton proved more profitable than conventional cotton, highlighting that the lower production costs of organic methods, coupled with a higher selling price of 315 FCFA per kilogram compared to 265 FCFA for conventional cotton, enhanced profitability. The organic farming practices in Djakotomey typically avoided the use of synthetic pesticides, herbicides, and fertilizers, reducing the risk of environmental pollution; crop rotation, cover cropping, and natural pest control methods in organic production contributed to soil health and biodiversity conservation. Moreover, organic farming relies on natural methods to control pests and diseases, reducing the need for synthetic chemicals that may have harmful environmental consequences. This reduction in chemical input contributes to improved water and air quality and minimizes the negative impact on ecosystems. The organic farming often emphasizes soil conservation practices such as the use of organic matter, compost, and green manure. These practices enhance soil structure, water retention, and overall soil health, contributing to long-term sustainability and contributed to economic viability.

The results align with the research conducted by Bonou-zin et al. (2019), Eyhorn, Ramakrishnan, and Mäder (2007), Amarnath and Sridhar (2012, 2016), Lakhal, Sidibé, and H'Mida (2008), and Kavitha, Chandran, and Kavitha (2013), which showed that the organic farming system offers farmers higher incomes compared to conventional methods. In addition to these economic advantages, organic farming doesn't degrade soil or contaminate groundwater with synthetic fertilizers and pesticides. Bonou-zin et al. (2019) and Kavitha, Chandran, and Kavitha (2013) found

that environmental efficiency and organic farming w more technically efficient positively influences the economic performance of production farms in the Republic of Benin.

Adopting environmentally-friendly organic practices requires less investment and results in reduced production costs, consequently improving gross margin and capital productivity. Enhancing producers' knowledge of technologies that reduce CO<sub>2</sub> emissions, along with improving their managerial capacity, could enhance economic performance. Additionally, promoting environmentally-friendly production technologies that lower emission levels and require minimal investment costs should be emphasized.

The works of Bonou-zin, Allali and Fadlaoui (2019) and Bonou-zin et al. (2019) reported that the use of organic fertilizers and animal manure in cotton farming emitted quite lower quantity of greenhouse gases GHGs than conventional farm. The Legatum Prosperity Index™ (2019) reported that Benin ranked 131st out of 167 countries with prosperity scores 45.9 in 2019 which enhanced over time. The same report argued that environmental score in 2009 and 2019 was 35.1 and 43.6 respectively.

The overall quality of life in Djakotomey has shown improvement, considering the impact of training activities under the SEP. Although improvements may not be uniformly observed across the country, the targeted training initiatives in Djakotomey primarily focus on skill development and capacity building. As individuals in Djakotomey acquire new skills, they may experience improved employability, income-generating opportunities, and a sense of empowerment. The emphasis on training in the SEP suggests a commitment to economic empowerment. Improved skills and knowledge can lead to better economic stability for individuals and households in Djakotomey, positively influencing their overall quality of life.

#### **4. Appropriate Guidelines for the Adoption of SEP into Practice in Benin.**

The adoption of the Sufficiency Economy Philosophy (SEP) represented a transformative approach to sustainable development, especially within the socio-economic context of the Republic of Benin. As the Republic of Benin navigates with various socio-economic challenges, the integration of SEP into local practices offers a

promising pathway towards enhanced livelihoods and community development. This introduction explores the appropriate guidelines for the adoption of SEP into practice in the Republic of Benin, emphasizing the key principles, contextual relevance, and the potential impact on the overall quality of life for its residents. Through a nuanced understanding and deliberate implementation of SEP, the Republic of Benin aims to foster a sustainable and resilient future that prioritizes the well-being of its people and the environment.

#### **4.1 Comprehensive Understanding and Adoption of SEP Principles for Sustainable Development**

The implementation of the Sufficiency Economy Philosophy (SEP) in local communities represents a crucial aspect of sustainable development. SEP aligns with the United Nations' Sustainable Development Goals (SDGs), influencing lives globally. Understanding the adoption and application of this philosophy in the agricultural sector in rural areas were crucial for improving farming practices and subsequently enhancing the quality of life for villagers. This study reveals that villagers in Huay Tong have developed a heightened comprehension of SEP, which significantly impacted their overall quality of life. In this scenario, the research by Siriwut and Thankawin (2015) found that the effective utilization of resources, the application of critical thinking, and the active involvement of farmers, extension service, and villagers collectively contribute positively understanding SEP then led to sustainability outcomes. This finding underscores the importance of involving villagers and extension services, applying critical reasoning, and responsibly utilizing resources in implementing SEP for achieving positive sustainability outcomes. This holistic approach reflects a commitment to addressing the complex and interrelated challenges associated with sustainability.

According to Mahakunajirakul and Ruenrom (n. d.), the adoption of moral or value-based leadership was one of the training activities under SEP that Huay Tong Village has successfully implemented. The integration of moral or value-based leadership in the training activities under the SEP in Huay Tong Village reflected a commitment to ethical practices and values that align with the core principles of SEP. This approach contributed to community trust, long-term sustainability, and the overall well-being of the residents. According to research of Feigenblatt, Pardo, and Cooper

(2021), understanding the SEP and gaining insights in Huay Tong Village involved comprehending the principles and applications of SEP within the specific context of this community. This understanding contributed to a holistic view of how SEP shaped decision-making, community development, and overall well-being in Huay Tong Village. In terms of agricultural practices, SEP is often applied in the agricultural sector, focusing on sustainable and moderate farming practices. Understanding the dynamics of Huay Tong Village entails grasping the adaptation and application of SEP principles within the community context. Insights could be gained by observing how Huay Tong villagers incorporated and interpreted SEP principles. In term of agricultural practice SEP was often applied in the agricultural sector, focusing on sustainable and moderate farming practices. Understanding how Huay Tong villagers integrated SEP into its agricultural activities provided insights into how the philosophy influenced crop choices, resource management, and overall agricultural sustainability. Concerning economy, SEP places a strong emphasis on economic resilience. Gaining insights in Huay Tong Village involved understanding how the community builds economic resilience through diversification, risk management, and sustainable economic practices.

Feigenblatt, Cooper, and Pardo (2022) indicated that SEP concentrating on the function of leadership philosophies and ideals. According to TICA (2022), the focus on leadership within SEP is integral to its application and impact. The practice of the SEP centers around gaining a deep understanding of its fundamental principles and implementing them at both individual and community levels. The philosophy promotes a holistic approach to sustainable living, emphasizing the importance of moderation, resilience, and ethical considerations in all endeavors.

Adopting the SEP and engaging in sustainable development involved embracing the core principles of SEP at individual and community levels to foster balanced and resilient practices. Engaging in sustainable development under SEP means making decisions that prioritize ethical considerations, economic stability, and environmental conservation. This holistic approach aims to build resilient, self-reliant, and environmentally conscious communities for long-term well-being. Adopting SEP refers to embracing a moderate and balanced approach to life, economics, and resource utilization, encouraging individuals and communities to be self-sufficient while



avoiding overreliance on external factors, adopting strategies to manage risks and uncertainties effectively. Developing adaptability to changing circumstances and external pressures, making ethical decisions based on moral principles and responsible behavior, promoting inclusive decision-making processes that involve the community members. This approach aligns with the ethos articulated in His Majesty the King's speech:

*“...I ask all of you to aim for moderation and peace, and work to achieve this goal. We do not have to be extremely prosperous...If we can maintain this moderation, then we can be excellent...”*

(His Majesty the King Bhumibol Adulyadej's Statement, 4 December 1974)

The Sufficiency Economy Philosophy (SEP), originating from Thailand, has gained international recognition for its unique approach to sustainable development and well-being. It is essential to understand the principles of SEP and its implications for agricultural practices. The adoption of SEP carries implications across diverse domains, including agriculture, business, governance, and social policy.

Understanding, embracing the principles of the SEP, and actively participating in sustainable development are critical factors for farmers in the Djakotomey community, Republic of Benin, to successfully implement SEP. The following factors also serve as guidelines for the adoption of SEP:

#### **4.2 Vocational and Agricultural Training Emphasizing SEP Principles**

Vocational training activities utilizing the Sufficiency Economy Philosophy (SEP) as principal concepts focus on various aspects of sustainable agriculture, such as organic fertilizer production. This training aimed to equip participants with the knowledge to promote sustainable farming practices. By emphasizing the principles of SEP, participants learned how to produce organic fertilizers using available materials and sustainable methods. This approach not only reduced reliance on chemical fertilizers but also minimizes environmental impact and promotes soil health. Additionally, vocational training in agricultural practices under SEP encourages participants to adopt holistic approaches that consider economic,

social, and environmental factors, leading to more resilient and sustainable agricultural systems.

### **4.3 Promotion of Knowledge Sharing and Community Empowerment**

Knowledge sharing was essential for addressing various socio-economic challenges, including food security, poverty reduction, and community empowerment. When individuals or groups shared knowledge and experiences with others, it enabled them to learn from each other's successes and failures, leading to the development of more effective strategies. Regarding food security, the sharing knowledge in agricultural practices, and techniques, among farmers enhanced productivity, increased crop yields, and ensured a stable food supply. Farmers learned about innovative farming methods, climate-resilient crops, and effective pest management strategies from their neighbors, contributing to improve food security for the community. Additionally, knowledge sharing fostered collaboration and cooperation among community members, leading to collective action and positive change. By exchanging ideas, resources, and expertise, communities worked together to address common challenges, implement development projects, and advocate for their needs **effectively**.

### **4.4 Development of Financial Management Skills for Stability**

In the context of applying the Sufficiency Economy Philosophy (SEP) in Huay Tong Village, financial management and savings groups played a crucial role in promoting economic sustainability and resilience within the community. Savings groups were formed by community members in Huay Tong Village to pool their financial resources and collectively saved money. These groups operated based on mutual trust and cooperation, with members contributing regular savings. Savings groups provide a mean for community members to access credit and invested in income-generating activities leading to sustainable livelihoods, reducing poverty, and improving villagers' quality of life.

#### **4.5 Establishment of Partnerships between Government and Community Entities**

Partnerships between government and community entities are essential in implementing the Sufficiency Economy Philosophy (SEP) within agricultural practices. These collaborations involve government agencies, local communities, and farmers working together to promote sustainable agriculture, enhance food security, and improve rural livelihoods. Such partnerships are crucial for supporting SEP-based agricultural initiatives. So, successfully agriculture practices under royal project development, villagers got technical, financial, and material support to improve household livelihoods and food security.

By embracing these factors and aligning their agricultural practices with the principles of SEP, farmers in Djakotomey District can create a foundation for sustainable development that improved their livelihoods and contributed to the overall well-being of the community.

#### **Recommendations**

Drawing from the successful application of the Sufficiency Economy Philosophy (SEP) in Thailand, which significantly improved the quality of life (QoL) perceptions among farmers, this section proposes a series of strategic components critical for replicating such success. The stakeholders involved range from individual farmers to public offices, including the Royal Project, non-governmental organizations (NGOs), community leaders, and cooperatives.

At the individual or farmer level, the recommendations emphasize the need for farmers to continuously improve their agricultural methods under SEP to enhance their quality of life. It is crucial to advocate for moderation in the use of resources among farmers in Benin to ensure environmental sustainability and economic viability, which includes reducing food waste. Farmers should be encouraged to make reasoned decisions that consider local environmental factors and to adopt prudent planning and risk management strategies, such as crop diversification and the implementation of climate-resilient farming practices. Recognizing and celebrating farmers who successfully implement SEP can serve as an inspirational model for others in the

community. Additionally, fostering patience and perseverance, especially among new participants in SEP training, is essential for long-term success.

At the local authority or community level, enhancing quality of life through SEP should be supported by providing comprehensive training, ensuring financial stability, developing effective marketing strategies, facilitating research, supplying essential materials for agricultural activities, and cultivating strong leadership and commitment among community members.

On the national and international scale, the establishment of dedicated agencies at both national and community levels is recommended to facilitate the widespread adoption of SEP. Integrating SEP principles into Benin's national development strategy will align local actions with broader economic and environmental objectives. Advocacy for the appointment of expert representatives by TICA at the national leadership level will help extend the reach and effectiveness of SEP implementation across the country. Moreover, promoting the development and utilization of water reservoirs for farming irrigation is advised to support sustainable agricultural practices.

By adopting these integrated and comprehensive approaches, the implementation of SEP can be optimized across different levels, from individual practitioners to national policy, thereby enhancing the sustainability and overall well-being of agricultural communities.

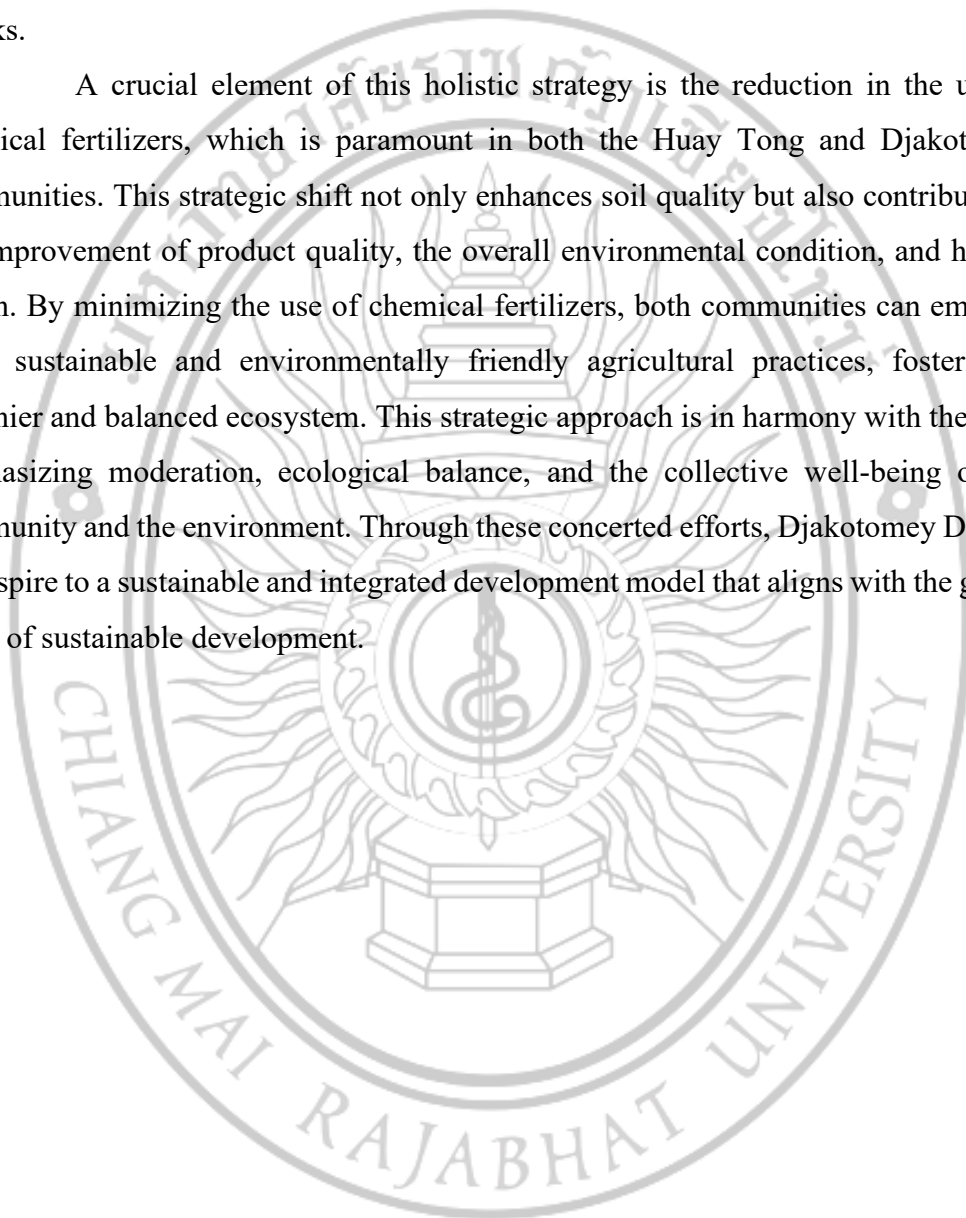
## **Conclusion**

Improving the Quality of Life (QoL) in the Republic of Benin through the adoption of Sufficiency Economy Philosophy (SEP) activities in the Djakotomey community necessitates careful consideration of the key successful factors that contributed to the implementation success observed in the Huay Tong community. These include the active engagement of farmers, robust support from extension services, effective leadership from community leaders, and the strategic use of social capital through community cooperatives. In both Huay Tong and Djakotomey communities, a thorough understanding of the core principles of SEP is crucial. This includes moderation, reasonability, and resilience, which guide decision-making and sustainable practices in various aspects of life, agriculture, and community



development. SEP emphasizes a holistic approach that considers economic, social, and environmental dimensions. Djakotomey District should adopt a similar holistic perspective, addressing not only economic challenges but also social well-being and environmental sustainability for comprehensive improvement in perception of QoL through capacity building and education, ethical decision-making, resilience to external shocks.

A crucial element of this holistic strategy is the reduction in the use of chemical fertilizers, which is paramount in both the Huay Tong and Djakotomey communities. This strategic shift not only enhances soil quality but also contributes to the improvement of product quality, the overall environmental condition, and human health. By minimizing the use of chemical fertilizers, both communities can embrace more sustainable and environmentally friendly agricultural practices, fostering a healthier and balanced ecosystem. This strategic approach is in harmony with the SEP, emphasizing moderation, ecological balance, and the collective well-being of the community and the environment. Through these concerted efforts, Djakotomey District can aspire to a sustainable and integrated development model that aligns with the global goals of sustainable development.



## Bibliography

- Abrahams, G. (2014). What “is” territorial cohesion? what does it “do”? essentialist versus pragmatic approaches to using concepts. *European Planning Studies*, 22(10), 2134–2155.
- Abrahams, G. (2017). Constructing definitions of sustainable development. *Smart and Sustainable Built Environment*, 6(1), 34-47.
- Adanacioglu, H., and Olgun, A. (2012). Evaluation of the efficiency of organic cotton farmers: A case study from Turkey. *Bulgarian Journal of Agricultural Science*, 18(3), 418-428.
- Adjimoti, G. O. and Kwadzo, G. T. M. (2018). Crop diversification and household food security status: evidence from rural Benin. *Agriculture and Food Security*, 7(82), 1-12
- Adohounde Y. S., and Agonnoude B. V. F. (2020). The evolution of beninese political system, C. 1960-2020. *Journal of Politics and Law*, 13(4), 164-168.
- Agard, A., and Roberts, R. (2020). a reenvisioned agricultural system in Thailand: The growth in human capital experienced by agriculturalists after adoption of the sufficiency economic philosophy. *Advancements in Agricultural Development*, 1(3), 14-26.
- Ali, S., H., Giurco, D., Arndt, N., Edmind, N., Brown, G., Demetriades, A., Durrheim E., Eriquez, M., A., Kinnard, J., Littleboy, A., Meinert, L., D., Oberhänsli, R., Salem, J., Schodde R., Schneider G., Vidal, O., and Yakovleva, N. (2017). Mineral supply for sustainable development requires resource governance. *Newcastle University ePrints. Nature*, 543(7645), 367-372
- Al-Kurdi, O., El-Haddadeh, R, and Eldabi, T. (2018). Knowledge sharing in higher education institutions: A systematic review. *Journal of Enterprise Information Management*, 31(2), 226-246
- Amarnath, S. and Sridhar, V. (2012, 2016). An economic analysis of organic farming in Tamil Nadu, India. *Bangladesh Journal of Agricultural Economics*, 35(1/2), 25-40.

- Amoussou, E., Vodounon, S., H., T., Hougni, A., Vissin, E. W., Houndenou, C., Mahe, G., and Boko, M. (2016). Environmental change and ecosystems vulnerability on benin catchment of the river Niger. *International Journal of Biological and Chemical Sciences*, 10(5), 2183-2201. <https://doi.org/10.4314/ijbcs.v10i5.20>
- Ankit Jain (2015). *What is sustainable development? Definition and example*. <http://www.7continents5oceans.com/what-is-sustainabledevelopment-definition-and-examples>
- Arevart, S. (2018). Administrative management challenges of the teachers' life development project, under the office of the welfare promotion commission for teachers and educational personnel in line with the philosophy of sufficiency economy. *Journal of Yala Rajabhat University*, 14(2), 167- 179.
- Assogba, S., C., Akpinfa, E., Gouwakinnou, G., and Stiem, L. (2017). La gestion durable des terres: Analyse d'expériences de projets de développement agricole au Bénin. *Institute for Advanced Sustainability Studies (IASS)*. [https://publications.rifs-potsdam.de/rest/items/item\\_2359907\\_8/component/file\\_2359908/content](https://publications.rifs-potsdam.de/rest/items/item_2359907_8/component/file_2359908/content)
- Atihou, I. P. (2018). Declining democratic processes in Benin republic: implication for african security. *African Renaissance*, 15(3). <https://journals.co.za/doi/epdf/10.10520/EJC-12b76de543>
- Bartlett, A. G. (2021). Exploring transformational outcomes from donor investments in agroforestry research for development. *Agroforest System*, 95, 1383-1394. <https://link.springer.com/article/10.1007/s10457-020-00516-3>
- Barua, P., and Tejavivaddhana, P. (2019). Impact of application of sufficiency economy philosophy on the well - being of Thai population: A systematic review and meta-analysis of relevant studies. *Journal of Population and Social Studies*, 27(3), 195 – 219.
- Bastan, M., Khorshid-Doust, R., R., Sisi, S. D., and Ahmadvand, A. (2017). Sustainable development of agriculture: A system dynamics model. *Kybernetes*, 47(1), 142-162.
- Beslerová, S., and Dzuričková, J. (2014). Quality of life measurements in EU countries. *Procedia Economics and Finance*, 12, 37 – 47

- Biao, I. (2015). Lifelong learning as an instrument for human capital development in Benin. *International Review of Education*, 61, 631–653.
- Boman, L. (2022). Emerson's 'self-reliance' and political self-education. *Journal of Philosophy of Education*, 56(6), 878-888. <https://doi.org/10.1111/1467-9752.12627>
- Bonou-zin, R. D. C., Allali, K. and Fadlaoui, A. (2019). Environmental efficiency of organic and conventional cotton in Benin. *Sustainability*, 11(11), 1-17. <https://www.mdpi.com/2071-1050/11/11/3044>
- Bonou-zin, R., D., C., Allali, K., Fadlaoui, A. and Yabi, J. A. (2019). Environmental efficiency and economic performance of cotton production in Benin: What relationship?. *Journal of Agriculture and Environmental Sciences*, 8(1), 161-175
- Briamonte, L., Pergamo, R., Arru, B., Furesi, R., Pulina, P., and Madau, F. A. (2021). Sustainability goals and firm behaviours: A multi-criteria approach on Italian agro-food sector. *Sustainability*, 13, 5589.
- Budhtranon, W., Chianchana, C., and Kamkhuntod, S. (2021). Developing a conceptual framework of instructional model for creating an innovative business project: Applying the sufficiency economy philosophy for private vocational colleges in Thailand. *Journal of Technical Education and Training*, 4, 15-27.
- Castañeda, L. and Selwyn, N. (2018). More than tools? Making sense of the ongoing digitizations of higher education. *International Journal of Educational Technology in Higher Education*. [https://www.researchgate.net/publication/325129206\\_More\\_than\\_tools\\_Making\\_sense\\_of\\_the\\_ongoing\\_digitizations\\_of\\_higher\\_education](https://www.researchgate.net/publication/325129206_More_than_tools_Making_sense_of_the_ongoing_digitizations_of_higher_education)
- Chaiphar, V., Sakolnakorn, T. P. N., and Naipinit, A. (2013). Local wisdom in the environmental management of a community: Analysis of local knowledge in Tha Pong village, Thailand. *Journal of Sustainable Development*, 6(8), 16-25.
- Chapagain, T., and Raizada, M. N. (2017). Impacts of natural disasters on smallholder farmers: gaps and recommendations. *Agriculture and Food Security*, 6(39), 1-16. <https://doi.org/10.1186/s40066-017-0116-6>.



- Choochom, O. (2015). A causal relationship of living behavior based on sufficiency economy philosophy for thai university students. *Procedia - Social and Behavioral Sciences*, 177, 260-264.
- Dafia, C., S., N., Chen, F. and Sumo, P. D. (2022). Guideline and strategies of textile industry on the sustainable development of Benin. *Sustainability Journal*, 14(19). <https://www.mdpi.com/2071-1050/14/19/12762>
- Dayou, E., D., Zokpodo, B., K., L., Montcho, M., Ajav, E., A., Bamgboye, I. A. and Glèlè-Kakaï, R. L. (2020). Current agricultural and environmental policies in benin republic. *Journal of Sustainable Agriculture Research*, 9(2), 86-100.
- Department of Community Development. (2021). *New theory of his majesty King Rama IX applied to "Khok Nong Na Model"*. Department of community development ministry of the interior.
- Department of Pollution Control. (2015). "Green public procurement in Thailand." *International symposium "Current status of Green Public Procurement and Ecolabeling in the World"*, Tokyo Japan. <https://dokumen.tips/documents/green-public-procurement-in-thailand-symposium-current.html?page=2>
- Chen, D., Saduak, W., Kraisuk, P. and Kim, H. (2023). Students' opinions about living agricultural learning center. *Journal for the Agriculture, Biotechnolog and Education*, 3(1), 11-19
- Djakotomey Commune Administration Organization (2023). <https://fr.wikipedia.org/wiki/Djakotomey>
- Djakotomey Geography. (2024). <https://en.db-city.com/Benin--Kouffo--Djakotomey#geo>
- Dou, Y., Li, Y., Li, M., Chen, X., and Zhao, X. (2023). The role of agroforestry in poverty alleviation: A case study from Nujiang Prefecture, southwestern China. *Journal Sustainability*, 15(1-20). <https://www.mdpi.com/2071-1050/15/15/12090>
- Duran, D., C., Gogana, L. M., Artene, A. And Duran, V. (2015). The components of sustainable development: A possible approach. *Procedia Economics and Finance*, 26, 806 – 811.

- Ekber, T., and Gökhan, P. (2013). The effects of socioeconomic characteristics of students on their academic achievement in higher education. *American Journal of Educational Research*, 1(10), 449-455.
- Eyhorn, F., Ramakrishnan, M., and Mader, P. (2007). The viability of cotton-based organic farming systems in India. *International Journal of Agricultural Sustainability*, 5(1), 25–38.
- Fadina, A. M. R. and Barjolle, D. (2018). Farmers' adaptation strategies to climate change and their implications in the Zou department of south Benin. *Journal of Environments*, 5(1), 1-17. <https://www.mdpi.com/2076-3298/5/1/15>
- Fayomi, O. O. and Adebayo, G. T. (2017). Political participation and political citizenship. *Department of Political Science and International Relations, Covenant University, Ota, Ogun State, Nigeria*. [https://www.researchgate.net/publication/323540493\\_Political\\_participation\\_and\\_political\\_citizenship](https://www.researchgate.net/publication/323540493_Political_participation_and_political_citizenship)
- Federal Republic of Nigeria. (2014). National agency for the control of aids (NACA). *Global Aids Response Country Progress Report (GARPR)*. [https://www.unaids.org/sites/default/files/country/documents/NGA\\_narrative\\_report\\_2014.pdf](https://www.unaids.org/sites/default/files/country/documents/NGA_narrative_report_2014.pdf)
- Feigenblatt, O. F. v., Pardo, P., and Cooper, M. (2021). Sufficiency economy philosophy (sep): Thailand's emic approach to governance and development as evidence of an asian-value oriented inclusive leadership management philosophy. *Journal of Asia Pacific Studies*, 6(2), 289-300
- Feigenblatt, O. F. v., Cooper, M., and Pardo, P. (2022). Sufficiency economy philosophy (sep): Thailand's emic approach to governance and development as evidence of an Asian value-oriented inclusive leadership management philosophy. *Strategic Analysis*, 46(4), 430-440
- Food and Agriculture Organization of the United Nations (FAO), International Fund for Agricultural Development (IFAD), United Nations International Children's Emergency Fund (UNICEF), United Nations World Food Programme (WFP) and World Health Organization (WHO). (2023). *The state of the world series of the food and agriculture organization of the United Nations, Rome*. Urbanization, agrifood systems transformation and healthy diets across the rural–urban continuum. [https://www.ifad.org/documents/38714170/47750584/sofi\\_full\\_2023.pdf/6029e0dc-91fc-00b1-439f-516a3f3098a?t=1689667044186](https://www.ifad.org/documents/38714170/47750584/sofi_full_2023.pdf/6029e0dc-91fc-00b1-439f-516a3f3098a?t=1689667044186)

- Food and Agriculture Organization of the United Nations (FAO), International Fund for Agricultural Development (IFAD), United Nations Children's Fund (UNICEF), United Nations World Food Programme (WFP) and World Health Organization (WHO). (2018). *The state of the world series of the food and agriculture organization of the United Nations, Rome*. Building climate resilience for food security. <https://www.wfp.org/publications/2018-state-food-security-and-nutrition-world-sofi-report>
- Food and Agriculture Organization of the United Nations (FAO). (2014). *Building a common vision for sustainable food and agriculture. Principles and approaches*. <https://www.fao.org/3/i3940e/i3940e.pdf>
- Food and Agriculture Organization of the United Nations (FAO). (2018). *Transforming food and agriculture to achieve the SDGs: 20 Interconnected actions to guide decision-makers*. <http://www.fao.org/3/I9900EN/i9900en.pdf>
- Food and Agriculture Organization of the United Nations (FAO). (2023). *Towards a more sustainable supply and use of evidence in agricultural policy in Benin*. FAO Agricultural Development Economics. Policy Brief. <https://www.fao.org/agrifood-economics/publications/detail/en/c/1632344/>
- Food and Agriculture Organization of the United Nations (FAO). (2023). *Agroforestry and soil association*. <https://www.fao.org/forestry/agroforestry/90010/en/>
- Franks, D., M., Davis, R., Bebbington, A., J., Ali, S., H., Kemp, D., and Scurrah, M. (2014). Conflict translates environmental and social risk into business costs. *Proceedings of the National Academy of Sciences of the United States of America*, 111(21), 7576–7581.
- García de Velazco, J. J. H., Jaimes, E. C. and Hernández, A. C. C. (2021). Political culture and citizen participation: transiting from political space. *Journal of Social, Technological and Environmental Science*. [https://www.researchgate.net/publication/349960900\\_Political\\_Culture\\_and\\_Citizen\\_Participation\\_Transiting\\_From\\_Political\\_Space](https://www.researchgate.net/publication/349960900_Political_Culture_and_Citizen_Participation_Transiting_From_Political_Space)

- Gaspar, V., Amaglobeli, D., Garcia-Escribano, M., Prady, D. and Soto, M. (2019). *International monetary fund staff discussion note. fiscal policy and development: Human, social, and physical investment for the SDGs*. IMF eLibrary. <https://www.elibrary.imf.org/view/journals/006/2019/003/article-A001-en.xml>
- GBD 2019 Under-5 Mortality Collaborators. (2021). Global, regional, and national progress towards sustainable development goal 3.2 for neonatal and child health: All-cause and cause-specific mortality findings from the global burden of disease study 2019. *Lancet*, 398, 870–905. <https://www.healthdata.org/gbd/2019>
- Gebsba, M., Grontkowska, A., Swiderek, W., and Golebiewska, B. (2020). Farmer awareness and implementation of sustainable agriculture practices in different types of farms in Poland. *Sustainability*, 12(19), 8022. <https://doi.org/10.3390/su12198022>
- Gero, A. A. (2023). A new insight impact of off-farm work on food security of smallholders: Evidence of heterogeneous effects from Benin. *Journal of Social and Economic Development*. <https://doi.org/10.1007/s40847-023-00289-2>
- Gheitarani, N., El-Sayed, S., Cloutier, S., Budruk, M., Gibbons, L., and Khanian, M. (2019). Investigating the mechanism of place and community impact on quality of life of rural-urban migrants. *International Journal of Community Well-Being*, 3, 21–38.
- Gil, J., D., B., Reidsma, P., Giller, K., Todman, L., Whitmore, A., and Ittersum, M. (2018). Sustainable development goal 2: Improved targets and indicators for agriculture and food security. *Kungl Vetenskaps Akademien: The Royal Swedish Academy of Sciences*, 48(685–698). <https://doi.org/10.1007/s13280-018-1101-4>
- Glanz, J., Shulman, V., Sullivan, S. (2007). Impact of instructional supervision on student achievement: can we make the connection?. In *The Annual Conference of the American Educational Research Association (AERA)*, Chicago. <https://files.eric.ed.gov/fulltext/ED496124.pdf>
- Global Agriculture Information Network (GAIN) Report (2014). *USDA foreign agricultural services*. Benin, Agricultural situation 3/20/2014. Russ Nicely, Regional Agricultural Counselor



- Gorgoglione, A., Bombardelli, F., Pitton, B., Oki, L., Haver, D., Young, T. (2018). Role of sediments in insecticide run off from urban surfaces: analysis and modeling. *International Journal of Environmental Research and Public Health*, 15(7), 1-15. <https://doi.org/10.3390/ijerph15071464>
- Greyling, T., and Tregenna, F. (2016). Construction and analysis of a composite quality of life index for a region of south Africa. *Social Indicators Research*, 131, 887–930.
- Hafner, A. J., Keyes, J. E. and Keyes C. F. (2024). *Geography and travel, kingdom of Thailand*. <https://www.britannica.com/place/Thailand>
- Hajduová, Z., Andrejovský, P., and Beslerová, S. (2014). Development of quality of life economic indicators with regard to the environment. *Procedia - Social and Behavioral Sciences*, 110, 747 – 754.
- Hamadani, H., Rashid, S., M., Parrah, J., Khan, A., Dar, K., A., Ganie, A., Gazal, A., Dar, R. A. and Ali, A. (2021). Traditional farming practices and its consequences. *Microbiota and Biofertilizers*, 2, 119-128. [https://www.researchgate.net/publication/350533378\\_Traditional\\_Farming\\_Practices\\_and\\_Its\\_Consequences](https://www.researchgate.net/publication/350533378_Traditional_Farming_Practices_and_Its_Consequences)
- Hameed, M., A., Counsell, S. and Swift, S. (2012). A conceptual model for the 204 processes of IT innovation adoption in organizations. *Journal of Engineering and Technology Management*, 29(3), 358–390.
- Heffernan, W. D. (2019). *Structure of agriculture and quality of life in rural communities*. Rural Society in the Us.
- Herforth, A. and Ballard, T. J. (2016). Nutrition indicators in agriculture projects: Current measurement, priorities, and gaps. *Global Food Security*, 10, 1–10
- Ho, L., Alonso, A., Forio, M. A. E., Vanclooster, M., and Goethals P. L. M. (2020). Water research in support of the sustainable development goal 6: A case study in Belgium. *Journal of Cleaner Production*, 277. <https://doi.org/10.1016/j.jclepro.2020.124082>
- Hossain M., J., Al-Amin, A. K. M. A. 2019. Non-farm income and consumption expenditures in rural bangladesh: Empirical evidence from multilevel regression modelling. *Journal of Quant. Econ.*17, 377–396. <https://doi.org/10.1007/s40953-018-0134-7>

- Human Development Report. (2021/2022). *Uncertain times, unsettled lives shaping our future in a transforming world*. [https://hdr.undp.org/system/files/documents/global-report-document/hdr2021-22pdf\\_1.pdf](https://hdr.undp.org/system/files/documents/global-report-document/hdr2021-22pdf_1.pdf)
- Ighodaro, V. O. and Ajayi, M. A. (2019). Impact assessment of the quality of life of the people of Oyo and Benin towns: A provisional improvement. *Journal of Humanities and Social Sciences Studies (JHSSS)*, 1(4), 169-180.
- Imasuen, O. I., and Omorogieva, O. M. (2015). Waste management as a practical approach to sustainable development: A case study of the university of Benin, faculty of physical sciences. *Journal of Applied Sciences and Environmental Management*, 19(3), 487-493.
- Imeokparia, P.O. and Ediagbonya, K. (2015). Quality assurance in entrepreneurial studies in college of education, Ekiadolor, Benin city. *European Journal of Educational Studies*, 5(2), 293-301,
- International Institute for Sustainable Development (IISD). (2017). *The political and economic context of coal mining in South Wales*. <https://www.jstor.org/stable/resrep14778.13>
- International Monetary Fund (IMF). (2019). 'IMF executive board concludes 2019 article iv consultation with Benin'. <https://www.imf.org/en/News/Articles/2019/06/24/pr19231-benin-imf-executive-boardconcludes-2019-article-iv-consultation>.
- International Fund for Agricultural Development (IFAD)-Benin. (n. d). *Investing in rural people*. <https://www.ifad.org/en/web/operations/w/country/benin>
- Institute National of Statistics and Analysis Economic (INSAE) Benin. (2015). *RGPH4: What to retain for population size in 2013?*. <https://searchworks.stanford.edu/view/11836908>
- Institut National de la Statistique et de l'Analyse Economique (INSAE) (2016). *principaux indicateurs socio demographiques et economiques (RGPH-4, 2013)*. République du Benin, Ministere du Plan et du Developpement.
- Institut National de la Statistique et de la Démographie (INStAD). (2022). *Enquête par grappes à indicateurs multiples (MICS) 2021-2022*. Bénin: INStAD. <https://instad.bj/actualites/530-rapport-de-l-analyse-de-l-enquete-mics-benin-2021-2022>

- Isarangkun, C., and Pootrakool, K (n. d.). *Sustainable Economic Development through the Sufficiency Economy Philosophy*. [https://d1wqtxts1xzle7.cloudfront.net/9909148/sustainable\\_economic\\_development-libre.pdf?1390857479=&response-content-disposition=inline%3B+filename%3DSustainable\\_economic\\_development\\_through.pdf&Expires=1718849234&Signature=M-CUx11nuAxckZRRa8z2b4ux1dXIrmEoPU9rqinmmMIDjRaNcYEGutSvxRODMfTg0vn50c8PcVKkc0lmUngNj1Cg866U72b6hVx2xkJ9N8uy06gTkfsvzCDPUrGcvGTwUYObgnud93HZwfjY3rydSBUhaoDaGrKF8-OnthRqb~KLCBpg9rPpD5dkydF~Kp8lDzirJXY37ThJngOcqUTaQRw30C960puRm4w9wkX-r37Ym7JBVc~66btvwM76nWqJrOe2ApCJY09174ikVXeFyvbdNTfj95DI2Fs5jEqAy9ye7H5EWwOcwVvphczEb5W~MzNDmZdUfws p169Fq62k6A\\_\\_&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA](https://d1wqtxts1xzle7.cloudfront.net/9909148/sustainable_economic_development-libre.pdf?1390857479=&response-content-disposition=inline%3B+filename%3DSustainable_economic_development_through.pdf&Expires=1718849234&Signature=M-CUx11nuAxckZRRa8z2b4ux1dXIrmEoPU9rqinmmMIDjRaNcYEGutSvxRODMfTg0vn50c8PcVKkc0lmUngNj1Cg866U72b6hVx2xkJ9N8uy06gTkfsvzCDPUrGcvGTwUYObgnud93HZwfjY3rydSBUhaoDaGrKF8-OnthRqb~KLCBpg9rPpD5dkydF~Kp8lDzirJXY37ThJngOcqUTaQRw30C960puRm4w9wkX-r37Ym7JBVc~66btvwM76nWqJrOe2ApCJY09174ikVXeFyvbdNTfj95DI2Fs5jEqAy9ye7H5EWwOcwVvphczEb5W~MzNDmZdUfws p169Fq62k6A__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA)
- Ivascu, L., Cirjaliu, B., and Draghici, A. (2015). Business model for the university-industry collaboration in open innovation. *Procedia Economics and Finance*, 39, 674 – 678.
- Janmaimool, P. and Denpaiboon, C. (2016). Rural villagers' quality of life improvement by economic self-reliance practices and trust in the philosophy of sufficiency economy. *Journal Societies*, 6(26), 1-20.
- Jedaman, P., Srichaiwong, P., Singhatap, C., Janthsung, S., Phuyiamchit, N., Jongmuanwai, B., Kenaphoom, S. and Niyomves, B. (2020). Dimension of sufficiency economy issue to development a driven of sustainable community careers- path. *PalArch's Journal of Archaeology of Egypt / Egyptology PJAE*, 17(9), 3750- 3766.
- Jeerat, P., Kruekum, P., Sakkatat, P., Rungkawat, N., and Fongmul, S. (2022). Developing a model for building farmers' beliefs in the sufficiency economy philosophy to accommodate sustainable agricultural practices in the highlands of Chiang Mai province, Thailand. *Journal Sustainability*, 15, 511.
- Jenjarrussakul, B. and Senasu, K. (2022). Public administration based on the sufficiency economy philosophy. *Kasetsart Journal of Social Sciences*, 43, 131–138.

- Jenjarrussakul, B. and Senasu, K. (2022). Roadmaps for developing thai public agencies towards the inspiration level of the sufficiency economy philosophy. *NIDA Development Journal*, 61(2), 18-55
- John, S. (n. d). *World agroforestry centre. agroforestry: A development-bank perspective*. [https://apps.worldagroforestry.org/Units/Library/Books/Book%2007/agroforestry%20a%20decade%20of%20development/html/2\\_agroforestry.htm?n=12](https://apps.worldagroforestry.org/Units/Library/Books/Book%2007/agroforestry%20a%20decade%20of%20development/html/2_agroforestry.htm?n=12)
- Kamruzzaman, P. and White, S. C. (2018). *Empowerment and community participation*. [https://www.researchgate.net/publication/327458290\\_Empowerment\\_and\\_Community\\_Participation](https://www.researchgate.net/publication/327458290_Empowerment_and_Community_Participation)
- Kansuntisukmongkol, K. (2017). Philosophy of sufficiency economy for community-based adaptation to climate change: Lessons learned from Thai case studies. *Kasetsart Journal of Social Sciences*, 38(1), 56-61.
- Kansuntisukmongkol, M. and Thongpakde, N. (2017). Sufficiency economy philosophy: A holistic approach to economic development and mainstream economic thought. *Asian Social Science*, 12(7), 136-142.
- Kavitha, V., Chandran, K. and Kavitha, B. 2013. Economic analysis of organic and bt farming of cotton in erode district of Tamil Nadu. *Global Journal of Bio-Science and Biotechnology*, 2(3), 313-316.
- Ke, S. O. (n. d). *A review on the best practices of agricultural extension services: A comparative review of agricultural advisory services between Cambodia, Thailand and Vietnam*. [https://scholar.google.com/scholar?hl=en&as\\_sdt=0%2C5&q=A+review+on+the+best+practices+of+agricultural+extension+services%3A+A+comparative+review+of+agricultural+advisory+services+between+Cambodia%2C+Thailand+and+Vietnam&btnG=](https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=A+review+on+the+best+practices+of+agricultural+extension+services%3A+A+comparative+review+of+agricultural+advisory+services+between+Cambodia%2C+Thailand+and+Vietnam&btnG=)
- Khambule, I. (2021). Decentralisation or Deconcentration: The case of regional and local economic development in south Africa. *Journal of Local Economy*, 36(1), 22-41.
- Khaokhrueamuang, K. (2017). Agricultural heritage systems of orchard based on the concept of satoyama and sufficiency economy: Green tourism perspectives for Japan and Thailand. *Journal of Thai Interdisciplinary Research*, 12(3), 38 – 49.



- Khaokhrueamuang, A. (2014). Sufficiency economy agritourism: globalizing Thai food in the urban fringe. *International Journal of Economic and Social Sustainability*, 1, 3-21.
- Khongswasdi, J. (2022). Community forests as intangible cultural heritage and the community forest act of 2019. *Journal of the Siam Society*, 110, 69–86
- Kohnert, D. and Preuss, H-J. (2019). *Benin's stealthy democracide: How africa's model democracy kills itself bit by bit*. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3481325](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3481325)
- Korphaibool, V., Chatjuthamard, P., and Treepongkaruna, S. (2021). Scoring sufficiency economy philosophy through gri standards and firm risk: A case study of Thai listed companies. *Journal Sustainability*, 13, 1-19.
- Krisada, S., and Piyadhida, S. (2019). Financial stability savings patterns to manage household debt for digital economy of local Thailand. In *The 2019 International Academic Multi disciplines Research Conference in Brussels*. <http://icbts.proceeding.ssru.ac.th/index.php/ICBTSBELGIUM/article/view/229/224>
- Kraus, G. and Diekmann, R. (2017). Impact of fishing activities on marine life. *Handbook on Marine Environment Protection* (pp. 79-96). [https://link.springer.com/chapter/10.1007/978-3-319-60156-4\\_4](https://link.springer.com/chapter/10.1007/978-3-319-60156-4_4)
- Kulachai, W. (2023). Local government in Thailand: A way forward. *Cogent Social Sciences*, 9. <https://doi.org/10.1080/23311886.2023.2268972>
- Kulkanya, N. (2011). Management model and network development of community enterprise in Samutsongkram Province, Thailand. *International Journal of Arts and Sciences*, 4(9), 343-352
- Kuwornu, J. K. M. (2017). Chained to sustainable development goals? Changing role of entities for enhanced resilience along agriculture food value chains in Thailand. In *The 9th ASAE International Conference: Transformation in agricultural and food economy in Asia, Bangkok, Thailand*. (pp. 1207-1235). <https://ageconsearch.umn.edu/record/284866/>

- Laasch, O. and Conaway, R. (2015). *Principles of responsible management: Glocal Sustainability, Responsibility, Ethics*. [https://www.researchgate.net/publication/327100670\\_Principles\\_of\\_Responsible\\_Management\\_Glocal\\_Sustainability\\_Responsibility\\_Ethics/link/5b782440a6fdcc5f8b51c985/download?\\_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6InNpZ251cCI6InBhZ2UiOiJwdWJsaWNhdGlvbiJ9fQ](https://www.researchgate.net/publication/327100670_Principles_of_Responsible_Management_Glocal_Sustainability_Responsibility_Ethics/link/5b782440a6fdcc5f8b51c985/download?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6InNpZ251cCI6InBhZ2UiOiJwdWJsaWNhdGlvbiJ9fQ)
- Lakhal, S. Y., Sidibé, H., and H'Mida, S. (2008). Comparing conventional and certified organic cotton supply chains: The case of Mali. *International Journal Agricultural Resources, Governance and Ecology*, 7(3), 243-255.
- Legatum Prosperity Index™. (2019). [https://docs.prosperity.com/8415/7407/3145/Benin\\_2019\\_Plcountryprofile.pdf](https://docs.prosperity.com/8415/7407/3145/Benin_2019_Plcountryprofile.pdf)
- Leitch, M. A and Bohensky, L. E. (2014). Return to 'a new normal': Discourses of resilience to natural disasters in Australian newspapers 2006–2010. *Global Environmental Change*, 26, 14-26
- Liao, X., Nguyen, T. P. L., and Sasaki, N. (2022). Use of the knowledge, attitude, and practice (KAP) model to examine sustainable agriculture in Thailand. *Regional Sustainability*, 3, 41–52.
- Grob, L. (2018). *Assessing the Impact of Governance Programmes: GIZ Support to Citizen Participation in Local Governance in Benin*. German Institute of Development and Sustainability (IDOS). <https://www.econstor.eu/bitstream/10419/199536/1/die-dp-2018-16.pdf>
- Litvinenko, V., Bowbrick, I., Naumov, I., and Zaitseva, Z. (2022). Global guidelines and requirements for professional competencies of natural resource extraction engineers: Implications for ESG principles and sustainable development goals. *Journal of Cleaner Production*, 338, 1-9
- Liyavanich, C., and Amrit, D. (2018). *Land applications according to the king's science: Architecture and landscape architecture, office of engineering for land development*. Department of Land Development.

- Liu, L., Johnson, H., L., Cousens, S., Perin, J., Scott, S., Lawn, J., E., Rudan, I., Campbell, H., Cibulskis, R., Li, M., Mathers, C. and Black, R. E. (2012). Global, regional, and national causes of child mortality: An updated systematic analysis for 2010 with time trends since 2000. *The Lancet*, 379(9832), 2151-2161.
- Macrotrends. (2024). *Benin GDP 1960-2024*. <https://www.macrotrends.net/countries/BEN/benin/gdp-gross-domestic-product>
- Mae Win Subdistrict Administration Organization. (2022). *History and information of Mae Win*. [http://www.maewin.net/index.php?ge=MenuView&gen\\_lang=300514013159&product\\_topic=%E0%B8%AB%E0%B8%A1%E0%B8%B9%E0%B9%88%E0%B8%97%E0%B8%B5%E0%B9%88%2010%20%20%E0%B8%9A%E0%B9%89%E0%B8%B2%E0%B8%99%E0%B8%AB%E0%B9%89%E0%B8%A7%E0%B8%A2%E0%B8%95%E0%B8%AD%E0%B8%87&ptid4=357&lang=](http://www.maewin.net/index.php?ge=MenuView&gen_lang=300514013159&product_topic=%E0%B8%AB%E0%B8%A1%E0%B8%B9%E0%B9%88%E0%B8%97%E0%B8%B5%E0%B9%88%2010%20%20%E0%B8%9A%E0%B9%89%E0%B8%B2%E0%B8%99%E0%B8%AB%E0%B9%89%E0%B8%A7%E0%B8%A2%E0%B8%95%E0%B8%AD%E0%B8%87&ptid4=357&lang=)
- Mahakunajirakul, S., and Ruenrom, G. (n. d.). *The model of the antecedents and consequences of the philosophy of sufficiency economy upon SMEs*. [https://scholar.google.com/scholar?hl=th&as\\_sdt=0%2C5&q=The+Model+of+the+Antecedents+and+Consequences+of++The+Philosophy+of+Sufficiency+Economy++Upon+SMEs&btnG=](https://scholar.google.com/scholar?hl=th&as_sdt=0%2C5&q=The+Model+of+the+Antecedents+and+Consequences+of++The+Philosophy+of+Sufficiency+Economy++Upon+SMEs&btnG=)
- Merem, E., C., Twumasi, Y., Wesley, J., Alsarari, M., Fageir, S., Crisler, M., Romorno, C., Olagbegi, D., Hines, A., Ochai, G. S., Nwagboso, E., Leggett, S., Forster, V., Purry, V. and Williams, J. (2019). Regional assessment of the food security situation in west africa with GIS. *Jouanal of Food and Public Health*, 9(2), 60-77.
- Michael, A. G. (n. d). *Britannica, science and technology. agroforestry, definitions, history and benefits*. <https://www.britannica.com/science/agroforestry>
- Ministere de l'agriculture de l'elevage et de la peche (MAEP). (2017). *Plan stratégique de développement du secteur agricole (PSDSA)*. orientations stratégiques 2025 plan national d'investissements agricoles et de sécurité alimentaire et Nutritionnelle (PNIASAN) 2017 - 2021.

- Ministere du Plan et du Developpement. (2013). *Institut national de la statistique et de l'analyse economique. synthèse des principaux résultats du RGPH-4 du Couffo*.  
[https://instad.bj/images/docs/insae-statistiques/enquetes-recensements/RGPH/1.RGPH\\_4/Synth%C3%A8se-des-principaux-r%C3%A9sultats-du-RGPH-4/Plaquette-Couffo-final.pdf](https://instad.bj/images/docs/insae-statistiques/enquetes-recensements/RGPH/1.RGPH_4/Synth%C3%A8se-des-principaux-r%C3%A9sultats-du-RGPH-4/Plaquette-Couffo-final.pdf)
- Ministry of Foreign Affairs, Kingdom of Thailand. (2016). *Annual report*.  
<https://www.mfa.go.th/en/content/annual-report-2016-2017>
- Ministry of Foreign Affairs, Kingdom of Thailand. (2020). *Sufficiency economy philosophy: thailand's path towards sustainable development goals*.  
<https://data.thailand.opendevlopmentmekong.net/en/dataset/sufficiency-economy-philosophy-thailands-path-towards-the-sustainabledevelopment-goals/resource/adacab88-fcf3-4cf0-8751-7363ba26afee>
- Ministry of Foreign Affairs, Kingdom of Thailand. (2017). *Sufficiency economy philosophy: thailand's path towards sustainable development goals*. Special presentation of the united nations development programme's "human development lifetime achievement award" to His Majesty the Late King Bhumibol Adulyadej on 26 May 2006. [https://www.academia.edu/30201331/Sufficiency\\_Economy\\_Philosophy\\_Thailands\\_Path\\_towards\\_Sustainable\\_Development\\_Goals\\_Recycle\\_Paper](https://www.academia.edu/30201331/Sufficiency_Economy_Philosophy_Thailands_Path_towards_Sustainable_Development_Goals_Recycle_Paper)
- Ministry of Foreign Affairs, Kingdom of Thailand. (2016). *Sufficiency economy philosophy for sustainable development goals (SDGs)*. Thailand international cooperation agency (TICA) and philosophy of sufficiency economy (SEP) in action. Ministry of foreign affair of the kingdom of Thailand. [https://tica-thaigov.mfa.go.th/th/content/68082-thailand-international-cooperation-agency-\(tica\)-and-philosophy-of-sufficiency-economy-\(sep\)-in-action?cate=5d7da8d015e39c3fbc00744c](https://tica-thaigov.mfa.go.th/th/content/68082-thailand-international-cooperation-agency-(tica)-and-philosophy-of-sufficiency-economy-(sep)-in-action?cate=5d7da8d015e39c3fbc00744c)
- Ministry of foreign Affairs. (2015). *Annual report: Raising Thailand's status on the international stage*. [https://image.mfa.go.th/mfa/0/mkKfL2iULZ/%E0%B8%A3%E0%B8%B2%E0%B8%A2%E0%B8%87%E0%B8%B2%E0%B8%99%E0%B8%9B%E0%B8%A3%E0%B8%B0%E0%B8%88%E0%B8%B3%E0%B8%9B%E0%B8%B5/Annual\\_Report\\_\(English\)\\_-2015.pdf](https://image.mfa.go.th/mfa/0/mkKfL2iULZ/%E0%B8%A3%E0%B8%B2%E0%B8%A2%E0%B8%87%E0%B8%B2%E0%B8%99%E0%B8%9B%E0%B8%A3%E0%B8%B0%E0%B8%88%E0%B8%B3%E0%B8%9B%E0%B8%B5/Annual_Report_(English)_-2015.pdf)



- Ministry of Foreign Affairs of Thailand. (2017). *Summary of Thailand's voluntary national reviews on the implementation of the 2030 agenda for sustainable development 2017*. <https://data.thailand.opendevdevelopmentmekong.net/en/dataset/2560-2573>
- Modara, M. and Bennet, A. (2017). The impact of government-private sector collaboration on innovation in a developing knowledge economy. In *International Conference on Sustainable Futures (ICSF) Bahrain 2017. The Kingdom of Bahrain*. [https://www.researchgate.net/publication/323119224\\_The\\_Impact\\_of\\_Government-Private\\_Sector\\_Collaboration\\_on\\_Innovation\\_in\\_a\\_Developing\\_Knowledge\\_Economy](https://www.researchgate.net/publication/323119224_The_Impact_of_Government-Private_Sector_Collaboration_on_Innovation_in_a_Developing_Knowledge_Economy)
- Mohamad Taib, S. (2021). *Development of innovation acceptance model for wearable computing: a study of users' technology acceptance in Malaysia* (Doctoral dissertation, Brunel University London).
- Mohammed B. E. S. 2023. Analyzing political systems and behavior. *Science For All Publications*, 1(1), 1-13
- Mohit, M., A. (2013). Quality of life in natural and built environment an introductory analysis. *Procedia - Social and Behavioral Sciences*, 101, 33–43
- Mohit, M. A., and Al-Khan, A. M. M. (2014). Residential satisfaction-concept, theories and empirical studies. *Planning Malaysia: Urban Planning and Local Governance*, 3, 47- 66.
- Mongsawad, P. and Thongpakde, N. (2016). Sufficiency economy philosophy: A holistic approach to economic development and mainstream economic thought. *Asian Social Science*, 12(7), 135-142.
- Mongsawad, P. (2010). The philosophy of the sufficiency economy: A contribution to the theory of development. *Asia-Pacific Development*, 17(1), 123-143
- Montagnini, F., Metzel, R., (2018). The contribution of agroforestry to sustainable development goal 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture. *Advances in Agroforestry (ADAG)*, 12, 11-45. [https://link.springer.com/chapter/10.1007/978-3-319-69371-2\\_2](https://link.springer.com/chapter/10.1007/978-3-319-69371-2_2)
- Mounirou, I and Lokonon, B. O. K. (2022). Can micro-credit improve food security? evidence from Benin-West Africa. *The Journal of Developing Areas*, 56(2), 155-167.

- Muhamad, C., Khaenamkaew, D., Jaihoweweerapong, D., Onchan, P., Praphum, B. and Sutcharitpan, P. (2021). Evaluates the model area development project for quality-of-life according to the new theory applied to the “Khok Nong Na Model” in the Ruan Kiang Na center in Thailand. *Turkish Journal of Computer and Mathematics Education*, 6(12), 4098-4101.
- Naipinit, A., Sakolnakorn, T. P. N. and Kroeksakul, P. (2014). Sufficiency economy for social and environmental sustainability: A case study of four villages in rural Thailand. *Asian Social Science*, 10(2).
- Nappi, J. S. (2014). The teacher leader: Improving schools by building social capital through shared leadership. *The Delta Kappa Gamma Bulletin*, 29-35. <https://www.psycholosphere.com/The%20teacher%20leader%20%20Improving%20schools%20by%20building%20social%20capital%20through%20shared%20leadership%20by%20Nappi%202014.pdf>
- National Economic and Social Development Plan (NESDP). (2007). *The sufficiency economy philosophy and the context of national development*. [https://www.nesdc.go.th/nesdb\\_en/ewt\\_dl\\_link.php?nid=3785](https://www.nesdc.go.th/nesdb_en/ewt_dl_link.php?nid=3785)
- National Voluntary Presentation (NVP). (2014). *Annual ministerial review (AMR) at ECOSOC 2014 on the theme “Addressing ongoing and emerging challenges for meeting the millennium development goals in 2015 and for sustaining development gains in the future”*. Open Development Thailand. <https://data.thailand.opendevelopmentmekong.net/en/dataset/national-voluntary-presentation-nvp-for-the-annual-ministerial-review-amr-at-ecosoc-2014-on-the-the>.
- Nguyen, T., P., L., Seddaiu, G. and Roggero, P. P. (2019). Declarative or procedural knowledge?. knowledge for enhancing farmers' mitigation and adaptation behaviour to climate change. *Journal of Rural Studies*, 67, 46–56.
- N’Goye, C. G. B., Egah, J., Baco, M. N. (2021). Sustainability analysis in agricultural policies in Benin. *Journal of Agricultural Studies*, 9(1), 173-185

- Paracchini, M., L., Justes E., Wezel, A., Zingari, P., C., Kahane, R., Madsen, S., Scopel E., Héraut, A., Bhérer-Breton P., Buckley R., Colbert E., Kapalla D., Sorge M., Adu-Asieduwaa, G., Bezner Kerr, R., Maes O., and Negre, T. (2020). *JRC Technical report: Agroecological practices supporting food production and reducing food insecurity in developing countries: A study on scientific literature in 17 countries European Commission*. <https://www.researchgate.net/publication/348231872>
- Niaz, M. U. (2021). Socio-economic development and sustainable development goals: A roadmap from vulnerability to sustainability through financial inclusion. *Journal of Economic Research-Ekonomska Istraživanja*, 35(1), 3243-3275. <https://www.tandfonline.com/doi/full/10.1080/1331677X.2021.1989319>
- Niemmanee, T., Kaveetab, R., and Potchanasin, C. (2015). Assessing the economic, social, and environmental condition for the sustainable agricultural system planning in Ban Phaeo district, Samut Sakhonn Province, Thailand. *Procedia Social and Behavioral Sciences*, 197, 2554–2560.
- Nilsson, S. K., Childs, L. M., Buckee, C., and Marti, M. (2015). Targeting human transmission biology for malaria elimination. *Journal of Plos Pathogens*, 11(6). <https://pubmed.ncbi.nlm.nih.gov/26086192/>
- Nissen, S. (2021). Political participation: Inclusion of citizens in democratic opinion-forming and decision-making processes. *Journal of Peace, Justice and Strong Institutions*, 665–675. [https://link.springer.com/referenceworkentry/10.1007/978-3-319-95960-3\\_42](https://link.springer.com/referenceworkentry/10.1007/978-3-319-95960-3_42)
- Nuntaboot, K., Boonsawasdgulchai, P. and Bubpa, N. (2019). Roles of mutual help of local community networks in community health activities: Improvement for the quality of life of older people in Thailand. *International Journal of Nursing Sciences*, 6, 266-271

- Nyamwaro, S. O., Buruchara, R., A., Tenywa, M., M., Kalibwani, R., Mugabo, J. R., Wanjiku, C., Tukahirwa, J. M. B., Nyamurinda, B., Murorunkwere, F., Kashaija, I., Ndatira, D., Mutabazi, S., Kuule, M., Karume, K., Bikuba, G., Mandefu, P., Ramazani, M. A., Mapatano, S., Wimba, Benjamin M. M., Bahiga, L., Fatunbi, A. O. and Adekunle, A., A. 2013. *Success stories, world agroforestry*. <https://worldagroforestry.org/publication/success-stories-chapter-6>
- OECD Investment Policy Reviews: Thailand (n. d). *Thailand's Development Trajectory: Past and Future Strategies*. <https://www.oecd-ilibrary.org/sites/a21090a7-en/index.html?temId=/content/component/a21090a7-en>
- Olawale, S. O., Olomukoro, C. O., and Oyitso, M. O. (2022). Facilitators' professional quality as predictor of adult learning achievement in basic literacy education programme in Benin Metropolis, Edo State. *African Journal of Educational Management, Teaching and Entrepreneurship Studies (AJEMATES)*, 5(1), 119-138.
- Oloruntoba, S. O. and Falola, T. (2018). *The palgrave handbook of African politics, governance and development*. <https://link.springer.com/book/10.1057/978-1-349-95232-8>.
- Olounlade, A., O., Gu-cheng, L., Sodjinou, M., and Biaou, G. (2017). *Agroecological practices for sustainable agriculture in Benin*. [https://www.researchgate.net/publication/330657495\\_Agroecological\\_practices\\_for\\_sustainable\\_agriculture\\_in\\_Benin](https://www.researchgate.net/publication/330657495_Agroecological_practices_for_sustainable_agriculture_in_Benin)
- Olounlade, O. A., Gu-Cheng, L., Traoré, L., Ouattara, N., Dossouhoui, F. V. and Biaou, G. (2019). Reputation effect of the moral hazard on contract farming market development: Game theory application on rice farmers in Benin. *African Journal of Agricultural Research*, 14(13), 666-671.
- O'Neil, A., Russella, J. D., Thompsonb, K., Martinsonc, M. L., Peters, S. A. E. (2020). The impact of socioeconomic position (SEP) on women's health over the lifetime. *Journal of Maturitas* 140, 1–7
- Open Development Thailand. (2017). *Environment and natural resources*. <https://thailand.opendevlopmentmekong.net/topics/environment-and-natural-resources/>



- Open Development Thailand. (2018). *Sustainable development for Thailand in the global context*. <https://data.thailand.opendevlopmentmekong.net/en/dataset/sustainable-development-for-thailand-in-the-global-context>
- Open Development Thailand, (2016). *The government public relations department, Thailand's 20-year national strategy and thailand 4.0 policy*. [https://data.thailand.opendevlopmentmekong.net/en/library\\_record/thailand-s-20-year-national-strategy-and-thailand-4-0-policy](https://data.thailand.opendevlopmentmekong.net/en/library_record/thailand-s-20-year-national-strategy-and-thailand-4-0-policy)
- Open Development Thailand. (2016). *Thailand business news. Thailand 4.0, what do you need to know?*. <https://data.thailand.opendevlopmentmekong.net/en/dataset/thailand-4-0-what-do-you-need-to-know>
- Open Development Thailand. (2017). *SDG index and dashboards: Thailand country profile*. [https://data.thailand.opendevlopmentmekong.net/library\\_record/2017-sdg-index-and-dashboards-thailand-country-profile](https://data.thailand.opendevlopmentmekong.net/library_record/2017-sdg-index-and-dashboards-thailand-country-profile).
- Open Development Thailand. (2018). *Sustainable development goals (SDGs) and sufficiency economy philosophy (SEP)*. <https://thailand.opendevlopmentmekong.net/topics/sustainable-development-goals/>
- ORDPB. (2019). *The royal development projects*. <http://www.rdpb.go.th/rdpb/projectData/index.htm>.
- ORDPB, (2020a). *The royal development projects*. <http://www.rdpb.go.th/en/Projects/project-categories-c54>.
- ORDPB, (2020b). *Summary of the royal development projects*. [http://www.rdpb.go.th/rdpb/projectData/files/summary\\_roy\\_project62.pdf](http://www.rdpb.go.th/rdpb/projectData/files/summary_roy_project62.pdf).
- Organisations des Nations Unies pour l'Alimentation et l'Agriculture (FAO). (2017). *Cadre de programmation pays du Benin 2017-2021*. [https://www.fao.org/fileadmin/user\\_upload/FAO-countries/Benin/docs/FAO-BENIN-CPP\\_2017-2021.pdf](https://www.fao.org/fileadmin/user_upload/FAO-countries/Benin/docs/FAO-BENIN-CPP_2017-2021.pdf)
- Organisation for Economic Co-Operation and Development (OECD). (2002). *Annual Report*. <https://www.oecd-ilibrary.org/docserver/annrep-2002-en.pdf?expires=1708321954&id=id&accname=guest&checksum=2F4A41C73220F0E18D506973D7C33515>

- Owusu, V., Abdulai, A. and Abdul-Rahman, S. (2011). Non-farm work and food security among farm households in northern Ghana. *Journal of Food Policy*, 36, 108-118. <https://doi.org/10.1016/j.foodpol.2010.09.002>
- Panyasing, S., Yongvanit, S., Nurmandi, A., and Prabnok, P. (2023). Collaborative partnership and new farm management for solving drought according to different geo-social environment in the northeast of Thailand. *International Journal of Rural Management*, 19(1), 64-88. <https://doi.org/10.1177/09730052211043689>
- Paradiba, R. S. and Indah D. R. (2022). Implementation of knowledge management to support the knowledge sharing for rural community empowerment programs during the covid-19 pandemic Malaysian. *Journal of Computing and Applied Mathematics*, 5(2), 10-16
- Park and Kim, (2010). An empirical model to assess the influence of the government's research and development program on korean small and medium enterprise (sme) performance. *Asian Journal on Quality*, 11(3), 288 – 302.
- Piroj, K. (2018). *What is a likert scale? (Likert's scale)*. <https://greedisgoods.com/likert-scale-%E0%B8%84%E0%B8%B7%E0%B8%AD/>
- Post Today. (2018). *Deciphering thainiyom, sustainable project*. <https://www.posttoday.com/social/local/540520>
- Pramudwinai, and Don. (2016). *A practical approach toward sustainable development: Thailand's sufficiency economy philosophy*. Ministry of foreign affairs of the kingdom of Thailand at high-level segment 37th session of the Human Rights Council. <https://www.mfa.go.th/en/content/5d5bd0fd15e39c3060022831?page=5d5bd3da15e39c306002aaf9&menu=5d5bd3da15e39c306002aafa>
- Prno, J., and Slocombe, D., S. (2014). A systems-based conceptual framework for assessing the determinants of a social license to operate in the mining industry. *Environmental Management*, 53, 672–689.
- Rapport sur le developpement durable pour le Benin. (2023). *Renforcement du capital humain et lutte contre les inegalites*. <https://finances.bj/rapport-sur-le-developpement-durable-pour-le-benin-2023/>

- Rapport sur le Développement Durable pour le Bénin. (2023). *Renforcement du capital humain et lutte contre les inégalités*. Sustainable development solutions network. <https://www.jstor.org/stable/resrep52432>
- Rapport sur le Développement Durable pour le Bénin. (2022). *Rapport pilote de référence*. <https://sdgtransformationcenter.org/reports/benin-sustainable-development-report-2022>
- République du Bénin. (n. d). *Ministère du cadre de vie et du développement, durable direction générale des changements climatiques*. Stratégie de développement à faible intensité de carbone et résilient aux changements climatiques 2016-2025. [https://unfccc.int/files/focus/long-term\\_strategies/application/pdf/benin\\_long-term\\_strategy.pdf](https://unfccc.int/files/focus/long-term_strategies/application/pdf/benin_long-term_strategy.pdf)
- République du Bénin. (2022). Ministère du cadre de vie et du développement durable, direction générale de l'environnement et du climat (DGEC). *Plan national d'adaptation aux changements climatiques du Bénin*. [https://unfccc.int/sites/default/files/resource/PNA\\_BENIN\\_2022\\_0.pdf](https://unfccc.int/sites/default/files/resource/PNA_BENIN_2022_0.pdf)
- Republique du Bénin, Département du Couffo, (2017). *Plan de développement communal de djakotomey quinquennat 2017 - 2021*. Republique du Bénin, Département du Couffo. Commune de Djakotomey.
- Rigg, J., Salamanca, A., Phongsiri, M., and Sripun, M. (2018). More farmers, less farming?. Understanding the truncated agrarian transition in Thailand. *World Development*, 107, 327–337.
- Rockström, J., Karlberg, L., Wani, S. P., Barron, J., Hatibu, N., Oweis, T., Bruggeman, A., Farahani, J and Qiang Z. (2010). Managing water in rainfed agriculture-the need for a paradigm shift. *Agricultural Water Management*, 97(4), 543-550.
- Rogers, E.M. (1983). *Diffusion of innovations*. (3<sup>rd</sup> Edition). New York: the Free Press.
- Rogers, E.M. (1995). *Diffusion of innovations*. (4<sup>th</sup> Edition). New York: the Free Press.
- Rogers, E. M. (2003). *Diffusion of innovations*. New York: Free Press.
- Royal Irrigation Department, Ministry of Agriculture and Cooperatives. (2017). <https://www.rid.go.th/index.php/en/>

- Royal Thai Embassy in Vienna: The Permanent Mission of Thailand to the United Nations and Other International Organisations in Vienna. (2021). *The SEP for SDGs partnership in action" by the SEP and development unit Thailand international cooperation agency (TICA). Ministry of Foreign Affairs of Thailand.* [https://www.thaiembassy.at/en/content\\_page/item/825-the-sep-for-sdgs-partnership-in-action-by-the-sep-and-development-unit-thailand-international-cooperation-agency-tica-ministry-of-foreign-affairs-of-thailand.html](https://www.thaiembassy.at/en/content_page/item/825-the-sep-for-sdgs-partnership-in-action-by-the-sep-and-development-unit-thailand-international-cooperation-agency-tica-ministry-of-foreign-affairs-of-thailand.html)
- Setsoafa, E. D., Ma, W., and Renwick, A. (2022). Effects of sustainable agricultural practices on farm income and food security in northern Ghana. *Agricultural and Food Economics*, 10(9), 1-15
- Sachs, J. D., Lafortune, G., Fuller, G., and Drumm, E. (2023). *Implementing the SDG stimulus. Sustainable Development Report 2023.* Dublin University Press. <https://doi.org/10.25546/10292>
- Sachs, J. D., Schmidt-Traub, G., Mazzucato, M., Messner, D., Nakicenovic, N., and Rockström, J. (2019). Six transformations to achieve the sustainable development goals. *Nature Sustainability*, 2(9), 805-814. <https://www.nature.com/articles/s41893-019-0352-9>
- Saduak, W., Pongsuk, P., Phonpakdee, R. and Deeying, S. (2017). Problem condition in the agricultural learning center using at Praibuwengwittayakom school, Srisaket province, Thailand. *International Journal of Agricultural Technology*, 13(7.2), 2117-2124.
- Saduak, W., Sangnate, W. and Pongsuk, P. (2015). "The need of students and student's parents on development of learning and teaching agricultural subjects of Phraibueng Wittayakhom school, Sisaket province". *Journal of Agricultural Technology*, 11(2), 473-483.
- Saduak, W., Pongsuk, P., Phonpakdee, R. and Deeying, S. (2019). School agricultural learning center for sustainable agricultural learning. *Journal for the Education of Gifted Young Scientists*, 7(3), 389-407



- Saizonou, M., V., M., K., Karim, A., Y., A., Gbaguidi, M., A., N., Date, S., K., N., Abibou, A. M. and Agossou, S. A. (2023). Impacts of agricultural practices on physical and chemical qualities of biophysical environment in Save (Republic of Benin). *Progress in Chemical and Biochemical Research*, 6(2), 152-163.
- Sakho-Jimbira, S. and Hathie I. (2020). *The future of agriculture in sub-saharan Africa*. [https://www.ifad.org/documents/38714170/42030191/future\\_agriculture\\_sahara\\_e.pdf/1cb6b896-b9c1-0bb8-87b8-83df3153d0af](https://www.ifad.org/documents/38714170/42030191/future_agriculture_sahara_e.pdf/1cb6b896-b9c1-0bb8-87b8-83df3153d0af)
- Salyakamthorn, W. (2021). *Khok Nong Na Model' near Bangkok offers '3,000 rai' of land to produce food sources to feed Bangkok residents*. <https://mgronline.com/specialscoop/detail/9640000006445>
- Santos, C. M. d, Ivan F. J. and Fernanda, L. (2007). Quality of life of People living with HIV in Sao Paulo, Brazil. *Saúde Pública*, 41(2). <https://www.scielo.org/pdf/rsp/2007.v41suppl2/64-71/en>
- Savetpanuvong, P. (2021). Sufficiency economy enterprise model canvas (SEEMC): Lessons learned from thailand industrial standard 9999 certified manufacturing enterprises. *UTCC International Journal of Business and Economics (UTCC IJBE)*, 13(1), 3-18.
- Seeloy-ounkaew, T., and Khamyong, S. (2016). Carbon and nutrient storage in plant biomass of natural forest nearby Thung Luang royal project development center, Chiang Mai province. *Thai Journal*, 35(3), 86-99
- Segnon, A. C., Achigan-Dako, E. G., Gaoe, O. G. and Ahanchédé A. (2015). Farmer's knowledge and perception of diversified farming systems in sub-humid and semi-arid areas in Benin. *Sustainability*, 7(6), 6573-6592.
- Simantara, P., Hansapiromchoke, P., Dokmaithes, R., and Thaisom, R. (2022). Factors influencing integrated agriculture management to drive the implementation of sufficiency economy philosophy. *Academy of Strategic Management Journal*, 21(3), 1-13.
- Siriwut, B. and Thankawin, R. (2015). Philosophy of sufficiency economy and business sustainability: a framework for operational implications. *Journal of Business and Behavioral Sciences*, 27(1), 115-141

- Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., Fetzer, I., Bennett, E. M. and Al. (2015). Planetary boundaries: Guiding human development on a changing planet. *Science*, 347(6223), 1-12. <https://www.science.org/doi/epdf/10.1126/science.1259855>
- Sompong, N., and Rampai N. (2015). The development model of knowledge management to strengthen thai ict community learning center. *Procedia - Social and Behavioral Sciences*, 176, 139 – 147.
- SDG Knowledge HUB by IISD. 2018. *Report shows agroforestry's contribution to several SDGs*. <https://sdg.iisd.org/news/report-shows-agroforestrys-contribution-to-several-sdgs/>
- Sossou, R., Nassi, K. M., and Hinnou L. C. (2023). *A socio-historical look at agricultural policy reform in Benin (west Africa) since 1960: A literature review*. [https://www.researchgate.net/publication/375977669\\_A\\_Socio-Historical\\_Look\\_at\\_Agricultural\\_Policy\\_Reform\\_in\\_Benin\\_West\\_Africa\\_since\\_1960\\_A\\_Literature\\_Review](https://www.researchgate.net/publication/375977669_A_Socio-Historical_Look_at_Agricultural_Policy_Reform_in_Benin_West_Africa_since_1960_A_Literature_Review)
- Statista. (2023). *Economy and politics, growth of the global gross domestic product (GDP) from 1980 to 2022, with forecasts until 2028*. <https://www.statista.com/statistics/273951/growth-of-the-global-gross-domestic-product-gdp/>
- Sustainable development report. (2020). *Bank for agriculture and agricultural cooperatives (BAAC)*. <https://www.baac.or.th/en/report/report-2020-sustainable.pdf>
- Sustainable Development Report, Country Profiles. (2022). *From crisis to sustainable development: The SDGs as roadmap to 2030 and Beyond*. <https://doi.org/10.1017/9781009210058.015>
- Syeda, A. H., and Nazish, R. (2017). The role of female education in economic growth of pakistan: A time series analysis from 1990-2016. *International Journal of Innovation and Economic Development*, 3(5), 83-93.
- Tedeschi, L. O., Muir, J. P., Riley, D. G., and Fox, D. G. 2015. Future implications for animal production: a perspective on sustainable livestock intensification. *In Annual Meeting of the Brazilian Society of Animal Science, Belo Horizonte, Minas Gerais, Brazil. Sociedade Brasileira de Zootecnia (SBZ)*. (1-23). <http://www.sbz2015.com.br/>

- Thailand's Approach for Sustainable Development and Building Back Better.* (2021).  
<https://www.thehindu.com/brandhub/thailands-approach-for-sustainable-development-and-building-back-better/article36471227.ece>
- Thailand Demographics. (2024). *Country reports*. <https://www.countryreports.org/country/Thailand/population.htm>
- Thailand Economy. (2024). *Country report*. <https://www.countryreports.org/country/Thailand/economy.htm>
- Thailand Education. (2024). *Country report*. <https://www.countryreports.org/country/Thailand/education.htm>
- Thailand Geography. (2024). *Thailand geography*. <https://www.countryreports.org/country/Thailand/geography.htm>
- Thailand Government. (2024). *Country report*. <https://www.countryreports.org/country/Thailand/government.htm>
- Thailand International Cooperation Agency (TICA). (2022). *Sufficiency economy philosophy: SEP*. <https://tica-thaigov.mfa.go.th/en/content/sufficiency-economy-philosophy-sep?page=5f4dddfac05b582192161432&menu=605b13ef197d8923b070ee23>
- The Thirteenth National Economic And Social Development Plan (NESDP) (2023-2027).* (2023). [https://www.nesdc.go.th/article\\_attach/article\\_file\\_20230615134223.pdf](https://www.nesdc.go.th/article_attach/article_file_20230615134223.pdf)
- Thung Luang Royal Project Development Center. (2024). *Royal Project Foundation*.  
<https://www.hrdi.or.th/en/en-admin/public/images/WhereWeWork/TheRoyalProjectAreas/FILE-20240227-1627H7CAEC62WHTD.pdf>
- The Chaipattana Foundation. (2020). *Concepts and theories, sufficiency economy and new theory about us. philosophy of sufficiency economy*. <https://www.chaipat.or.th/eng/concepts-theories/sufficiency-economy-new-theory.html>
- The Chaipattana Foundation. (2020). *Annual committee meeting*. <https://www.chaipat.or.th/eng/news/item/4488-her-royal-highness-princess-maha-chakri-sirindhorn-presides-over-the-chaipattana-foundation-s-annual-committee-meeting-1-2020.html>

- The Legatum prosperity index™ (2016). *Methodology report*.  
[https://www.prosperity.com/application/files/1914/7819/5146/Legatum\\_Prosp erity\\_Index\\_Methodology\\_Report.pdf](https://www.prosperity.com/application/files/1914/7819/5146/Legatum_Prosp erity_Index_Methodology_Report.pdf)
- The New Theory Agriculture. (2021). *Integrated and sustainable agricultural system*.  
<https://www.porpeang.org/content/5475/%E0%B%97%E0%B%A4%E0%B%A9%E0%B%8E%E0%B%8B%E0%B%983%E0%B%AB%E0%B%A1%E0%B%988-new-theory-agriculture>.
- Thailand national food committee (TNFC). (2017). *Strategic framework for food management in Thailand*. <https://extranet.who.int/nutrition/gina/sites/default/filesstore/THA%202012%20Strategic%20Framework%20for%20Food%20Management.pdf>
- Thongpakde, N. (n. d.). *Thailand's economic development and the philosophy of sufficiency economy*. <https://econ.nida.ac.th/wp-content/uploads/2019/02/Thailand-Economic-development.pdf>
- Togbé, C. E., Haagsma, R., Aoudji, A. K. N., and Vodouhê, S. D. (2015). Effect of participatory research on farmers' knowledge and practice of IPM: The case of cotton in Benin. *Journal of Agricultural Education and Extension, Competence for Rural Innovation and Transformation*, 21(5), 421-440
- Totin, E., Mierlo, B. v., Mongbo, R. and Leeuwis, C. (2015). Diversity in success: interaction between external interventions and local actions in three rice farming areas in Benin. *Agricultural Systems*, 133, 119-130.
- United Nations Development Programme (UNDP). (2022). *Human development Report 2021/2022*. New York: the United Nations Development Programme.
- United Nations Development Programme (UNDP). (2021). *Annual Report*. <https://www.undp.org/publications/undp-annual-report-2021>
- United Nations Department of Economic and Social Affairs, Social Inclusion (UN DESA). (2021). *Reducing poverty and inequality in rural areas: Key to inclusive development*. <https://www.un.org/development/desa/dspd/2021/05/reducing-poverty/>
- United Nations World Food Programme (UN WFP). (n. d). *Department of economic and social affairs, sustainable development*. <https://sdgs.un.org/un-system-sdg-implementation/world-food-programme-wfp-49128>



- United Nations Report of the Secretary-General. (2019). *World survey on the role of women in development. why addressing women's income and time poverty matters for sustainable development*. <https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/Library/Publications/2019/World-survey-on-the-role-of-women-in-development-2019.pdf>
- United Nations Development Programme (UNDP). (2014). *Human development index Benin*. <http://hdr.undp.org/en/countries/profiles/BEN>
- United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development*. New York: United Nations, department of economic and social affairs.
- United Nations World Water Development Report. (2016). *Water and jobs. United Nations educational, scientific and cultural organization*. <https://unesdoc.unesco.org/ark:/48223/pf0000243938>
- United Nations World Water Development Report. (2015). *Water for a sustainable world*. [https://books.google.co.th/books?hl=en&lr=&id=zQV1CQAAQBAJ&oi=fnd&pg=PR1&dq=United+Nations,+2015&ots=9kWQhc9qEg&sig=01A2edt9tIMPviwXpd9m1UXdbrQ&redir\\_esc=y#v=onepage&q=United%20Nations%2C%202015&f=false](https://books.google.co.th/books?hl=en&lr=&id=zQV1CQAAQBAJ&oi=fnd&pg=PR1&dq=United+Nations,+2015&ots=9kWQhc9qEg&sig=01A2edt9tIMPviwXpd9m1UXdbrQ&redir_esc=y#v=onepage&q=United%20Nations%2C%202015&f=false).
- UN-Water Annual Report. (2018). <https://www.unwater.org/publications/un-water-annual-report-2018>
- UN World Water Development Report. (2016). *Water and jobs*. <https://www.unwater.org/publications/un-world-water-development-report-2016>
- United Nations General Assembly. (2015). *Resolution adopted by the general assembly on 25 september 2015. transforming our world: the 2030 agenda for sustainable development*. [https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A\\_RES\\_70\\_1\\_E.pdf](https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_70_1_E.pdf)
- United States Department and Agriculture (USDA) (n. d). *USDA agroforestry strategic framework: fiscal year 2019-2024*. <https://www.usda.gov/sites/default/files/documents/usda-agroforestry->

- U-tantada, S., Mujtaba, B. G., Yolles, M., and Shoosanuk, A. (2016). Sufficiency economy and sustainability. In *the 2<sup>nd</sup> Multidisciplinary Research and Innovation for Globally Sustainable Development (MRIGSD) on 25-26 Feb. 2016*. <https://www.researchgate.net/publication/311677101>
- Velten, S., Leventon, J., Jager, N., and Newig, J. 2015. What is sustainable agriculture?. A systematic review. *Sustainability*, 7(6), 7833–7865
- Virapongse, A., Brooks, S., Metcalf, E. C., Zedalis, M., Gosz, J., Kliskey, A., Alessa, L. (2016). A social-ecological systems approach for environmental management. *Journal of Environmental Management*, 178, 83-91.
- Vodouhe, S. D., and Zoundji, G. C. (2013). The Songhai Centre in Benin. *Feed the future. The U. S. government's global hunger and food security initiative*. Human Resource Development in Agricultural Extension, USAID from the American People.
- Wanasilp, W. and Tangvitoontham, N. (2015). The Relationship between the understanding of philosophy of sufficiency economy and the living standard: The case study of sufficiency economy community in lower northern region of Thailand. *International Journal of Business and Economic Development*, 3(1), 87-95
- Wattanakornsiri, A., and Pukkalanun, N. (2020). *Sufficiency economy philosophy for community driven development approach on sustainable local development, lessons learned from Thai case studies*. Poverty reduction fund, ministry of agriculture and forestry, Lao PDR under Lancang-mekong cooperation special fund. report of Thailand
- Wattanakornsiri, A., Pukkalanun, N., and Phimphanthavong, H. (2020). Sufficiency economy philosophy for community driven development approach on sustainable local development: Lessons learned and success factors from sufficiency economy villages, Surin province, Thailand. *Journal of Local Governance and Innovation*, 4(2), 15-34.
- Wannaviroj, A., and Sriburi, T. (2019). Applying the new theory to assessment criteria of agricultural water management schemes for sustainable rain-fed agriculture in Thailand. *Applied Environmental Research*, 41(2), 27-40.

- Wikipedia. (2023). *Participate in the 2023 international science photo competition agroforestry*. <https://en.wikipedia.org/wiki/Agroforestry>
- Wongkumchai, T., and Kiattisin, S. (2021). Information analysis and evaluation model (IAEM) of Thai economy sustainability based on SEP and SDG. *Heliyon*, 7, e07305.
- World Bank. (2018). *Poverty and shared prosperity: piecing together the poverty puzzle*. Washington, DC. <https://openknowledge.worldbank.org/server/api/core/bitstreams/34b63a7c-7c89-5474-b9d3-f4f35085fe83/content>
- World Bank 1. 1. (2022). *World development indicators: poverty rates at*. <https://wdi.worldbank.org/table/1.1>
- World Bank. (2023). *The world bank in Benin*. <https://www.worldbank.org/en/country/benin/overview>
- World Bank. (2018). *The world bank annual report 2018*. The world bank in Benin. Cotonou: World bank, Benin office. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/630671538158537244/the-world-bank-annual-report-2018>
- World Bank. (2019). *Gini index–world bank estimate*. <https://data.worldbank.org/indicator/SI.POV.GINI?locations=BJ>
- World Bank. (2017). *World Bank Data Benin*. <http://www.data.worldbank.org/country/benin>
- World Bank. (2020). *The human capital Index 2020 update: Human capital in the time of COVID-19*. World bank, Washington. DC. <http://hdl.handle.net/10986/34432>
- World Bank. (2015). *Improving food security in west Africa: Removing obstacles to regional trade markets*. <https://www.tralac.org/news/article/7797-improving-food-security-in-west-africa-removing-obstacles-to-regional-trade-markets.html>
- World Bank Group Report. (2015). *Connecting food staples and input markets in west Africa: A regional trade agenda for ECOWAS countries*. <https://www.tralac.org/images/docs/7797/connecting-food-staples-and-input-markets-in-west-africa-regional-trade-agenda-for-ecowas-world-bank-2015.pdf>
- World Bank, World View. (2022). *World development indicators: Size of the economy*. <https://wdi.worldbank.org/table/WV.1>

- World Bank, World View. (2022). *World development indicators: Global goals: ending*. <https://wdi.worldbank.org/table/WV.2>
- World Food Program USA, Benin. (2023). *Rural and hungry*. <https://www.wfpusa.org/countries/benin/#:~:text=The%20vast%20majority%20of%20Benin's,which%20drives%20hunger%20and%20malnutrition>
- World Food Program (WFP). (2019). *Annual report of the world food programme for 2019. economic and social council*. <https://www.wfp.org/annual-country-reports-2019>
- World Health Organization (WHO). (2020). *World health statistic. Monitoring health for the sustainable development goals (SDGs)*. <https://apps.who.int/iris/bitstream/handle/10665/332070/9789240005105-eng.pdf>
- World Health Organization. (2010). *Monitoring the building blocks of health systems: A handbook of indicators and their measurement strategies*. <https://iris.who.int/bitstream/handle/10665/258734/9789241564052-eng.pdf?sequence=1&isAllowed=y>
- Worldometer. (2024). *Thailand population (Live)*. <https://www.worldometers.info/world-population/hailand-population/>
- Worthington, A. K. (2021). *Technology acceptance model. Persuasion theory in action: an open educational resource*. <https://ua.pressbooks.pub/persuasiontheoryinaction/>
- Yegbemey, R. N., Yabi, J. A., Dossa, C. S. G., and Bauer, S. (2014). Novel participatory indicators of sustainability reveal weaknesses of maize cropping in Benin. *Agronomy for Sustainable Development*, 34, 909–920
- Zeng, M. and Niu L. (2023). Exploring spatiotemporal trends and impacts of health resources and services on under-5 mortality in west African countries, 2010–2019: A spatial data analysis. *Frontiers in Public Health*, 11. <https://www.frontiersin.org/journals/publichealth/articles/10.3389/fpubh.2023.1193319/full>



Zhao, Z., Liu, G., Liu, Q., Huang, C. and Li, H. (2018). Studies on the spatiotemporal variability of river water quality and its relationships with soil and precipitation: A case study of the mun river basin in Thailand. *International Journal of Environmental Research and Public Health*, 15(11), 1-19. <https://doi.org/10.3390/ijerph15112466>





## **APPENDICES**

## Appendix A

### Socio-Demographic Characteristics of Djakotomey

Population of the subdistricts by village of the commune of Djakotomey from 2013 to 2017 and household in 2013 following the fourth General Census of Population and Housing.

<b>Subdistricts and villages</b>	<b>Population Total 2013</b>	<b>Population total 2017</b>	<b>Household 2013</b>	<b>SEP Practicing</b>
<b>Adjintimey</b>	<b>16 160</b>	<b>18 705</b>	<b>3523</b>	
Sebiohoue	2931		576	
Agohoue Balimey	3145		638	
Doumahou	3596		943	
Gbotohoue	2131		464	
Hekpe	4357		902	
<b>Betoumey</b>	<b>22 170</b>	<b>24 527</b>	<b>4729</b>	
Ablomey	655		118	6
Holou Loko	2620		525	
Aissanhoue	2751		593	
Betoumey	1336		334	
Bota	3240		724	
Dogohoue	1139		248	
Kpatohoue	1490		337	
Tchanhoue	3301		632	
Titongon	869		185	
Zohoudji	4769		1033	
<b>Gohomey</b>	<b>17 706</b>	<b>19 774</b>	<b>2449</b>	
Demahouhoue	1200		125	
Dowomey	1534		209	
Gohomey	5494		645	
Hagoumey	6234		1089	

Subdistricts and villages	Population Total 2013	Population total 2017	Household 2013	SEP Practicing
Loko Atoui	3244		381	
<b>Houegamey</b>	<b>15 514</b>	<b>18 003</b>	<b>2657</b>	
Danmakanhoue	2592		445	
Djonouhoue	2016		278	
Edjihoue	1568		244	
Gama Fode	1338		229	
Game Houegbo	1488		305	
Houegamey	1473		292	
Kanvihouey	1134		236	
Wanou	827		176	
Houngba	342		74	
Kpeladjamey	1428		240	
Tedehoue	1308		138	
<b>Kinkinhoue</b>	<b>8 459</b>	<b>10 198</b>	<b>1486</b>	
Dassouhoue	1424		271	
Kessahouedji	703		109	
Kinkinhoue	2955		506	
Segbehoue	1494		313	
Seglahoue	912		121	
Etonhoue	971		166	
<b>Kokohoue</b>	<b>10 270</b>	<b>11 430</b>	<b>1879</b>	
Fogbadja	2604		548	
Gboyouhoue	428		70	
Kansouhoue	1978		334	
Kokohoue	3151		643	
Migbohamey	1532		197	
Semanouhoue	577		87	
<b>Kpoba</b>	<b>9 603</b>	<b>11 002</b>	<b>1576</b>	
Fantchoutchehoue	936		170	



Subdistricts and villages	Population Total 2013	Population total 2017	Household 2013	SEP Practicing
Kpoba	4233		636	
Mekpohoue	1999		395	
Nakidahohoue	924		146	
Zohoudji	1511		229	
<b>Sokouhoue</b>	<b>14 648</b>	<b>15 720</b>	<b>2832</b>	
Akodebakou	1360		288	
Avodjihoue	1356		297	
Avonnouhoue	839		144	
Gbekehoue	1100		224	
Hounkemey	1653		277	
Sokouhoue	1787		409	
Assogbahoue	946		157	
Sahou Sohoue	2119		412	
Tokpohoue	1234		220	
Zouzouvou	2254		404	
<b>Djakotomey I</b>	<b>11 132</b>	<b>12 310</b>	<b>2170</b>	
Djakotomey Centre	3011		733	
Agbedranfo	1744		228	
Ameganhoue	1170		208	
Atchouhoue	1076		197	
Beotchi	1121		264	
Hounhomey	2278		411	
Sigbavihoue	732		129	
<b>Djakotomey Ii</b>	<b>8 366</b>	<b>9 035</b>	<b>1805</b>	
Babohoue	938		235	6
Gbognonhoue	1204		294	
Golamey	246		62	
Houngbezanmey	1856		413	18
Lokoui Bedjamey	1398		268	

Subdistricts and villages	Population Total 2013	Population total 2017	Household 2013	SEP Practicing
Kpayahoue	985		198	2
Tohouehoue	1739		335	11
<b>Total</b>	<b>134 028</b>	<b>150 704</b>	<b>25 106</b>	<b>43</b>

Source: Insaec, Rgph 4, 2013



## Appendix B

### Questionnaire

<b>Application Guidelines in Applying Sufficiency Economy Philosophy (SEP) for the Farmers in Djakotomey district, BENIN</b>
----------------------------------------------------------------------------------------------------------------------------------

#### Interview for farmers

##### Benin Community

Interview No. \_\_\_\_\_

#### **The purpose of the study**

Benin's economy is heavily dependent on agriculture. This agricultural sector provides some employment and income to people. However, they are insufficient enough to improve Beninese's quality of life. Hence, the government entered into a relationship with Thailand (through TICA: Thailand International Cooperation Agency) to bring a development tool known as the Sufficiency Economy Philosophy (SEP) to contribute to Benin's food security and improve the quality of life of people.

Djakotomey is one of the districts where TICA started to introduce SEP concepts to the community with the aim of improving the quality of life of farmers as the Thai government has done with farmers in Thailand.

The purpose of the research is to investigate the success/failures along with the affecting factors in adopting SEP into practice and analytically suggest the appropriate guidelines for the adoption in Benin.

Your participation in this study can help to obtain answers and deepen knowledge on the promotion of SEP in Benin.

**All answers are confidential and your identity will not be revealed at any stage of the research.**

### Part 1: Personal information

Please check in the box and fill in the blank

Number	Questions	Choices	Remark
A1-01	Village name	<input type="checkbox"/> 1= Babohoue	
		<input type="checkbox"/> 2= Houngbezanmey	
		<input type="checkbox"/> 3= Kpatohoue	
		<input type="checkbox"/> 4= Kpayahoue	
		<input type="checkbox"/> 5= Tohouehoue	
A1-02	Name and Surname:		
A1-03	Are you the Head/leader of the house?	<input type="checkbox"/> 1= Yes	
		<input type="checkbox"/> 2= No	
A1-04	Gender	<input type="checkbox"/> 1. Male	
		<input type="checkbox"/> 2. Female	
A1-05	Telephone number		
A1-06	Age		
A1-07	Marital status	<input type="checkbox"/> 1. Single	
		<input type="checkbox"/> 2. Married	
		<input type="checkbox"/> 3. Divorced/ Spouse deceased	
A1-08	Family household number / size		
A1-09	Child (under 14 years old)		
A1-10	How many males and females in your household (over 14 years old)	<input type="checkbox"/> 1=Male..... persons	
		<input type="checkbox"/> 2=Female..... persons	
A1-11	If you are not the head of the house, what is your relationship with the head of the house?	<input type="checkbox"/> 1= Kid	
		<input type="checkbox"/> 2= Parent	
		<input type="checkbox"/> 3= Siblings	
		<input type="checkbox"/> 4= Partner	
		<input type="checkbox"/> 5= Others please specify.....	
A1-12	What is your ethnicity?	<input type="checkbox"/> 1= Adja	
		<input type="checkbox"/> 2= Mina	
		<input type="checkbox"/> 3= Fon	



Number	Questions	Choices	Remark
		<input type="checkbox"/> 4= Others, Please specify .....	
A1-13	What is your religion?	<input type="checkbox"/> 1= Christianity	
		<input type="checkbox"/> 2= Animism	
		<input type="checkbox"/> 3= Muslim	
		<input type="checkbox"/> 4= Others Please specify.....	
A1-14	How long have you lived in the community or village?	<input type="checkbox"/> 1= 0 to 10 years	
		<input type="checkbox"/> 2= 10 to 20 years	
		<input type="checkbox"/> 3= Over 20 years	
A1-15	Do you belong to village association or cooperative?	<input type="checkbox"/> 1= Yes	
		<input type="checkbox"/> 2= No	
A1-16	What is your highest education level completed?	<input type="checkbox"/> 1= No schooling completed	
		<input type="checkbox"/> 2= Under High school/Primary school	
		<input type="checkbox"/> 3= High school/Secondary school or Diploma	
		<input type="checkbox"/> 4= Bachelor's degree and above	
A1-17	Do you have access to microcredit?	<input type="checkbox"/> 1=Yes	
		<input type="checkbox"/> 2=No	
A1-18	What source of the supplied water do you use in your household?	<input type="checkbox"/> 1= Underground water	
		<input type="checkbox"/> 2= Tap water	
		<input type="checkbox"/> 3= River water	
		<input type="checkbox"/> 4=Rainwater	
A1-19	How much do you work?	<input type="checkbox"/> 1= Less than 5 days	
		<input type="checkbox"/> 2= 5 days per week (not include weekend)	
		<input type="checkbox"/> 3= Every day include weekend	
A1-20	How often do you do leisure or take rest?	<input type="checkbox"/> 1= No have time to do	
		<input type="checkbox"/> 2= Some hours per week	
A1-21		<input type="checkbox"/> 1= Less than 0.4 ha.	



Number	Questions	Choices	Remark
	How much area for agriculture do you have?	<input type="checkbox"/> 2= More than 0.4 to 1ha.	
		<input type="checkbox"/> 3= More than 1 ha.	
A1-22	How many animals do you have?	<input type="checkbox"/> 1= Chicken ..... heads	
		<input type="checkbox"/> 2= Pigs ..... Heads	
		<input type="checkbox"/> 3= Cattle ..... heads	
		<input type="checkbox"/> 4= Rabbit ..... heads	
		<input type="checkbox"/> 5= Other, please specify	

### Part 2: Socio-economic of the village

N0	Questions	Choices	Remark
A2-01	Have you followed qualifying professional training in a field?	<input type="checkbox"/> 1-Yes	
		<input type="checkbox"/> 2-No	
A2-02	Please specify the professional training you have received	<input type="checkbox"/> 1= Sewing	
		<input type="checkbox"/> 2= Hairstyle	
		<input type="checkbox"/> 3= Carpentry	
		<input type="checkbox"/> 4= Masonry	
		<input type="checkbox"/> 5= Painting	
		<input type="checkbox"/> 6= Other, please specify.....	
A2-03	Please select your employment type	<input type="checkbox"/> 1= Student	
		<input type="checkbox"/> 2= Homemaker	
		<input type="checkbox"/> 3= Retired	
		<input type="checkbox"/> 4= Unemployed	
		<input type="checkbox"/> 5= Salaried	
		<input type="checkbox"/> 6= Business owner	
		<input type="checkbox"/> 7= Others, please specify.....	
A2-04	Where is your activity income come from? (You can choose more than 1 answer)	<input type="checkbox"/> 1= Crop production including plantations	
		<input type="checkbox"/> 2= Trade	



N0	Questions	Choices	Remark
		<input type="checkbox"/> 3= Civil servant	
		<input type="checkbox"/> 4= Food processing	
		<input type="checkbox"/> 5= Beekeeping	
		<input type="checkbox"/> 6= Breeding	
		<input type="checkbox"/> 7= Transportation	
		<input type="checkbox"/> 8= Craftsman	
		<input type="checkbox"/> 9= Fishing	
		<input type="checkbox"/> 10= Others, please specify other .....	
A2-05	Is your above activity (A2-04) provided enough income?	<input type="checkbox"/> 1= Yes	
		<input type="checkbox"/> 2= No	
A2-06	How much is your average income per month? (Estimate)	.....	

### Part 3: Understanding Sufficiency Economy Philosophy (SEP)

Please check in the Agree or Not Agree with box

	Statement	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
B-01	His Majesty King Bhumibol Adulyadej, The Great, had guided the way of life for people on the path of the Sufficiency Economy Philosophy.					
B -02	SEP stands for Sufficiency Economy Philosophy.					
B -03	Sufficiency in SEP means moderation, reasonableness, and the need for self-immunity. The two conditions under the SEP will work best are appropriate knowledge and ethics and virtues					



	Statement	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
<b>B -04</b>	SEP can be applied at the level of Economy, Community, Environment and culture and at the individual level.					
<b>B-05</b>	SEP is applicable in the agricultural sector, rural areas and in the business sector					
<b>B -06</b>	SEP can be applied to improve the Quality of Life (QOL) in the community					
<b>B -07</b>	Sufficiency Economy Philosophy (SEP) is a tool or concept under Sustainable Development Goals (SDGs)					
<b>B -08</b>	Sufficiency Economy Philosophy (SEP) also emphasizes and promotes various forms of sustainable agricultural practices such as integrated farming, organic agriculture, traditional agriculture and agroforestry.					
<b>B -9</b>	The SEP promotes economy growing step by step from Household to community					
<b>B -10</b>	Morality condition is a proof of ethics, honesty					
<b>B -11</b>	Sufficiency Economy activities promote the decreasing consumption of luxury goods					
<b>B -12</b>	Sufficiency Economy activities promote the balancing of expenditures and incomes					
<b>B -13</b>	The moderation is core of SEP emphasizes production and household members' consumption at a moderate level (too small or too large)					





#### Part 4: Quality of Life **Before** Adopting SEP

Please select the most appropriate answer in the period before you know SEP concept

<b>Before adopting SEP,</b>		Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
C-01	You are happy with the house quality you live in.					
C-02	Your income is sufficient for you and your family.					
C-03	Your income allows you to save money.					
C-04	You always share with neighbors.					
C-05	Your family's daily diet is good for your family's health					
Appreciation related to individual's Health before SEP						
C-06	You have good physical and mental health.					
Appreciation related to Food supplies						
Food supply quantity						
C-07	You have enough food for your family members.					
Food supply quality						
C-08	Your daily meal contains the necessary nutrition and diversity.					



Appreciation related to Social and Family relationships		Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
C-09	You are satisfied with your personal relationship with your family members.					
Farmers' perception of the environmental quality						
C-10	The forest can provide necessary needs to the villagers and protects them from environmental degradation by planting.					
C-11	The soil quality of your farm is almost enhanced by using fewer chemicals, organic fertilizers, and compost.					
	SEP behavior (principles and conditions)					
C-12	You are satisfied with your <u>knowledge sharing</u> on agriculture production with neighbors.					
C-13	You can construct an irrigation system in the farm for water supply by applying local <u>knowledge</u> and wisdom.					
C-14	Your income allows you to save money.					
C-15	You do agricultural activities in moderate way according to your capacity.					
C-16	You do each agriculture activities with reason					



Appreciation related to Social and Family relationships		Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
C-17	To improve village quality in agricultural production way, you need to be honest, sincere to improve your quality of life					
C-18	You have confident to deal with the problems that might take place in agriculture in the future.					
C-19	You always have plan for running agriculture farm with risk management.					

#### Part 5: SEP conduct in Djakotomey community

Please select the most appropriate answer.

	Questions	Choices	Remark
D-01	Do you participate in the SEP training activities with your cooperative?	<input type="checkbox"/> 1= Yes	
		<input type="checkbox"/> 2= No	
D-02	Where have you participated in the training activities with your cooperative?	<input type="checkbox"/> 1=SEP Learning Center Mr. Leon Farm	
		<input type="checkbox"/> 2=Djakotomey commune office	
		<input type="checkbox"/> 3=SEP Learning Center Mr. Mahouna Farm	
D-03	Which activity have you participated in?	<input type="checkbox"/> 1= Agricultural practices (making bio inputs)	
		<input type="checkbox"/> 2= Food processing	
		<input type="checkbox"/> 3= Saving group	
		<input type="checkbox"/> 4= Making household utilities ie soup to reduce expenses and increase income	
		<input type="checkbox"/> 5= Supplement household income generation (by making mushrooms)	
		<input type="checkbox"/> 6= Making local fertilizer from crop residue and cow manure for integrated farming	
D-04		<input type="checkbox"/> 1= Yes	



	Questions	Choices	Remark
D-12	Sufficiency Economy activities promote the using local resources as a major source of living	<input type="checkbox"/> 1-Agree	
		<input type="checkbox"/> 2-Disagree	
D-13	After SEP adopting how do you solve agricultural problems	<input type="checkbox"/> 1= Using Bio Fertilizer	
		<input type="checkbox"/> 2= Using compost	
		<input type="checkbox"/> 3= Integrated farming	
		<input type="checkbox"/> 4= Local knowledge	
		<input type="checkbox"/> 5= Reduce agricultural cost	
		<input type="checkbox"/> 6= reduce chemical fertilizer	

### Part 5: Quality of Life **After** Adopting SEP

Please select the most appropriate answer.

After adopting SEP,		Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
E-01	You are happy with the house you live in.					
E-02	Your income allows you to meet your needs each day.					
E-03	You always share with neighbors.					
E-04	Your daily diet is better for your health.					
Appreciation related to individual's Health after SEP						
E-05	You have good physical and mental health.					
Appreciation related to Food supplies after SEP						
Food supply quantity						
E-06	You have enough food for your family members.					
Food supply quality						
E-07	Your daily meal contains the necessary nutrition and diversity.					





	Questions	Choices	Remark
	Do you use agricultural practices from training activities in your way of life?	<input type="checkbox"/> 2= No	
<b>D-05</b>	Do you practice food processing as a daily activity at the training center?	<input type="checkbox"/> 1= Yes	
		<input type="checkbox"/> 2= No	
<b>D-06</b>	After training activities at the training center, which activities do you practice in your way of life?	<input type="checkbox"/> 1= Agricultural practices (making bio inputs)	
		<input type="checkbox"/> 2= Food processing	
		<input type="checkbox"/> 3= Saving group	
		<input type="checkbox"/> 4= Making household utility ie soup to reduce expenses and increase income	
		<input type="checkbox"/> 5= Supplement household income generation (by making mushrooms)	
		<input type="checkbox"/> 6= Making local fertilizer from crop residue and cow manure for integrated farming	
<b>D-07</b>	Which activities do you practice in your way of life in the food processing section?	<input type="checkbox"/> 1=Dried pineapple	
		<input type="checkbox"/> 2=Dried Tomato	
		<input type="checkbox"/> 3=Cassava French Fries	
		<input type="checkbox"/> 4=Other, Please specify other	
<b>D-08</b>	To improve the village quality, Village leaders need to have	<input type="checkbox"/> 1= Knowledge	
		<input type="checkbox"/> 2= Moderate	
		<input type="checkbox"/> 3= Virtual	
		<input type="checkbox"/> 4= Prudence	
		<input type="checkbox"/> 5= Honesty	
		<input type="checkbox"/> 6= Experiences	
<b>D-09</b>	The SEP practice needs a relationship between village leaders and villagers	<input type="checkbox"/> 1-Yes	
		<input type="checkbox"/> 2-No	
<b>D-10</b>	Are you satisfied with SEP adoption in your daily life?	<input type="checkbox"/> 1-Yes	
		<input type="checkbox"/> 2-No	
<b>D-11</b>	Sufficiency Economy activities promote the decreasing environmental degradation	<input type="checkbox"/> 1-Agree	
		<input type="checkbox"/> 2-Disagree	



<b>After adopting SEP,</b>		<b>Strongly Agree 5</b>	<b>Agree 4</b>	<b>Neutral 3</b>	<b>Disagree 2</b>	<b>Strongly Disagree 1</b>
<b>Appreciation related to social and family relationships</b>						
<b>E-08</b>	You are satisfied with your personal relationship with your family members.					
<b>Farmers' perception of the environmental quality</b>						
<b>E-09</b>	The forest can provide necessary needs to the villagers and protects them from environmental degradation by planting.					
<b>E-10</b>	The soil quality of your farm is almost enhanced by using fewer chemicals, organic fertilizers, and compost.					
<b>SEP behavior (principles and conditions)</b>						
<b>E-11</b>	You are satisfied with your knowledge sharing on agriculture production with neighbors.					
<b>E-12</b>	You can construct an irrigation system in the farm for water supply by applying local knowledge and wisdom.					
<b>E-13</b>	Your income allows you to save money.					
<b>E-14</b>	You do agricultural activities in moderate way according to your capacity.					
<b>E-15</b>	You do each agriculture activities with reason					
<b>E-16</b>	To improve village quality in agricultural production way, you need to be honest, sincere to improve your quality of life					
<b>E-17</b>	You have confident to deal with the problems that might take place in agriculture in the future.					



After adopting SEP,		Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
E-18	You always have plan for running agriculture farm with risk management.					

**Part 6: Summary of the Adoption of SEP into Practice**

1. How long have you accepted “SEP” into practice?.....years or .....months

2. Why do you accept “SEP” into practice? (Please explain)

.....

.....

.....

3. How do you apply “SEP” in your daily life? (Please explain)

.....

.....

.....

4. How do you apply “SEP” in your career? (Please explain)

.....

.....

.....

**Thank you for your cooperation**



## Appendix C

### IOC Questionnaire

**Research title: Guidelines for the Adoption of Sufficiency Economy Philosophy (SEP) into Practice in Benin**

#### Questionnaire

Questionnaire No. \_\_\_\_\_

Benin's economy is heavily dependent on agriculture. This agricultural sector provides some employment and income to people. However, they are insufficient enough to improve Beninese's quality of life. Hence, the government entered into a relationship with Thailand (through TICA: Thailand International Cooperation Agency) to bring a development tool known as the Sufficiency Economy Philosophy (SEP) to contribute to Benin's food security and improve the quality of life of people. Djakotomey is one of the districts where TICA started to introduce SEP concepts to the community with the aim of improving the quality of life of farmers as the Thai government has done with farmers in Thailand.

#### Research objectives

1. To investigate the success/failures along with the affecting factors in adopting SEP into practice in Benin.
2. To experience the learned lesson of success in Improving the QOL of the people thru SEP practicing in Thailand.
3. To analytically suggest the appropriate guidelines for the adoption of SEP into practice in Benin.

Your participation in this study can help to obtain answers and deepen knowledge on the promotion of SEP in Benin.

All answers are confidential and your identity will not be revealed at any stage of the research.

The questionnaire is divided into 6 parts: Personal information, Socioeconomic of the village, Understanding SEP, Quality of life before adopting SEP, SEP conduct in Djakotomey community, and Quality of life after adopting SEP. I would like you to choose

- 1+ If the item matches with the objective(s)
- 0 If you are not sure
- 1 If the item does not match with the objective(s)



**Part 1 and Part 2 are skipped \*\***

**Part 3: Understanding Sufficiency Economy Philosophy (SEP)**

Please check in the Agree or Not Agree box

Understanding Sufficiency Economy Philosophy (SEP)		IOC Scale			
		+1	0	-1	Remark
A2-1	His Majesty King Bhumibol Adulyadej, The Great, had guided the way of life for people on the path of the Sufficiency Economy Philosophy.				
A2-2	SEP stands for Sufficiency Economy Philosophy.				
A2-3	Sufficiency in SEP means moderation, reasonableness, and the need for self-immunity. The two conditions under the SEP will work best are appropriate knowledge and ethics and virtues				
A2-4	SEP can be applied at the level of Economy, Community, Environment and culture <b>but not</b> at the individual level.				
A2-5	SEP is the same as self-sufficiency.				
A2-6	SEP is only applicable in the agricultural sector, rural areas <b>but not</b> in the business sector				
A2-7	SEP can be applied to improve the Quality of Life (QOL) in the community				
A2-9	Sufficiency Economy Philosophy (SEP) is a tool or concept under Sustainable Development Goals (SDGs)				
A2-10	Sufficiency Economy Philosophy (SEP) also emphasizes and promotes various forms of sustainable agricultural practices such as integrated farming, organic agriculture, traditional agriculture and agroforestry.				
A2-11	The SEP promotes economy growing step by step from Household to community				
A2-12	Morality condition is a proof of ethics, honesty				



Understanding Sufficiency Economy Philosophy (SEP)		IOC Scale			
		+1	0	-1	Remark
A2-13	Sufficiency Economy activities promote the decreasing consumption of luxury goods				
A2-14	Sufficiency Economy activities promote the balancing of expenditures and incomes				
A2-15	The moderation is core of SEP emphasizes production and household members' consumption at a moderate level (too small or too large)				

#### Part 4: Quality of Life **Before** Adopting SEP

Please select the most appropriate answer

(5 = strongly agree, 4 = agree, 3 = moderate agree, 2 = disagree, 1 = strongly disagree)

Quality of Life <b>Before</b> Adopting SEP		IOC Scale			
		+1	0	-1	Remark
C-1	You are happy with the house quality you live in.				
C-2	Your income is sufficient for you and your family.				
C-3	Your income allows you to save money.				
C-4	You always share with neighbors.				
C-5	Your family's daily diet is good for your family's health				
Appreciation related to individual's Health before SEP					
C-6	You have good physical and mental health.				
Appreciation related to Food supplies					
Food supply quantity					
C-7	You have enough food for your family members.				
Food supply quality					
C-8	Your daily meal contains the necessary nutrition and diversity.				
Appreciation related to Social and Family relationships					
C-9	You are satisfied with your personal relationship with your family members.				
C-10	You are satisfied with your knowledge sharing on agriculture production with neighbors.				

Quality of Life <b>Before</b> Adopting SEP		IOC Scale			
		+1	0	-1	Remark
Farmers' perception of the environmental quality					
C-11	The forest can provide necessary needs to the villagers and protects them from environmental degradation by planting.				
C-12	The soil quality of your farm is almost enhanced by using fewer chemicals, organic fertilizers, and compost.				
C-13	You can construct an irrigation system in the farm for water supply by applying local knowledge and wisdom.				

SEP conduct in Djakotomey community		Choices	IOC Scale			
			+1	0	-1	Remark
<b>D-5</b>	Do you practice food processing as a daily activity at the training center?	<input type="checkbox"/> 1= Yes				
		<input type="checkbox"/> 2= No				
<b>D-6</b>	After training activities at the training center, which activities do you practice in your way of life?	<input type="checkbox"/> 1= Agricultural practices (making bio inputs)				
		<input type="checkbox"/> 2= Food processing				
		<input type="checkbox"/> 3= Saving group				
		<input type="checkbox"/> 4= Making household utility ie soup to reduce expenses and increase income				
		<input type="checkbox"/> 5= Supplement household income generation (by making mushrooms)				
		<input type="checkbox"/> 6= Making local fertilizer from crop residue and cow manure for integrated farming				
<b>D-7</b>	Which activities do you practice in your way of life in the food processing section?	<input type="checkbox"/> 1=Dried pineapple				
		<input type="checkbox"/> 2=Dried Tomato				
		<input type="checkbox"/> 3=Cassava French Fries				
		<input type="checkbox"/> 4=Other, Please specify other				
<b>D-8</b>	To improve the village quality, Village leaders need to have	<input type="checkbox"/> 1= Knowledge <input type="checkbox"/> 2= Moderate				
		<input type="checkbox"/> 3= Virtual <input type="checkbox"/> 4= Prudence				
		<input type="checkbox"/> 5= Honesty <input type="checkbox"/> 6= Experiences				



## Appendix D

### Certificate IRB of approval

COA No. 359/2023



คณะกรรมการจริยธรรมการวิจัยในมนุษย์ มหาวิทยาลัยราชภัฏเชียงใหม่  
Institutional Review Board, Chiang Mai Rajabhat University  
หนังสือรับรองการพิจารณาจริยธรรมการวิจัย  
(Certificate of Approval)

การวิจัยนี้ได้รับการพิจารณาเข้าข่ายการพิจารณา แบบยกเว้น และการวิจัยที่จะดำเนินการมีความสอดคล้อง  
กับหลักจริยธรรมสากล ตลอดจนกฎหมายข้อบังคับและข้อกำหนดภายในประเทศ จึงเห็นสมควรให้ดำเนินการวิจัย  
ตามข้อเสนอการวิจัยนี้ได้

This research has been considered as an Exemption Review and conducted in accordance with  
international ethical principles. As well as national laws, regulations and regulations. It is deemed  
appropriate to conduct research in accordance with this research proposal.

ชื่อโครงการ : แนวทางการประยุกต์ปรัชญาของเศรษฐกิจพอเพียงสำหรับเกษตรกร ในอำเภोजากโตเมย์  
ประเทศเบนิน

Study Title : APPLICATION GUIDELINES IN APPLYING SUFFICIENCY ECONOMY PHILOSOPHY  
(SEP) FOR THE FARMERS IN DJAKOTOMEY DISTRICT, BENIN

รหัสโครงการ (Project Code) : IRBCMRU 2023/359.30.11

หัวหน้าโครงการและผู้ร่วมวิจัย :

Mr. Georges KODJO Graduate School Chiang Mai Rajabhat University

Head of the Project and Co-Researcher :

Mr. Georges KODJO Graduate School Chiang Mai Rajabhat University

(อาจารย์ ดร.อัศรสิทธิ์ บุญส่งแท้)

(Dr. Akharasit Bunsongthae)

ประธานคณะกรรมการพิจารณาจริยธรรมการวิจัยในมนุษย์ มหาวิทยาลัยราชภัฏเชียงใหม่  
Chairman the Institutional Review Board, Chiang Mai Rajabhat University

วันที่ 20 ธันวาคม 2566

December 20, 2023



หมายเลขรับรอง (Certificate Number) : IRBCMRU 2023/359.30.11

วันที่ให้การรับรอง : 20 ธันวาคม 2566

วันหมดอายุใบรับรอง : 19 ธันวาคม 2567

Date of Approval : December 20, 2023

Expiration Date : December 19, 2024



International Collaborative Seminar  
Wednesday 17 April 2024



明治大学  
MEIJI UNIVERSITY



Certificate of participation presented to

**Mr. Georges KODJO**

“Application Guidelines in Applying Sufficiency Economy Philosophy (SEP) for the  
Farmers in Djakotomey District, Benin”

**Participating universities**

Tribhuvan University, Nepal  
Jambi University, Central Sumatra, Indonesia  
Udayana University, Bali, Indonesia  
Malikussaleh University, Aceh, Indonesia  
Chiang Mai Rajabhat University, Thailand  
Universiti Pendidikan Sultan Idris, Malaysia  
Universiti Tunku Abdul Rahman, Malaysia  
National Chung Cheng University, Taiwan  
Meiji University, Japan  
University of Canterbury, New Zealand  
Edith Cowan University, Australia  
Queensland University of Technology, Australia

**University Convenor**

Dr. Thita Soonthornvipat  
Chiang Mai Rajabhat University, Thailand

**International Moderator**

Professor Emeritus Acram Tajji <sup>AM</sup>  
Australia

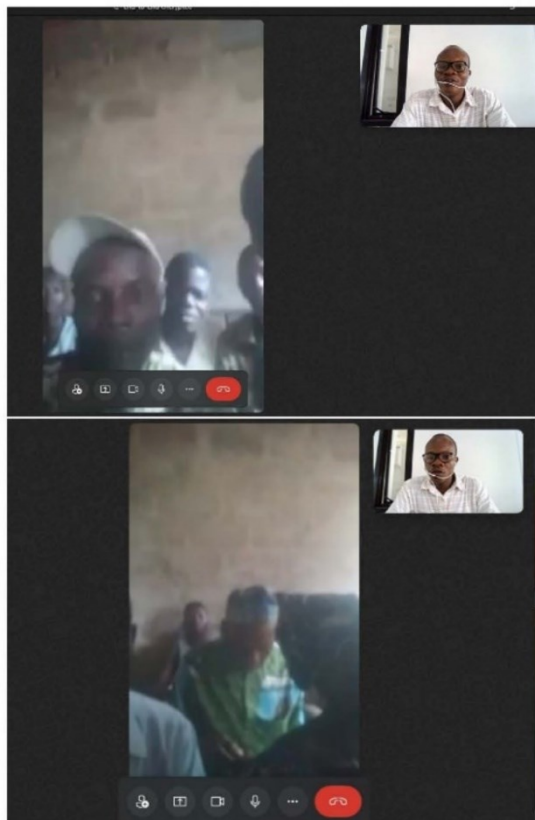


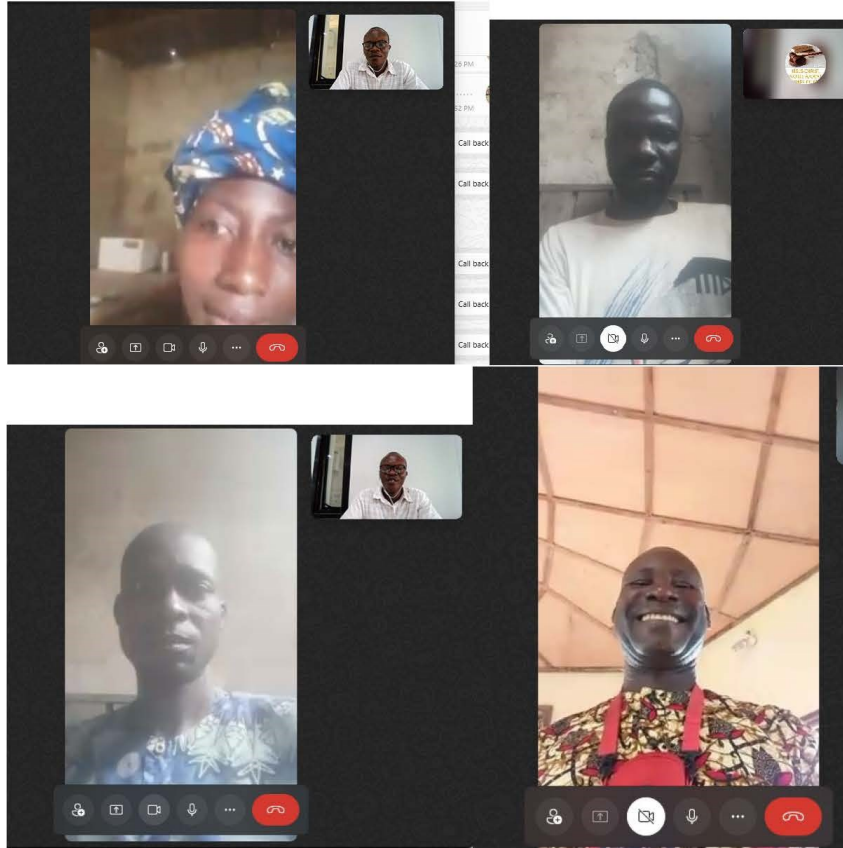
## Appendix E

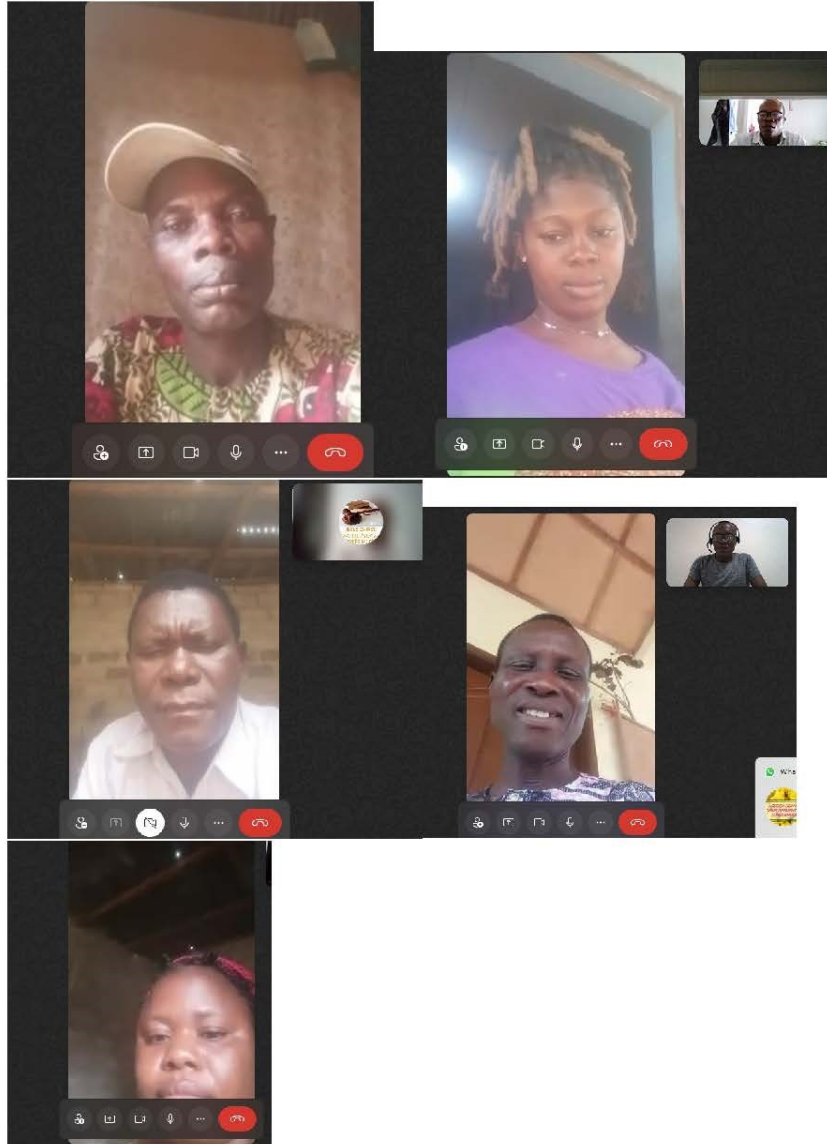
### Some Pictures from the online interview in Djakotomey and in Huay Tong

Appendix E: Some pictures from online interview in Djakotomey and in Huay Tong

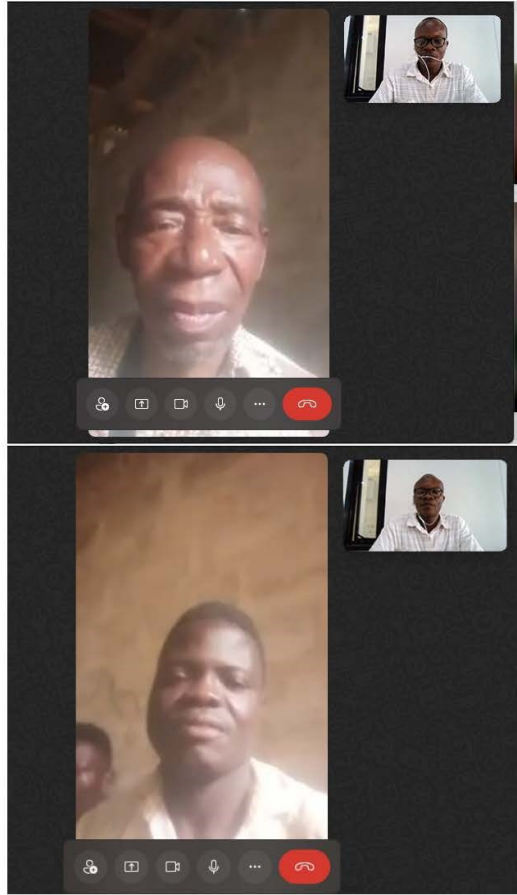
- Online interview in Djakotomey



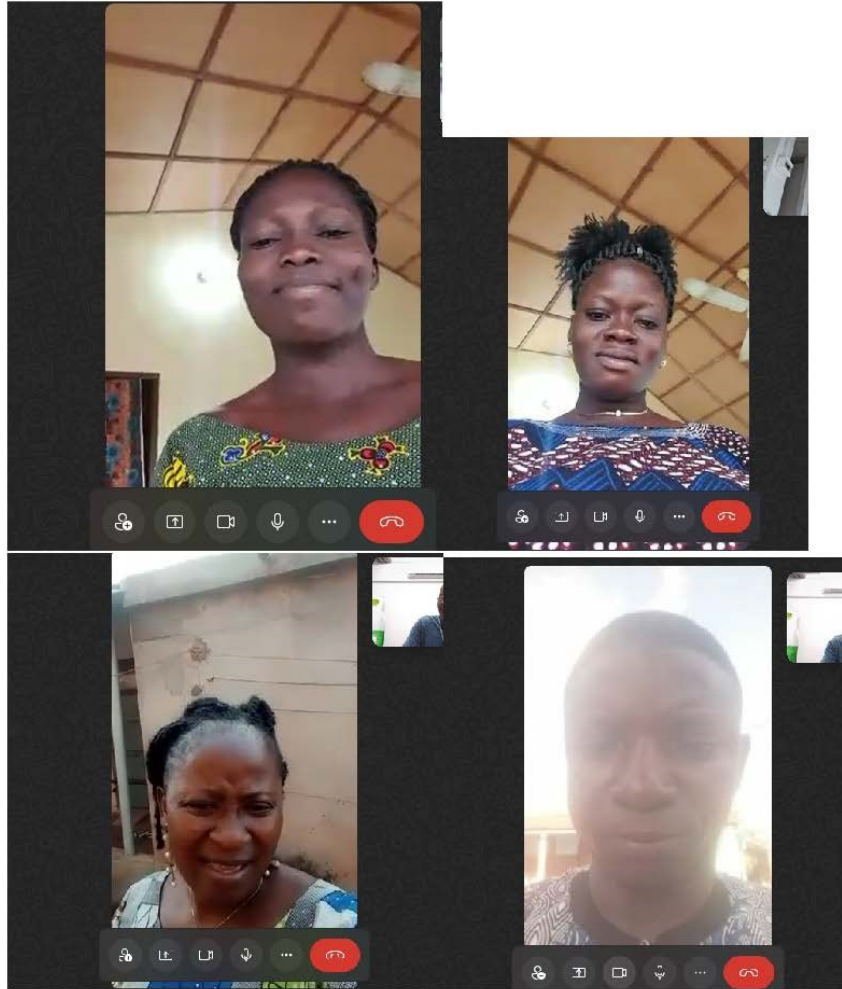




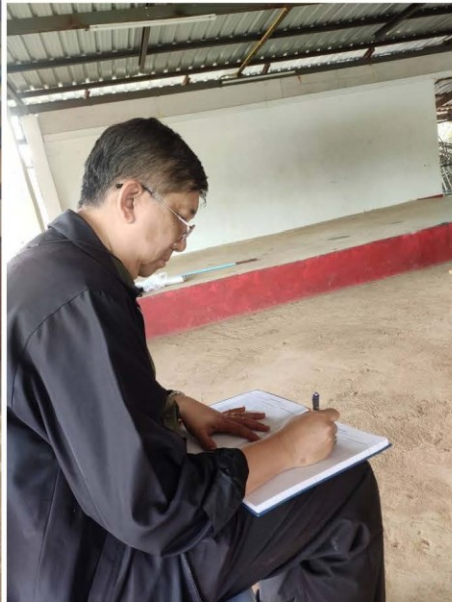
WADDA







© 2023























SAADIA







WADSWORTH

- Interview in Huay Tong



Archidendron pauciflorum or dog fruit or jering


























## AOTTO LEON'S

### COMMUNITY LEARNING CENTER

Plant  
Compost  
Solar Oven  
Wood Vinegar  
Food Processing



## CURRICULUM VITAE

**Name – surname** Georges KODJO

**Date of Birth** 1<sup>st</sup> January 1990 at Tohouèhoué

**Present Address** Home Egah KODJO / Djakotomey 2 Subdistrict,  
Djakotomey District, Couffo Province,  
Tel +229 96 23 14 45

**E-mail Address** [kodjogeorges48@gmail.com](mailto:kodjogeorges48@gmail.com) / [65856101@cmru.ac.th](mailto:65856101@cmru.ac.th).

### **Educational Background**

2009 – 2013 Degree of Bachelor  
Program Natural Sciences  
Institute National University of Abomey Calavi /  
Faculty of Sciences and Technology (FAST)

### **Work Experience**

2024 Participation of International Collaborative Seminar  
2024 Participation of training on Sustainable  
Development Goals Participatory Guarantee  
System Inspector organized by Chiang Mai  
Rajabhat University  
2024 Agricultural Management with Technology  
Agricultural Innovation Technology Company  
Limited, Mae Rim, Chiang Mai  
2017-2021 Position Program Manager  
NGO Research-Impact-Development (RID)  
Borgou and Alibori Provinces/ Benin



2018 – 2021 Work in collaboration with some NGOs and Public Offices such as ProAgri.4, DSA Couffo, Helvetas Natitingou, DEDRAS Parakou, AFCGiZ/ ProAgri, Project BeniBiz de Technoserve Benin (NGO american) as consulting among farmers in improving Food Security in North and center of Benin and Project PROJEUNES, CARE International Benin and Togo in sexual and reproductive health and rights of adolescents, youths and women in Benin.

