



Tracking Global Value Chains (GVCs)

**on Palm Oil, Fisheries, Rice and
Coffee Commodities in Indonesia,
Thailand, The Philippines, and Vietnam**

Tracking Global Value Chains (GVCs) on Palm Oil, Fisheries, Rice and Coffee Commodities in Indonesia, Thailand, The Philippines, and Vietnam

Panji Tirta Nirwana Putra
Darmawan Prasetya
Samira Hanim
Rizky Deco Praha
Eka Afrina Djamhari
Aqilatul Layyinah
Irvan Tengku Harja
Herni Ramdlaningrum
Nguyen Duc Thanh
Phan Nhat Quang
Do Thi Le
Wanun Permpimbul
Alladin Esteban Diega



P R A K A R S A
Welfare Initiative for Better Societies

2022

Tracking Global Value Chains (GVCs) on Palm Oil, Fisheries, Rice and Coffee Commodities in Indonesia, Thailand, The Philippines, and Vietnam

Referencing:

Perkumpulan PRAKARSA. (2022). Tracking Global Value Chains (GVCs) on Palm Oil, Fisheries, Rice and Coffee Commodities in Indonesia, Thailand, The Philippines, and Vietnam. Perkumpulan PRAKARSA

Researchers and Authors:

Panji Tirta Nirwana Putra, Darmawan Prasetya, Samira Hanim, Rizky Deco Praha, Eka Afrina Djamhari, Aqilatul Layyinah, Irvan Tengku Harja, Herni Ramdlaningrum, Nguyen Duc Thanh, Phan Nhat Quang, Do Thi Le, Wanun Permpimbul, Alladin Esteban Diega.

Reviewer:

Victoria Fanggidae

Managing Director:

Ah Maftuchan

Design and Layout:

Bambang Nurjaman, Dedi Sunarya

Publisher:

Perkumpulan PRAKARSA
Komplek Rawa Bambu 1
Jl. A No. 8E Kel. Pasar Minggu, Kec. Pasar Minggu
Jakarta Selatan, Daerah Khusus Ibukota Jakarta 12520, Indonesia

Keywords:

Global value chain, inclusive, fairness, palm oil, fisheries, rice, coffee

Disclaimer:
This report is based on “Tracking Global Value Chains (GVCs) on Palm Oil, Fisheries, Rice and Coffee Commodities in Indonesia, Thailand, The Philippines, and Vietnam” which is supported by Oxfam Novib – Fair for ALL. This report is the responsibility of the authors and can in no way be taken to reflect the views of Oxfam.



Table of Contents	iii
List of Table	v
List of Figure	vi
List of Case Box	vii
List of Appendix	viii
List of Abbreviations	ix
Preface	x
Executive Summary	xii
Chapter 1 INTRODUCTION	1
1.1 Background	2
1.2. Research questions	3
1.3. Objectives	3
1.4. The structure of the report	3
Chapter 2 LITERATURE REVIEW OF GLOBAL VALUE CHAIN	5
2.1. Theoretical Framework of International Trade and Global Value Chain	6
2.2. Previous studies of GVC	11
2.3. Research framework	12
2.4. The Research Process	13
Chapter 3 RESEARCH METHODOLOGY	15
3.1. Quantitative method	16
3.2. Qualitative method	17
3.3. Scope of study	21

Chapter 4 INPUT-OUTPUT STRUCTURE ANALYSIS AND GVC PARTICIPATION OF INDONESIA, THE PHILIPPINES, THAILAND AND VIETNAM	24
4.1. Input-output analysis for commodity in Indonesia	25
4.2. Input-output analysis for commodity in The Philippines	28
4.3. Input-output analysis for commodity in Thailand	31
4.4. Input-output analysis for commodity in Vietnam	34
Chapter 5 GLOBAL VALUE CHAIN IN FOUR SELECTED COMMODITIES	37
5.1. Global value chain of palm oil in Indonesia	38
5.2. Global value chain of rice in Thailand and The Philippines	65
5.3. Global value chain of fisheries in Indonesia	114
5.4. Global value chain of coffee in Vietnam	137
Chapter 6 CONCLUSIONS AND RECOMMENDATIONS	155
6.1. Conclusions	156
6.2. Recommendations	156
References	161
List of Appendix	168

List of Table

Table 1. Comparison of coffee bean and CPO production between Indonesia and Vietnam	7
Table 2. Comparison of unit prices of coffee beans and CPO between Indonesia and Vietnam	7
Table 3. Comparison of the relative prices of coffee beans and CPO between Indonesia and Vietnam	7
Table 4. Structure of an Input-Output Table	16
Table 5. Data Sample	18
Table 6. In-depth Interview Key Areas	18
Table 7. ICIO code and commodity proxies in GVC	24
Table 8. Industrial Contribution, Input, and Output Structure of Palm Oil Commodity, 2018	39
Table 9. Value and Index Total Backward and Forward Linkages of Palm Oil Commodity, 2018	42
Table 10. Top-10 Indonesian palm oil exporting groups to China, July 2019-June 2020 (tons)	48
Table 11. Production Process on Palm Oil Commodities	56
Table 12. Industrial Contribution, Input, and Output Structure of Rice Commodity, 2018	66
Table 13. Value and Index of Total Backward and Forward Linkages of Rice Sector, 2018	68
Table 14. Global rice production and consumption in 2020 (Million ton)	70
Table 15. Main exporters and importers of rice (2019 – 2020)	71
Table 16. List of commercial company in rice	83
Table 17. Integrated rice production and marketing plan	89
Table 18. Industrial Contribution, Input, and Output Structure of Coffee Commodity, 2018	115
Table 19. Value and Index Total Backward and Forward Linkages of Fishery Commodity, 2018	117
Table 20. Fishery production of each continent from 2015 to 2019 by quantity (million MT)*	120

Table 21. Total fisheries production of Southeast Asia (by country): Volume (thousand mt) and Value (US\$ billion)	121
Table 22. Production of the fisheries sub-sectors of Southeast Asia in 2019 by quantity (MT) and value (USD thousand)	122
Table 23. World employment for Fishers and fish farmers, by region (thousands)	129
Table 24. Industrial Contribution, Input, and Output Structure of Coffee Commodity, 2018	138
Table 25. Value and Index of Total Backward and Forward Linkages of Coffee Sector, 2018	140
Table 26. Employment in Vietnam by Coffee GVC Segment in 2021	146
Table 27. Average income of workers by gender in Vietnam (VND/hour)	148
Table 28. Origin Issue Assessment on Vietnam's coffee	149

List of Figure

Figure 1. Six dimensions of GVC analysis by area context	10
Figure 2. Global Value Chain in 6 dimensions	11
Figure 3. Research framework	13
Figure 4. Research stages	14
Figure 5. Indonesia's GVC Participation, 1995-2018	28
Figure 6. The Philippines' GVC Participation, 1995-2018	31
Figure 7. Thailand's GVC Participation, 1995-2018	33
Figure 8. Vietnam's GVC Participation, 1995-2018	36
Figure 9. Palm oil top global producers 2021	45
Figure 10. Palm oil companies worldwide in 2021 based on market capitalization (in million U.S. dollars)	47
Figure 11. Worldwide Palm Oil Exporters in 2021	47
Figure 12. Worldwide Palm Oil Importers in 2021	48
Figure 13. Directory of Oil Palm Plantation Companies in Indonesia in 2020	49
Figure 14. Policies, regulations, and institutional bodies managing the palm oil sector, crossing from global to sub-national level	51

Figure 15. ISPO and RSPO certification	54
Figure 16. Palm Oil Global Value Chain	63
Figure 17. Rice Value Chain in The Philippines	75
Figure 18. Stakeholder on Rice Value Chain in Thailand	89
Figure 19. Percentage of the sub-sectors' contribution to Southeast Asia's fishery production in 2019 (left in quantity; right in value)	122
Figure 20. Value (US\$1,000) and quantity (t) of top countries destination of major fish and fishery products exported by Indonesia in 2018 (ranking based on value)	125
Figure 21. Fisheries Global Value Chain	135
Figure 22. Leading Producers of coffee, 2010 – 2020, (60kg bags)	142
Figure 23. Vietnam in Coffee Global Value Chain	144
Figure 24. Coffee Global Value Chain of Vietnam, 2016	144
Figure 25. Top 10 Vietnamese coffee exporters, 2021	145
Figure 26. The level of technology used in coffee processing in Vietnam in 2019	147
Figure 27. Vietnam's participation in the global coffee value chain	153

List of Case Box

Case Box 1 Rice Value Chain in The Philippines	74
Case Box 2 Rice value chain in Thailand	77
Case Box 3 Rice value chain in Vietnam	79
Case Box 4 Governance Structure Rice Value Chain in Thailand	86
Case Box 5 The Case of Nueva Ecija	97
Case Box 6 The behavior of businesses	113
Case Box 7 Fisheries Value Chain in Central Java Province	130
Case Box 8 Processing activities are carried out in households, private collection facilities, and companies	153

List of Appendix

Appendix 1.	Indonesia's Industrial Contribution, Input, and Output Structure, 2018	168
Appendix 2.	Indonesia's Value Added Structure and the Relationship with Other Sectors and Countries, 2018	169
Appendix 3.	Indonesian Commodity Exports to the Philippines, Thailand, Vietnam, and Rest of the World, 2018 (million USD)	170
Appendix 4.	Value and Index Total Backward and Forward Linkages Sectoral in Indonesia, 2018	171
Appendix 5.	The Philippines' Industrial Contribution, Input, and Output Structure, 2018	172
Appendix 6.	The Philippines' Value Added Structure and the Relationship with Other Sectors and Countries, 2018	173
Appendix 7.	The Philippines Commodity Exports to Indonesia, Thailand, Vietnam, and Rest of the World, 2018 (million USD)	174
Appendix 8.	Value and Index Total Backward and Forward Linkages Sectoral in the Philippines, 2018	175
Appendix 9.	Thailand's Industrial Contribution, Input, and Output Structure, 2018	176
Appendix 10.	Thailand's Value Added Structure and the Relationship with Other Sectors and Countries, 2018	177
Appendix 11.	Thailand Commodity Exports to Indonesia, the Philippines, Vietnam, and Rest of the World, 2018 (million USD)	178
Appendix 12.	Value and Index Total Backward and Forward Linkages Sectoral in Thailand, 2018	179
Appendix 13.	Vietnam's Industrial Contribution, Input, and Output Structure, 2018	180
Appendix 14.	Vietnam's Value Added Structure and the Relationship with Other Sectors and Countries, 2018	181
Appendix 15.	Vietnam Commodity Exports to Indonesia, the Philippines, Vietnam, and Rest of the World, 2018 (million USD)	182
Appendix 16.	Value and Index Total Backward and Forward Linkages Sectoral in Vietnam, 2018	183

List of Abbreviations

GVC	: Global Value Chain
ADB	: The Asian Development Bank
ASEAN	: The Association of Southeast Asian Nations
MSMEs	: Micro Small Medium Enterprise
CPO	: Crude Palm Oil
IO	: Input Output
OECD	: The Organisation for Economic Co-operation and Development
DVX	: Indirect Value Added
FVA	: Foreign Value Added
GVA	: Gross Value Added
ICIO	: Inter Country Output Table
TIVA	: Trade in Value Added
GoI	: Government of Indonesia
ISPO	: Indonesian Sustainable Palm Oil
RSPO	: Roundtable on Sustainable Palm Oil

Preface

Technological, political, and institutional developments have triggered significant globalization of production processes in various countries. Global trade developments have also accelerated the economic integration process across countries. A country's participation in global trade will undoubtedly open up opportunities to trade its commodities to other countries more massively. However, global trade is always unpredictable, and many developing countries rely on it as the main instrument for economic growth, development, and job creation.

On the other hand, as the global trading system develops, injustice is triggered along the value chain process from upstream to downstream. Value chain activities can occur within or across companies and countries. Therefore, global and regional trade governance changes shall be a shared plan for developing and developed countries. Developing countries should be more confident conducting trade negotiations and renegotiations at the global and regional levels. The potential of natural resources owned and existing markets come up as the capital to improve trade governance.

Southeast Asia has become one of the most economically stable regions with abundant potential. It is indicated by Southeast Asia's dominance in economic activity in the agricultural, plantation, and fishery sectors. Such a fact indeed reveals that ASEAN possesses a strong position and can become the center of the Global Value Chain (GVC) in the future. Therefore, it requires cross-sectoral and international coordination and collaboration for a more inclusive and equitable GVC.

In addition, the COVID-19 pandemic and the climate and food crisis have changed the GVC to be more segmented and diversified, urging the countries to increase their resilience and sustainability. In 2021, the Deputy Secretary-General for ASEAN Economic Community highlighted that "the growth of new GVC activities would support ASEAN economic recovery, prevent job relocation, and offer sustainable recovery growth to the region. Besides, ASEAN has a favorable opportunity to benefit from this trend."

PRAKARSA is currently a part of the Fair for All worldwide network, which works to advance a more inclusive and equitable value chain system. One of our efforts is to collect evidence that stakeholders can utilize to accelerate changes in trade governance that are more equitable and inclusive. One such endeavor is the present study. This study examined the involvement of marginal and informal actors in value chain processes, such as farmers, workers, MSMEs, and women, in the GVC process. In addition, this study presents observation results on the benefits of GVC for improving the economy and standard of living of business actors, especially for rice, coffee, palm oil, and fisheries commodities in four ASEAN countries (Indonesia, Vietnam, Thailand, and The Philippines).

The study results indicated that GVC in ASEAN has not contributed optimally to addressing socio-economic issues, economic inequality, and supply chain inclusiveness of agricultural and fishery commodities. In practice, larger corporations continue to dominate GVC; thus, it only benefits big players and excludes other actors, including small farmers, MSMEs, and employees, especially women. Unfortunately, since production systems are spread across a wide range of locations, it is difficult to determine which country actively participates in GVC and observe the value a country acquires for its participation.

Farmers and fishermen constantly endure multidimensional poverty, poor working conditions, and injustice against women workers. Further, human rights violations and unethical jobs remain common among coffee farmers in Vietnam. Apart from that, small fishermen also often encounter human rights violations due to exploitation by wholesalers and middle-level retailers. In these four commodities, farmers and fishermen do not gain added value from their production, while the government does not fulfill their well-being.

We expect this research report to enrich information and serve as evidence to encourage stakeholders, especially policymakers, to take concrete steps to actualize a fair, inclusive, and sustainable value chain process. The research team of the PRAKARSA, the Asian People Movement for Debt and Development (APMDD), Climate Watch Thailand, and the Vietnam Center for Economic and Strategic Studies (VESS), which are members of TAFJA (Tax and Fiscal Justice Asia), have put a lot of effort into this study.

This report is expected to enrich and reinforce existing sources of knowledge; thus, every policymaker is fully committed to improving value chain policies that are fair, inclusive, sustainable, and have an impact on improving people's welfare.

Jakarta, July 21, 2022

Ah Maftuchan

The PRAKARSA Executive Director

Executive Summary

This report presents an analysis of Global Value Chain (GVC) patterns of four value chains, which are: rice, palm oil, fisheries, and coffee in four ASEAN countries including Indonesia, Thailand, Vietnam, and the Philippines and provides evidence whether the value chains have been inclusive for those at the bottom of the pipeline. Objectives of this research is to identify the GVC patterns of four commodities (rice, palm oil, coffee, and fisheries) in Indonesia, the Philippines, Thailand and Vietnam; and also, to understand the inclusiveness and fairness of value chains of four commodities (rice, palm oil, coffee and fisheries) for marginal actors such as MSMEs, peasants, and women in Indonesia, the Philippines, Thailand and Vietnam.

The methodology applied in this research is mixed-methods approach where quantitative and qualitative methods were combined in data collection and analysis processes. This approach was selected because GVC data contains various types of data and using mixed-methods, and therefore it provides a more comprehensive understanding of GVC from macro to micro level. The quantitative approach was used to analyse input-output data to obtain a picture about each commodity and its value-added distribution. The qualitative approach was used to analyse and to obtain an overview of specific cases regarding GVC from each country. Primary data generated from interview results that was analysed to understand the dimensions of inclusiveness and fairness of GVC in each country based on the perspective of the actors involve in the commodities as well as the policy makers, while secondary data was accessed from official sources such as government statistics and international organisations' data.

This research findings have shown that while the involvement of marginal actors such as farmers, workers, MSMEs and women in the GVC process could be potential and beneficial for their economic improvement and living standards, such potential has yet to be achieved. Based on the four countries studied, Vietnam has better comparative advantage for their domestic economy and global contribution to the value chain of the four countries'

commodities. In addition to playing an interactive role in advancing value chains, this key role is very useful in providing a simultaneous improvement of their domestic economy, especially in this primary sector. Compared to Vietnam, the output of the agricultural and fisheries sector of Indonesia, the Philippines, and Thailand, which is lower per capita, is dominated by final demand, thus it provides less value-added in the intermediate industry. Peasants and fishermen at the bottom of the chain do not own the capacity to calculate harvest and catch results due to their low educational background and financial illiteracy. This creates exploitation opportunity by middle level wholesalers and retailers where those at the bottom of the chain has very weak bargaining position. In some worst cases, had caused indebtedness.

Under the concept of GVC, inclusiveness occurs when all actors especially those at the downstream level get equal benefits from the production process. The study found that in all commodities in all countries are not inclusive and there is an unfair distribution of benefits. Independent farmers in palm oil face the multidimensional poverty and palm oil workers do not have decent working conditions and injustice to women workers. Furthermore, coffee commodity experiences human rights violation issues such as the indecent work situations in Vietnam, while fishery commodity experiences violation on human rights on exploitation, committed by middle-level wholesalers and retailers. In rice and other commodities, farmers and fishermen do not obtain the added value from what they have produced, while their welfare is also being abandoned by the government, and is being placed into the market mechanism. In this case, the government's role is needed as a regulator and institutional control in a fair chain process.



Finally, this report proposes several policy recommendations:

Governments need to ensure that their domestic policies and international policies are made and implemented in the vision to improve the livelihood and standards of living of those who involved in GVC at the bottom of the chains, not just to strengthen and secure market for large enterprises;

01 Governments need to ensure that their domestic policies and international policies are made and implemented in the vision to improve the livelihood and standards of living of those who involved in GVC at the bottom of the chains, not just to strengthen and secure market for large enterprises;

02 Governments should improve access of marginal actors to participate in GVCs but must concurrently protect them from the negative impact of free market with better institutional governance.

03 Business sector must ensure compliance to policies and regulations and respect their relationships with and rights of smallholder producers at the upstream level; 4) Civil society organizations (CSO) can take a role in monitoring global value chain to ensure its fairness and inclusiveness to marginal actors.

04 Government and business sector must mainstream gender sensitive policies for gender equality and in upgrading in global value chains;

05 ASEAN countries governments need to build a suitable business ecosystem that enables all actors to play in equal footing.

Photo by: Onlyyouqj

Chapter 1 Introduction

Global value chain (GVC) is a phenomenon where each country plays their role as supplier of raw materials, intermediate products and final goods or services (DJKPI, 2012). Not all trade can be categorized as GVC, only trade that involve two or more countries that can be categorized as GVC (Asian Development Bank, 2021).

1.1 Background

Global trade has accelerated the economic integration of many national economies. Cross-country trade has opened and broadened access of these economies to access the international market. Such integration provides opportunities for countries to increase their trade growth and subsequently, economic growth. In contrast, the biggest challenge of the integration process is the uncertainty of global trade and trade system because many developing countries rely on trade as their primary instrument to achieve economic growth, development and job creation. Furthermore, the wider the opportunity to participate in global trade, the better the opportunity for a country to contribute in production process of goods and services. Such process can be observed in the so-called global value chain. Global value chain (GVC) is a phenomenon where each country plays their role as supplier of raw materials, intermediate products and final goods or services (DJKPI, 2012). Not all trade can be categorized as GVC, only trade that involve two or more countries that can be categorized as GVC (Asian Development Bank, 2021). Participating in GVC should ideally provide opportunity to improve a country's economic condition. Nevertheless, GVC process has not inclusive and participatory yet.

GVC is still dominated by big players and big economies. This reduces the effectiveness of trade because the advantages from such trade provides profits only to big players and exclude some actors such as small farmers, MSMEs and workers, especially women workers. Because the productions system spreads in all over different locations, it is more complicated to determine which country applies more participation and how much values a country receives from its participation in the GVC. The GVC should ideally increase efficiency and creating larger profits in each part of the production chain system. Therefore, level of participation in GVC is important for a country, especially for low-income ones, to have a share in the global trade because a country receives additional values incorporating from other countries' exports against its own exports (ADB, 2021).

In Southeast Asia context, the region has integrated its economic and trade under ASEAN. The dominating economic activities are agricultural related sectors. Its climate and geographical condition have made Southeast Asia ideal for agricultural and fishery commodities. Among the ASEAN members, Indonesia, Thailand, Vietnam and the Philippines share similar economic structures and integrated under one trade system of agriculture and fishery commodities. Palm oil, fisheries, rice, and coffee are strategic and important commodities in this region. The ASEAN region is an alternative trade and will become the centre of the Global Value Chain (GVC) in the future (ADB, 2020). Furthermore, ADB states that 64% of exports from the ASEAN region contribute to GVC. This indicates the strategic importance of ASEAN region and its major contribution to GVC. However, there are several problems in the GVC process in ASEAN including socio-economic issues, economic inequality, and supply chain inclusiveness in palm oil, fisheries, rice, and coffee (Global Value Chains in ASEAN, 2019).

In addition, Covid-19 has sent shocks and changes in GVC to be more segmented and diversified. Therefore, countries must enhance their resilience and sustainability. ASEAN Deputy Secretary General for ASEAN Economic Community highlighted "the growth of new GVC activities will support the ASEAN economic recovery, replace job relocation and bring sustainable recovery growth to the region and ASEAN has a good chance of reaping the benefits of this emerging trend." (ASEAN Secretariat, 2021).

Experts warn that ASEAN should focus on efforts to improve its overall competitiveness through good regulatory practices, development of critical infrastructure, better connectivity, and human resource development. Cross-sectoral and cross-countries coordination and collaboration for a more inclusive and fairer GVC in post-Covid-19 time are imperatives. This research will help understand the GVC patterns of four value chains, which are; rice, palm oil, coffee, and fisheries in four ASEAN countries including Indonesia, Thailand, Vietnam and the Philippines and provides evidence whether the value chains have been inclusive for those at the bottom of the pipeline.

1.2. Research questions

1. How are the GVC patterns of four commodities (palm oil, coffee, rice and fisheries) in Indonesia, the Philippines, Thailand, dan Vietnam?
2. Have the value chains in the four commodities (palm oil, coffee, rice and fisheries) been inclusive and fair for marginal actors such as MSMEs, small farmers and women in each country?

1.3. Objectives

The objectives of this research are:

1. To identify the GVC patterns of four commodities (rice, palm. oil, coffee, and fisheries) in Indonesia, the Philippines, Thailand and Vietnam.
2. To understand the inclusiveness and fairness of value chains of four commodities (rice, palm oil, coffee and fisheries) for marginal actors such as MSMEs, small farmers and women in Indonesia, the Philippines, Thailand and Vietnam.

1.4. The structure of the report

This report is structured as follows ;The first chapter introduces the research background, questions and objectives. Chapter 2 consists of literature review of GVC, looking at prominent literature in GVC that present GVC concept and relevant literature that

contribute to the theoretical framework employed in this research project. Chapter 3 explains the research methodology and the research design in general. In Chapter 4, the authors present the results of quantitative data analysis through analysis of input-output data, to show how each country's GVC in comparison with other countries and GVC at the global level. Chapter 5 presents and discusses main findings from qualitative interviews with research participants in four participating countries which are organised based on important GVC themes. Chapter 6 consists of conclusions and recommendations of this research.

Photo by: OJ Serrano

Chapter 2

Literature Review of Global Value Chain

GVC is an important factor in today's global economy because the structure of the economy is formed through GVC which includes international trade, global GDP, and also employment. Previously, GVC was only synonymous with economic principles and the issue of the level of competition between countries. Currently it has covered many things such as social, environmental, labor, and gender issues.

2.1 Theoretical Framework of International Trade and Global Value Chain

a. International trade (comparative advantage theory)

Comparative advantage is a condition in which a country produces goods or services at a lower price than other countries. A nation with a comparative advantage makes an exchange profitable. A country may not be the best producer of a particular good or service, but comparative advantage allows the goods or services produced to be imported by other countries that do not have a comparative advantage on these goods or services.

For example, countries that produce crude palm oil (CPO) have a comparative advantage in butter products. Domestic CPO production is a cheap raw material for butter production compared to butter producing countries without domestic CPO production. For example, butter companies in Indonesia are more competitive than Vietnam because they can buy CPO at low prices available in the domestic market.

Another example is Vietnamese coffee. The company holding the processed coffee brand in Thailand purchases coffee beans from Vietnam because the price is cheaper than buying it in the domestic market. This example shows that importing coffee beans from Vietnam is more profitable in terms of trade-off for Thai companies, compare to purchase more expensive domestic coffee beans.

The aforementioned examples refer to David Ricardo's theory (in Bloch, 2020) on international trade based on the principle of comparative advantage. The idea of comparative advantage rests on the division of labour and specialization in the field of production. In international trade, comparative advantage concerns the advantage of a nation to produce certain types of goods or services with less costs, compared to situations where resources and funds are devoted to other types of goods or services.

From the examples of Indonesian CPO and Vietnamese coffee beans, it appears that Indonesia will gain more advantages if its production is concentrated on CPO. It is because with an hour of labor, Indonesia can produce 120 t of CPO, while, Vietnam can only produce 80 t CPO per hour. Ideally, Indonesia should deploy its resources and funding to produce coffee beans because one-hour coffee beans production in Indonesia can reach 100 t, while Vietnam only reaches 90 t. That is because in terms of absolute advantage, production cost of coffee beans in Indonesia has more advantages compared to Vietnam. Therefore, according to absolute advantage theory, Indonesia and Vietnam do not trade, because Indonesia has more advantages.

Table 1. Comparison of coffee bean and CPO production between Indonesia and Vietnam

Countries	Coffee beans volume (t/ hour)	CPO volume (t/ hour)
Indonesia	100	120
Vietnam	90	80

Source: author

However, using comparative advantage, both countries can trade and gain profits if they focus on products that have lowest costs. To measure the opportunity of lowest cost, we need to calculate relative prices of 1 t of coffee beans against CPO in both countries. The result is as follow.

Table 2. Comparison of unit prices of coffee beans and CPO between Indonesia and Vietnam

Countries	T (coffee beans)	T (CPO)
Indonesia	1	1,2
Vietnam	1	0,89

Source: author

Table 2 shows that opportunity cost to produce one unit of coffee beans in Indonesia is equivalent to 1.2 unit of CPO, while in Vietnam, opportunity cost for 1 unit of coffee beans is equivalent to 0.89 unit of CPO. The assumption is that price of each product is equivalent to the opportunity cost. As such, coffee beans price in Vietnam is less expensive than in Indonesia, because its relative price against CPO is lower. In the following, we can see the calculation of relative price of 1 unit of CPO against coffee beans in both countries. The result can be seen in Table 3 below:

Table 3. Comparison of the relative prices of coffee beans and CPO between Indonesia and Vietnam

Countries	T (coffee beans)	T (CPO)
Indonesia	0,83	1
Vietnam	1,12	1

Source: author

As in the previous table, we assume price is equal to opportunity cost. In Indonesia, the price of 1 t of CPO is equivalent to 0.83 t of coffee beans; less expensive than in Vietnam, where the price of 1 t CPO is equivalent to 1.12 t coffee beans. According to comparative advantages theory, trade between Indonesia and Vietnam is mutually beneficial. Comparatively, Indonesia has an advantage in CPO production, while Vietnam has an advantage in coffee beans production.

b. Global Value Chain concept

In recent years, a series of technological, institutional, and political developments have triggered a significant globalization of production processes across countries. Value chain is a series of processes, or activities from a beginning to an end with all the processes involved behind it, which are carried out by companies and workers in creating a product.



This value chain describes the full range of activities that firms and workers perform to bring a product from its conception to end-use and beyond. This includes activities such as research and development (R&D), design, production, marketing, distribution and support to the final consumer.

The value chain on a global scale is often referred to as the Global Value Chain (GVC). GVC is defined as "...the relationships between firms and other actors through the spatial and organizational reconfiguration of global production takes place" (Gibbon, Bair, & Ponte, 2008, p. 318). GVC is concerned with the process of converting inputs into outputs to produce more value. The value chain consists of upstream (basic R&D, design, logistics), middle (manufacturing), and downstream (marketing, advertising, and customer support) activities at the enterprise level (Mudambi, 2008).

GVC is an important factor in today's global economy because the structure of the economy is formed through GVC which includes international trade, global GDP, and also employment. Previously, GVC was only synonymous with economic principles and the issue of the level of competition between countries. Currently it has covered many things such as social, environmental, labor, and gender issues. The participation of developing countries in GVC globally is important for benefits in terms of national economic development, capacity building, and job creation. This is expected to be effective in reducing unemployment and poverty.

Gereffi and Stark (2011) explain the concept of GVC in six basic dimensions which are categorized in two broad lines, the first category refers to international elements, determined by industry dynamics at the global level. The second category describes how each country participates in the GVC. The six dimensions are:

- 1. Input-output (I-O) structure.** Describes the process of transforming raw materials into final products. I-O analysis is a type of economic model that describes the interdependence relationship between industrial sectors in an economy. It shows how the output of one sector flows into another sector as input. Data that can be used to analyze I-O are include GDP, trade, IO data for each commodity;
- 2. Geographical scope.** Describes how the industry is spread globally and which countries carry out various GVC activities. The geographic scope analysis can be based on the identification of key companies in each segment of the value chain. This information is compiled using secondary sources of company data, industry-specific publications, and interviews with industry experts. The presence of a number of these leading companies will inform the position of a country in the value chain. The contribution of different countries in the value chain can then be determined by examining country-level data, such as industrial exports and the segments in which these exports are concentrated;
- 3. Governance structure.** Governance analysis makes it possible to understand how a chain is controlled and coordinated when certain actors in the chain have more power than others. More complex typologies of five governance structures have been identified in the GVC literature: market, modular, relational, captive, and hierarchical. Forms of governance may change as the industry develops and matures, and the pattern of governance within the industry may vary from one stage or level of the chain to another;
- 4. Upgrading.** Upgrading explained the dynamic movements in the value chain by examining how producers move between different stages of the value chain. A diverse mix of government policies, institutions, corporate strategies, technology, and worker skills is associated with successful upgrades. Within the GVC framework, Humphrey and Schmitz (2002) identify four types of improvement: process improvement, product improvement, function improvement, and chain or inter-sectoral improvement;
- 5. Local institutional context.** Where the industrial value chain is embedded in economic and social elements. The institutional framework identifies how local, national and international conditions and policies shape globalization at each stage of the value chain (Gereffi & Korzeniewicz, 1994). GVC is embedded in local economic, social and institutional dynamics.
 - Economic conditions include the availability of key inputs: labour costs, available infrastructure and access to other resources such as finance.

- The social context governs labour availability and skill levels, such as the participation of women in the workforce and access to education. The gender perspective includes labour rights, wages, and working conditions. Institutions including tax and labour regulations, subsidies, education policies, and innovations that can encourage or detain industrial growth or development.
- Analysis of local dynamics where the value chain needs to look at all the stakeholders involved. All industry players are mapped in the value chain and their main roles in the chain are described. As global value chains touch many different parts of the world, the use of this framework allows one to conduct more systematic (cross-national and cross-regional) comparative analyses to identify the impact of different features of the institutional context on economic and social outcomes.

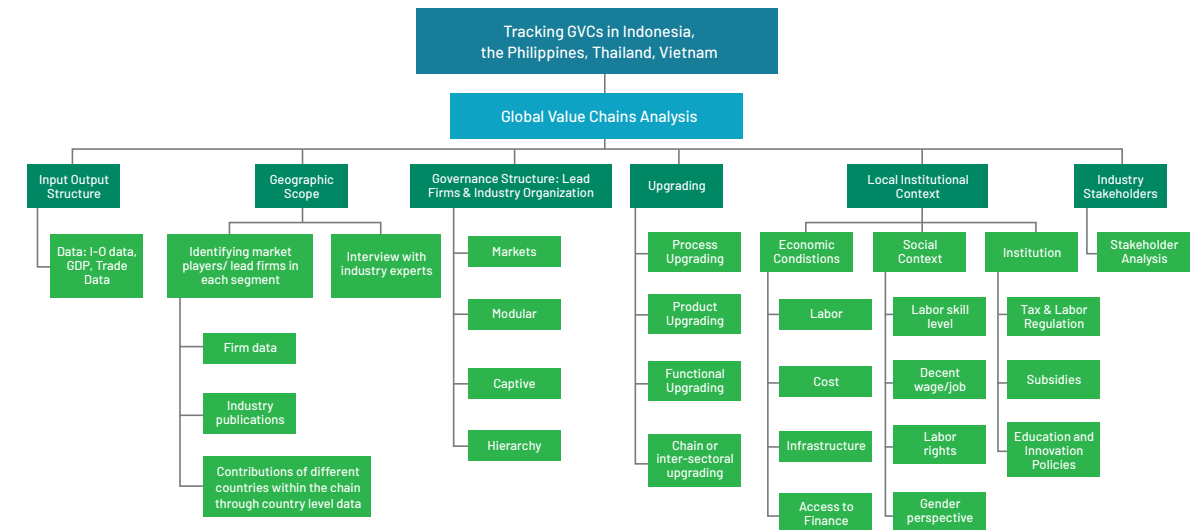
6. Industry stakeholder. Explains the distinction of local actors of the value chain playing their role to improve the industry. The most common stakeholders in the value chain are: Industry Associations Workers, Educational Institutions, Government Agencies including the department of export promotion and investment, Ministries of foreign trade, economy, and education. In addition, it is important to consider how the relationship between these actors is regulated at the local level and which institutions are in a position to drive change (this is important for identifying key players in the value chain. This becomes especially relevant for industry improvement recommendations and development of growth strategies industries where each stakeholder has a role to contribute to the development of the sector).

Figure 1. Six dimensions of GVC analysis by area context

GLOBAL	LOCAL
Input-Output Structure of a GVC	Upgrading
Geographic Scope	Local Institutional Context
Governance Structure: Lead Firms & Industry Organization	Industry Stakeholders

Source: Humphrey and Schmitz (2002)

Figure 2. Global Value Chain in 6 dimensions



Source: Humphrey and Schmitz (2002)

2.2 Previous studies of GVC

Previous studies on the topic of global value chain (GVC) found GVC as important framework to understand changes in commodities' value chain and the roles of government and key players in those changes. For instance, Vicol et al. (2018) found that GVC framework provides a useful approach to understand how value chain intervention in agricultural sector impacts will have to change agrarian pattern and rural development. It is important because the study showed that development agencies and governments have already operationalised the added value concepts.

Ponte's study (2002) found how key agents on coffee trading have developed, coordinated and controlled relationships and flows of products between producers and consumer and the role they play in this process in the forms of contract, financial coordination and business services and at the broader level, policies.

Varkkey (2012) found that political and business protection facilitate the investment and business operations of large corporate groups through expanding the network of subsidiaries and third-party suppliers. Big players, for example in the palm oil business, join in a consortium that can control the production, marketing and distribution of palm oil. This consortium involves politicians, bureaucrats and businessmen, from district to national level, so the relationship between businessmen and politicians create more complexity in decision-making.

These aforementioned studies emphasised on only one dimension of the GVC in one specific commodity. This research analysed six dimensions of GVC in four important commodities in agriculture and fishery sectors in four ASEAN countries. Therefore, it is expected that this research can contribute to provide broader knowledge about the link of these commodities trade in ASEAN and at the global level, and more importantly how the lives of marginal actors such as smallholder farmers and fisheries communities or actors affected by GVC in each country.

2.3 Research framework

According to the World Bank (2021), GVC refers to a process of producing finished goods, involving countries in production until marketing process. GVC plays a role in promoting employment and economic growth as well as improving standard of living. In addition, GVCs are playing an important role in business strategies, which has profoundly changed international trade and development paradigms. GVCs now represent a new path for development by helping developing countries accelerate industrialization and the “servicification” of the economy. From a firm perspective, production in the context of GVCs highlights the importance of being able to seamlessly connect factories across borders, as well as protect assets such as intellectual property (The WB 2014).

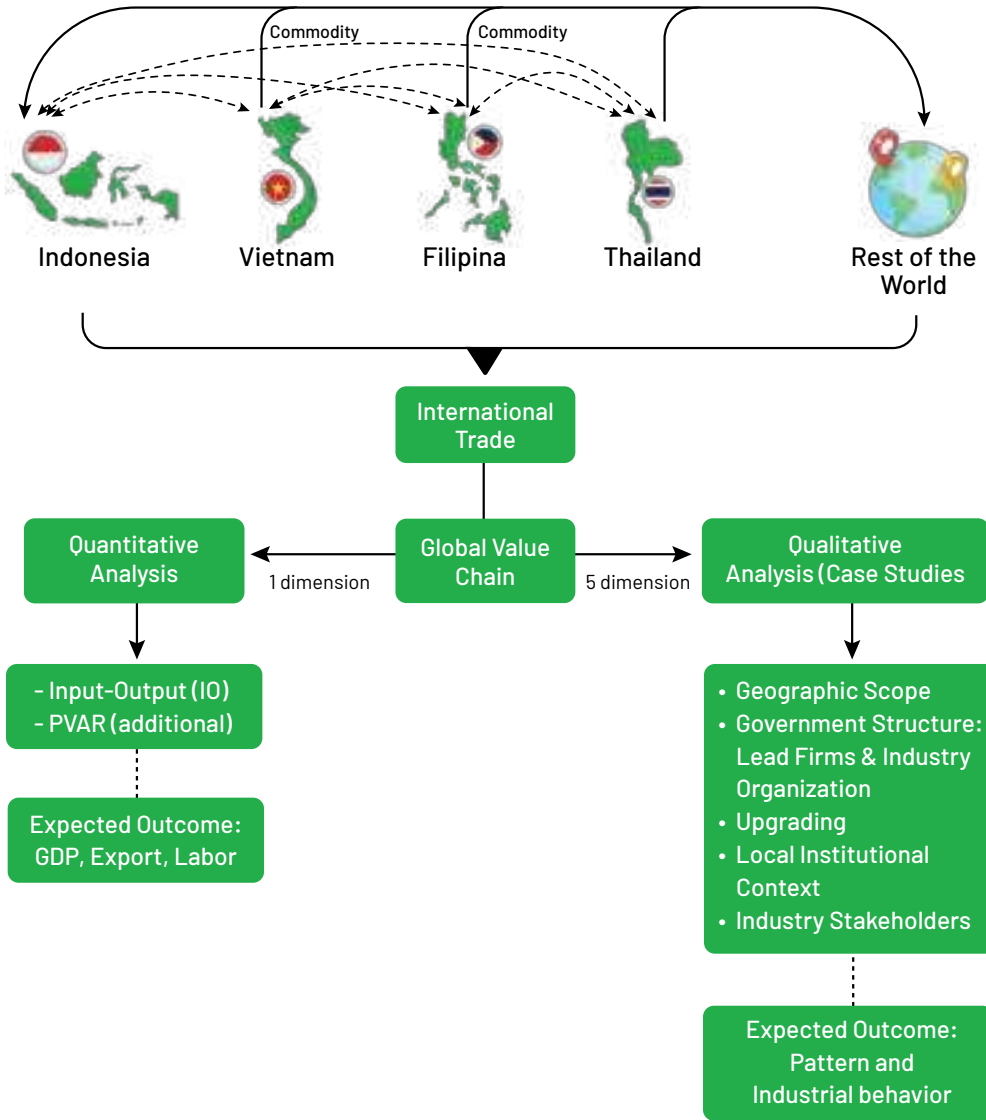
GVCs can lead to development, but, at the country level, constraints such as the supply of various types of labour and skills and inadequate absorptive capacity remain existing. GVCs can create new opportunities on the labour demand side, but supply and demand cannot meet if the supply is missing. This potential gap illustrates the importance of embedding national GVC policies into a broader portfolio of policies aimed at upgrading skills, physical and regulatory infrastructure, and enhancing social cohesion.

GVC uses secondary data to analyse Input-Output and primary data analysis resulting from in-depth interviews. Furthermore, there are six basic dimensions studied in the GVC which are divided into global (top-down) and local (bottom-up) elements. The global element consists of dimensions including input-output (IO) structure, geographic scope, and governance. This group of elements relates to international factors that are influenced by global industry dynamics. While the local elements consist of the dimensions of value improvement, local institutions, and industrial stakeholders. The second set of parameters describes how GVC affects individual countries (Gereffi & Fernandez-Stark, 2016).

Global value chain governance is a key concept from a top-down view, focuses primarily on key companies and international industry organizations. Upgrading, a key concept from a bottom-up perspective, focuses on the strategies used by countries, regions, and other economic stakeholders to maintain or improve their position in the global economy.

The following diagram explains how the research was implemented.

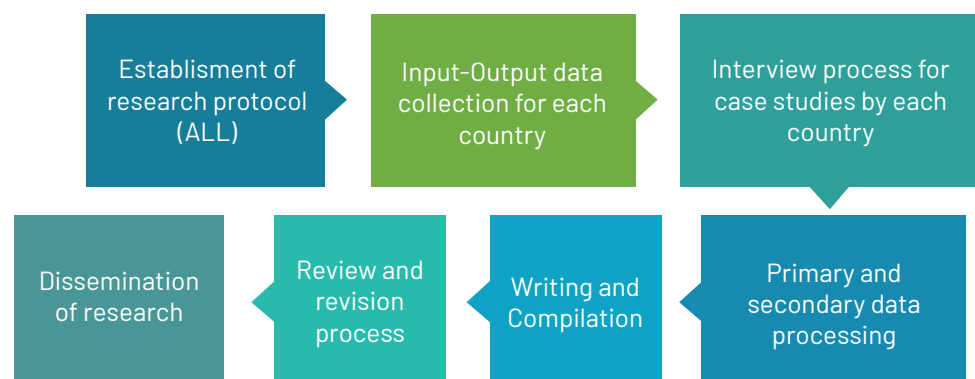
Figure 3. Research framework



2.4 The Research Process

This research is relatively complex since the research subject is in four countries and engaged researchers from each of those countries. Furthermore, four commodities selected by partners as the object of this study also contributed to the complexity of this study.

Figure 4. Research stages



These stages outlined the implementation process of this research, from protocol preparation to research dissemination. All partners were engaged in each stage to discuss and decide the role of each party in the research implementation.

Photo by: CD Studio

Chapter 3

Research Methodology

This research employed mixed-methods approach where quantitative and qualitative methods were combined in data collection and analysis processes. This approach was selected because GVC data contains various types of data and using mixed-methods provided a more comprehensive understanding of GVC from macro to micro level.

This research employed mixed-methods approach where quantitative and qualitative methods were combined in data collection and analysis processes. This approach was selected because GVC data contains various types of data and using mixed-methods provided a more comprehensive understanding of GVC from macro to micro level. The quantitative approach was used to analyse input-output data to obtain a picture about each commodity and its value-added distribution. The qualitative approach was used to analyse and to obtain an overview of specific cases regarding GVC from each country. Primary data generated from interview results that was analysed to understand the dimensions of inclusiveness and fairness of GVC in each country based on the perspective of the actors involve in the commodities as well as the policy makers, while secondary data was accessed from official sources such as government statistics and international organisations’ data.

3.1 Quantitative method

The quantitative approach in this study uses input-output (IO) analysis which determined the pattern of the relationship between the composition of inputs and the distribution of outputs for palm oil, rice, fisheries, and coffee commodities (Firmana & Tjahjawardita, 2016; Liu & He, 2016; Nugroho, 2021). Table I-O is explained through a statistical matrix that describes the use of goods and services between various economic activities described in Table 4. The column ‘Production Sector’ can reflect trade patterns domestically or globally for sectoral product processes in detail. The “row” section is the allocation of a certain industry/commodity to other industries/commodities and becomes an intermediate input for its derivative products (Liu & He, 2016). The important assumption in the I-O table is that the total value added (V) must be equal to the total value of the final demand (Y). Then the I-O table data which will be the main data for this research is generated from the World Input-Output Database (WIOD) and will specifically select palm oil, rice, fisheries, and coffee commodities in Indonesia, the Philippines, Thailand, and Vietnam.

Table 4. Structure of an Input-Output Table

		Production Sector					Intermediate Output	Final Demand	Total Output
		1	...	j	...	N			
	1								
	...								
	i			X_{ij}			$X_{i.}$	Y_i	X_i
	...								
	n								

Intermediate Output			$X_{.j}$					
Value Added			V_j				$Y=V$	
Total Output			X_j					

Source: Liu & He, 2016

3.2 Qualitative method

Referring to Neuman(2006), qualitative approach aims to obtain broad, holistic, and in-depth data and information, so that the exploratory, descriptive, and explanatory functions of an object of research can be explained precisely, thoroughly, in detail, and comprehensively. Case studies serve to explore individuals, groups or phenomena. Case studies describe and analyze individual problems or cases with the aim of identifying variables, structures, forms and sequences of interactions between participants in situations(theoretical goals), or, to assess job performance or progress in development (practical goals)(Roboli, 2013). Creswell (2014) defines case study as a method to explore a bound system or a case (or several cases) that occurred over a range of period of time through in-depth and detailed data collection from various reliable sources of information.

Therefore, this study employed case study method to explore the context of GVC specifically from the three local level dimensions in each country. This method answers the questions “why” something happened and “how” it happened. Furthermore, the qualitative case study will be used to find out whether the value chains of 4 commodities (palm oil, coffee, rice, and fisheries)are inclusive and fair for MSMEs, small farmers, and women in Indonesia, the Philippines, Thailand, and Vietnam.

The data collection was carried out through in-depth interviews (IDIs) with informants, direct field observations, as well as various documents and reports that were previously available, and audio-visual materials related to global supply chains. The interview method collected data on an individual’s history, perspective, and personal experience, and sensitive topics, when explored. This qualitative study used purposive sampling strategy where selection of informants considered the potential diversity and depth of information provided in specific cases(Patton, 1990). Furthermore, this study identifies the involvement of upstream to downstream actors as illustrated in Table 5.

Table 5. Data Sample

Countries	Government	Industry (Business and Business Associations)	Farmers/Peasant (Including Farmers/Labor Associations)	CSO	Academics	Total Respondents
Indonesia	7	6	12	4	2	31
Vietnam	3	5	5	2	2	17
The Philippines	3	5	5	2	2	17
Thailand	3	5	5	2	2	17
Grand Total	16	21	27	10	8	82

The in-depth interview used semi-structured interview strategy. Interview guides were developed prior to fieldwork and contained a list of topics or interview questions (Bryman, 2012). The interview guide is flexible and each researcher can explore beyond the questions in the guideline during the data collection especially when probing is needed. In-depth interviews in this study refer to the questions derived from three of the six dimensions of GVC designed by the Center on Globalization, Governance & Competitiveness (CGGC), including upgrading, local institutional context, and industry stakeholders. Due to the diversity of stakeholders and different levels of involvement in the GVC process, this study divides the interview topics into macro, micro, and a mix of macro and micro topics. The in-depth interview key areas are described in the Table 6.

Table 6. In-depth Interview Key Areas

Informants	Information needed	Selection criteria
Government	<ul style="list-style-type: none"> Trade incentive related to upgrading Incentives in product innovation Indicators of value-added measurement Collaboration between multi-stakeholders/countries in ASEAN Collaboration in inter regional sector Wage ceiling policies in the sector Floor and ceiling price policies Asymmetric information issues in farmers/ lowest level 	<ul style="list-style-type: none"> Have authority on value chain/supply chain regulation Have knowledge on value chain

	<ul style="list-style-type: none"> Law enforcement on existing laws (eg. Ministry of Agriculture's regulation on CPO price) <p>TAX:</p> <ul style="list-style-type: none"> Potential state revenue and actual revenue from palm oil Access to beneficial ownership data Role of DTA to prevent illicit financial flows Implementation of automation exchange of data 	
Industry (Business and Business Associations)	<ul style="list-style-type: none"> Upgrading process GVC's planning (beneficiaries in every supply chain) Technology implementation on value chain Existing governance structure (fair market model e.g., hierarchy, monopsony, or monopoly) Wages structure of farmers/peasants Floor and ceiling prices policies Industrial relationship with farmers on employment issues (contract, social security, etc.) Gender policies (wage, job desk, benefits, etc.) Tax incentives and non-tax incentives from governments Benefits from tax incentives that are allocated for community members Role of business associations <p>TAX:</p> <ul style="list-style-type: none"> Royalty and dividend paid directly to subsidiaries or not Holding company location in tax heaven or not 	<ul style="list-style-type: none"> Major companies (in terms of trade volume and number of people employed) High contribution to national GDP High contribution to national employment High volume of export

	<ul style="list-style-type: none"> Benefit from having holding company in tax heaven (Singapore, Hongkong, Bermuda) 	
Farmers/ workers (including farmers'/ labour associations)	<ul style="list-style-type: none"> Changes in income and assets owned by farmers (increased or decreased) Access to capital Support and incentives received from company or government Changes in farmers' scale of production Bargaining position for products pricing and selling Gender aspects (work opportunity, wage, benefit, job description, asset owned by men and women) Working conditions in plantations/ processing facilities (working hours, basic facilities) Workers' association (roles of association and activities of association) Social security provided/organised by company Challenges and problems in production process 	Farmers and/ or labour/ workers' associations
CSO	<ul style="list-style-type: none"> Programs directly designed and implemented for farmers (comm organisation, market awareness, skills/ capacity building, etc) Perceptions on existing policy and regulation of the sector Experience in working with farmers (on gender and human rights issues) 	
Academics	<ul style="list-style-type: none"> Perceptions on international trade research Implementation of GVCs in Indonesia 	

	<ul style="list-style-type: none"> Perceptions on lack of regulation on GVCs 	National lecturers/experts in trade policy, social, agriculture, agribusiness
--	---	---

3.3 Scope of study

The I-O analysis was carried out based on proxy data related to main commodities and domestic commodities of each country (rice, palm oil, fisheries, and coffee) because specific standardized commodity data is not available and is very limited at the global level.

This page intentionally left blank.

Photo by: Hoach Le Dinh

Chapter 4

Input-Output Structure Analysis and GVC Participation of Indonesia, the Philippines, Thailand and Vietnam

This research uses the 2018 Inter-Country Input-Output (ICIO) Table data released by the OECD, most updated in 2021.

This research applies the Input-Output (IO) Table analysis tool to present the first of the six GVC dimensions to determine the interrelationship of each commodity in each country. The advantage of this IO analysis is when we can find the structure, interrelationships, and roles of commodities internally and at the regional level or for some countries.

This research uses the 2018 Inter-Country Input-Output (ICIO) Table data released by the OECD, most updated in 2021. This research did not use the World Input-Output Database (WIOD) data by the World Bank because although they had the most updated data from 2020, they only cover products from 35 sectors. Meanwhile, the OECD's ICIO data has 45 more specific sectors, especially in fisheries industries/products.

It must be noted that although this research analyzed rice, fisheries, coffee, and palm oil commodities, specific standardized commodity data is not available and is very limited at the global level. Therefore, researchers addressed this issue by using general industry/sectoral data as a proxy for each commodity which to some degree, reflecting the commodities within an industry.

Table 7. ICIO code and commodity proxies in GVC

No.	ICIO Code	Products/ Industries	Commodity Proxies
1	D01T02	Agriculture, hunting, forestry	Rice, Palm Oil, Coffee
2	D03	Fishing and aquaculture	Fishery
3	D10T12	Food products, beverages, and tobacco	All
4	D19	Coke and refined petroleum products	Palm Oil
5	D20	Chemical and chemical products	Palm Oil
6	D45T47	Wholesale and retail trade; repair of motor vehicles	All
7	D55T56	Accommodation and food service activities	All

Based on the elaboration of the International Standard Industrial Classification (ISIC) of All Economic Activities Revision 4 released by the United Nations, there are 7 ICIO codes and industries that we used as proxies for our four commodity subjects drawn from a total of 45 ICIO industries released by the OECD. The analysis of this research will be spelled out in each country.

In addition to analyzing the structure and relationship of IO, this study also calculated the value of GVC participation in each industry that is a proxy for rice, fisheries, coffee, and palm oil commodities. This GVC participation value refers to the IMF Working Paper:

Calculating Trade-in Value Added with the following formula:

$$GVCparticipation = \frac{FVA + DVX}{Gross\ Exports}$$

FVA is Foreign Value Added, while DVX is Indirect Value Added. Thus, FVA and DVX are expressed as a per cent of exports. The larger the ratio, the greater the intensity of involvement of a particular country in GVCs. FVA(or VS from an import perspective)is also a measure of “backward participation,” which measures imported intermediate inputs used to generate export output. DVX (or VS1 from an export perspective) measures “forward participation”, exports of intermediate goods used as inputs for producing other countries’ exports. This FVA and DVX data is available until 2018 through the OECD’s Trade-in Value-Added (TiVA) data, updated in 2021.



This figure is the highest among the other three countries, such as the Philippines, Thailand, and Vietnam. It is reasonable because Indonesian population is greater compared to the three countries. In the I-O table terminology, the output is the value of

the production of goods and services produced by sectors of the economy in a particular region and at a time. This analysis will provide an overview of the role of the studied industry in making goods and services (output) in Indonesia.

Table A (appendix) shows that the wholesale and retail trade sectors; Repair of motor vehicles (45T47), food products, beverages, and tobacco (10T12), and agriculture, hunting, and forestry (01T02) were three industries with the largest contribution to the economy in 2018. The possibility of the economic structure produced by the four commodities of rice, fisheries, coffee, and palm oil has a high and significant role. Analysis can be deepened by comparing the function of intermediate demand and final demand in each sector in Indonesia. In terms of this output structure, Indonesia’s agriculture (01T02), petroleum (19), and chemical(20) sectors are more widely consumed downstream for derivative industries. While the industry has tremendous final demand, its output tends to be directly consumed

by domestic end consumers inside and outside of Indonesia.

Contrary to the output value, the input value is the value of goods and services needed to produce goods and services in each economic sector. Total inputs also consist of two parts; they are intermediate input and primary input or gross value added (GVA). Intermediate input is the value of goods or services needed to produce goods and services in each sector. In contrary, primary input (GVA) is another cost required for the production process, which is the value of service reciprocity for production factors. Table A (appendix) shows that petroleum and chemical sectors have higher intermediate input values. The production of these sectors relies more on output (raw materials) from sectors of the economy than primary inputs. At the same time, in industries with high GVA values, such as fisheries in Indonesia, the production of these sectors relies more on direct inputs such as wages and taxes than output (raw materials) from other economic sectors.

Primary input or gross value added (GVA) is the value of returning services obtained from the production of goods and services. The amount of gross value added (GVA) for each sector is determined by the production value (output) and the costs required in the production process in each industry. Therefore, sectors with high output values do not necessarily produce a significant value-added structure. Based on table B (see appendix), the trade (45T47) and agricultural (01T02) industries have a sizeable value-added contribution. It's just that the contribution of fisheries (03) value-added to national is still meagre. Therefore, the possibility of our three other commodities will have a higher value-added formation to national in terms of wages, taxes, subsidies, business surpluses, and rental costs.

In addition, from a total of 45 sectors and four countries processed in our IO analysis, it can be seen that Indonesian commodities are closely related to other industries both domestically and with the Philippines, Thailand, and Vietnam. In the agricultural sector and food-beverage processing products, we use inputs from other countries equivalent to being used as inputs by other countries.

Table C (see appendix) shows that the value of Indonesia's exports to three other countries is relatively high for chemical industry, which is a proxy for palm oil, as well as other industries such as agriculture, food-beverage processing, and trade that are proxies of rice and coffee commodities. Indonesia's exports are also dominated by intermediate demand products, indicating that these products will be inputs or raw materials for industry in three other countries. The global value chain shows that Indonesia plays an active role in supplying commodities to the Philippines, Thailand, Vietnam, and other countries to be processed by these export destination countries. Unfortunately, Indonesian fishery exports value is relatively low and is more dominated by final consumption. This shows that Indonesian fisheries does not play a significant role in the global chain.

Furthermore, the inter-sectoral interrelationships were analyzed into backward linkage (total backward linkage or TBL) and forward linkage (total forward linkage or TFL). Backward

linkage shows the relationship with the sectors that produce inputs (raw materials) for that sector (upstream sector). In contrast, the forward linkage shows the degree of connection with the users/output processors sectors from that sector (downstream sector).

The inter-sectoral interrelationship index shows sectors with a linkage value above or below the average linkage value owned by industries in the economy. Industries with a backward linkage index (ITBL) value of more than one mean that the sector is higher than the average of all sectors. Industries with a forward linkage index (ITFL) value of more than 1 means that the industry has a linkage to its downstream industry that is higher than the entire industry average. The results of calculating the value and index of the relationship in the industry that is a commodity proxy can be seen in table D (see appendix).

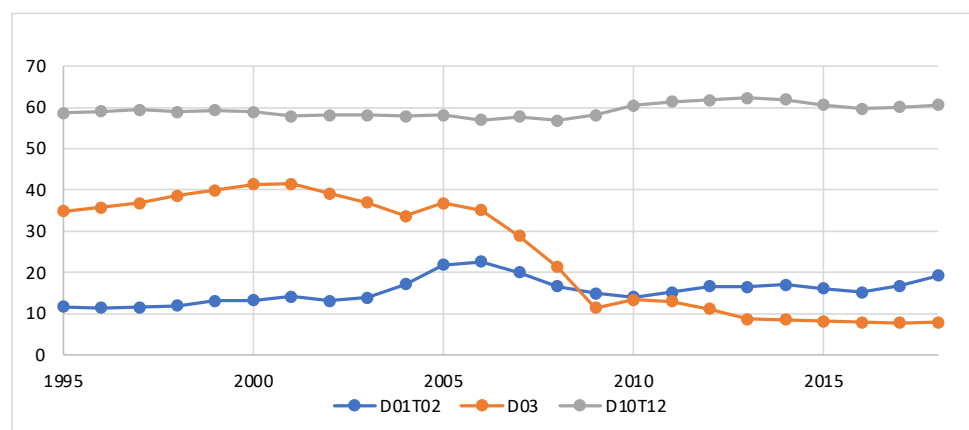
Based on the results of calculating the value of interrelationships for each sector (Table D in the appendix), the value of the interrelationship of industries proxies of rice, fisheries, coffee, and palm oil commodities in Indonesia can be seen. In 2018, the coke and refined petroleum products (19) sector had the highest backward linkage value, and the trade sector (45T47) had the highest forward linkage value.

This value means that the final increase in demand in the coke and refined petroleum products sector by 1 million USD, assuming *ceteris paribus* (the final demand of other sectors remains) will increase output in the Indonesian economy by 2.22 million USD. This TBL value is also commonly referred to as the multiplier output. In comparison, the value of forwarding linkage can mean that an increase in primary inputs (gross added value/ GVA) of 1 million USD in wholesale and retail trade, the assumption of *ceteris paribus*, will encourage an increase in output for the Indonesian economy by 3.05 million USD.

Sectors with more than one ITBL value and ITFL value are categorized as critical sectors in the economy. This is due to its relatively strong influence on its upstream and downstream sectors. In Indonesia, based on the ITBL and ITFL values detailed in Table D (appendix), it can be seen that only the Coke and refined petroleum products sector (19) is a crucial sector in all sectors that are commodity proxies. The Food products, beverages, and tobacco sectors are also almost key. This critical sector can be the main priority for policymakers to produce an optimal economy, especially for palm oil commodities in Indonesia.

In terms of GVC participation, from 1995 to 2018, Indonesia experienced fluctuations in the Agriculture, hunting, and forestry (01T02) sector and a drastic decline in the fisheries sector (03), as seen in Figure 5. Figure 5 shows that the Food products, beverages, and tobacco sectors experienced relatively stable GVC participation in 60 percent as a proxy for four commodities.

Figure 5. Indonesia's GVC Participation, 1995-2018



Source: OECD's TiVA, 2018 (processed)

This means that the intensity of Indonesia's involvement in the GVC sector is rather large. Meanwhile, for the agricultural (D01T02) industry, the trend tends to increase. Unfortunately, Indonesia's GVC participation in the fisheries (D03) sector in 2018 decreased by 75 percent compared to the 1995 value.



In 2018, based on the value of economic output through the ICIO Tabel, Philippines generated a value of **627 billion USD**.

This analysis will provide an overview of the role of the studied industry in making goods and services (output) in the Philippines.

Table E (see appendix) shows that wholesale and retail trade sectors; Repair of motor vehicles (45T47), food

products, beverages, and tobacco (10T12), and agriculture, hunting, and forestry (01T02) were three industries with the largest contribution to the economy in 2018. This result is similar to Indonesia's. The four commodities of rice, fisheries, coffee, and palm oil have a high and significant role in the Philippines' economic structure. Analysis can be deepened by comparing the function of intermediate demand and final demand in each sector in the

Philippines. In terms of this output structure, the Philippines's chemical (20), petroleum (19), agriculture (01T02), and trade (45T47) sectors are more widely consumed downstream for derivative industries. While the industry has more final demand, its output tends to be directly consumed by domestic end consumers and consumers outside the Philippines.

In contrary to the output value, the input value is the value of goods and services required to produce goods and services in each economic sector. Total inputs also consist of two parts; intermediate input and primary input or gross value added (GVA). Intermediate input is the value of goods or services needed to produce goods and services in each sector. On the other hand, primary input (GVA) is another cost required for the production process, which is the value of service reciprocity for production factors. Based on table E (see appendix), the petroleum (19) and chemical (20) sectors have higher intermediate input values. The production of these sectors relies more on output (raw materials) from sectors of the economy than primary inputs. At the same time, in industries with high GVA values, such as agriculture (01T02) in the Philippines, the production of these sectors relies more on direct inputs such as wages and taxes than output (raw materials) from other economic sectors.

Primary input or gross value added (GVA) is the value of returning services obtained from the production of goods and services. The amount of gross value added (GVA) for each sector is determined by the production value (output) and the costs required in the production process in each industry. Therefore, sectors with high output values do not necessarily produce a significant value-added structure. Based on table F (see appendix), the trade (45T47) and agricultural (01T02) industries have a sizeable value-added contribution. It's just that the contribution of chemical (20), petroleum (19), and fisheries (03) value-added to national remain inadequate. Thus, it is likely that the commodity will not contribute much for the country in terms of wages, taxes, subsidies, business surplus, and rental costs.

In addition, from a total of 45 sectors and four countries processed in our IO analysis, it is seen that Philippine commodities are closely related to other industries in the country and to Indonesia, Thailand and Vietnam, with the exception of the fisheries sector. The Philippines only supplies other sectors in this fisheries sector, amounting to 81 out of 180 industries from 4 countries. In the trade, chemical, and petroleum sector, The Philippines uses inputs from other countries equivalent to being used as inputs by other countries.

Table G (appendix) shows that the value of the Philippines' exports to a total of three countries is relatively high for the chemical industry (20), which is a proxy for palm oil, as well as other industries such as petroleum (19), trade (45T47), and food product (10T12) that are proxies of rice, coffee, and palm oil commodities. While in the fisheries sector, the Philippines barely supplies products to three other countries.

Philippine's exports are also dominated by intermediate demand products, which indicates that these products will become industrial inputs or raw materials in 3 other countries. The

global value chain shows that the Philippines plays an active role, regardless of the small size, in supplying commodities to Indonesia, Thailand, Vietnam, and other countries to be processed by these export destination countries. Unfortunately, the Philippine fishery exports' value is relatively low, like their final consumption export. This shows that the Philippines fisheries is not playing a significant role in the global chain.

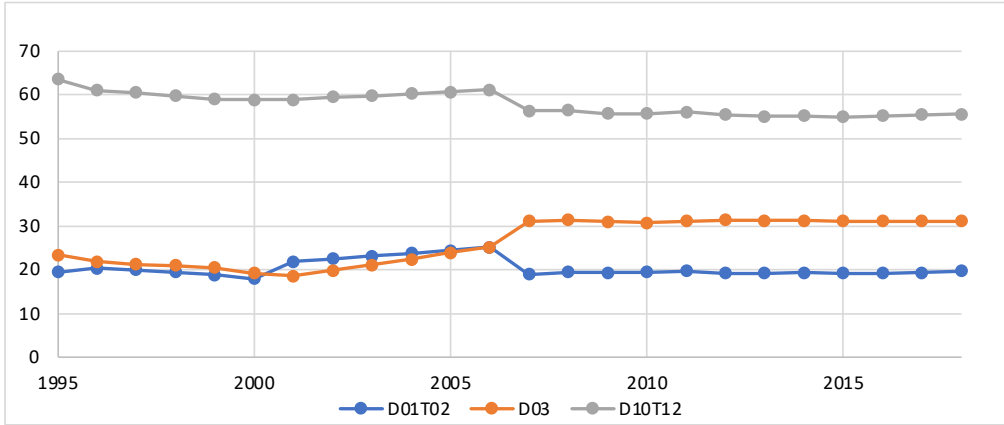
The results of calculating the value and index of the relationship in the Philippines' industry that becomes a commodity proxy can be seen in table H (see appendix) Based on the results of calculating the value of interrelationships for each sector (Table H), the value of the interrelationship of industries proxies of rice, fisheries, coffee, and palm oil commodities in the Philippines can be seen. In 2018, the coke and refined petroleum products (19) and Chemical and chemical products had the highest backward linkage value. The trade and food production sector had the highest forward linkage value.

This value means that the final increase in demand in the coke and refined petroleum products sector by 1 million USD, assuming ceteris paribus (the final demand of other sectors remains) will increase output in the Indonesian economy by 2.12 million USD. The results are similar to the chemical sector. This TBL value is also commonly referred to as the multiplier output. In comparison, the value of forward linkage can mean that an increase in primary inputs (gross added value (NTB) of 1 million USD in wholesale and retail trade, the assumption of ceteris paribus, will encourage an increase in output for the Philippines' economy by 3.56 million USD.

Sectors with more than one ITBL and ITFL values are categorized as critical sectors in the economy. This is due to its relatively strong influence on its upstream and downstream sectors. In the Philippines, based on the ITBL and ITFL values detailed in Table 2.4, it can be seen that there is no key sector in all sectors that are commodity proxies. This means that the relationship between the Philippines and Indonesia, Thailand, Vietnam, and the rest of the world has not been very significant in the studied industry.

The Philippines' GVC has experienced a shock in 2006, when the Agriculture, hunting, and forestry (01T02) and food beverages production sectors experienced a drastic decline (see Figure 6). Meanwhile, fisheries sector increased in that year and continued to stabilize afterward until 2018.


Figure 6. The Philippines' GVC Participation, 1995-2018



Source: OECD's TiVA, 2018 (processed)

The figure 6 shows that Food products, beverages, and tobacco sectors experienced relatively stable GVC participation in 55 percent as a proxy for four commodities. The agriculture (01T02) and fisheries (03) industries were also sound at 20 and 31 percent. This means that the intensity of the Philippines' involvement in the GVC sector is relatively large.





In 2018, based on the value of economic output through the ICIO Tabel, Thailand generated a value of **1.462 billion USD**.

It is the second-highest values after Indonesia. This analysis will provide an overview of the role of the studied industry in making goods and services (output) in Thailand.

From table I (see appendix), the wholesale and retail trade sectors; Repair of motor vehicles (45T47), food products, beverages, and tobacco (10T12), and agriculture, hunting, and forestry (01T02) were three industries with the most contribution to the economy in 2018. This result is similar to Indonesia's and the Philippines'. Here, the possibility of the economic structure produced by the four commodities of rice, fisheries, coffee, and palm oil has a high and significant role. Analysis can be deepened by comparing

the function of intermediate demand and final demand in each sector in Thailand. Thailand's agriculture (01T02) and petroleum (19) sectors are more widely consumed downstream for derivative industries in terms of this output structure. While the industry has more final demand, its output tends to be directly consumed by domestic end consumers in Thailand and consumers outside Thailand.

Based on Table I (see appendix), petroleum (19) and food-beverages production (10T12) sectors have higher intermediate input values. The production of these sectors relies more on output (raw materials) from sectors of the economy than primary inputs (GVA). At the same time, in industries with high GVA values, such as trade sector (45T47) in Thailand, the production of these sectors relies more on direct inputs such as wages and taxes than output (raw materials) from other economic sectors.

Primary input or gross value added (GVA) is the value of service returns obtained from the production of goods and services. The amount of gross value added (GVA) for each sector is determined by the value of production (output) and the costs required in the production process in each industry. Therefore, a sector with a high output value does not necessarily produce a significant value added structure. Based on table J (see appendix), the trading industry (45Q47) and agriculture (01Q02) contributed quite a lot of added value. It's just that the contribution of value added fisheries (03) to the national is still very small. Therefore, it is likely that the commodity will have little added value to the nation in terms of wages, taxes, subsidies, business surplus, and rental costs.

In addition, from a total of 45 sectors and four countries processed in our IO analysis, it can be seen that Thailand's commodities are closely related to other industries domestically and with Indonesia, the Philippines, and Vietnam, except for the fisheries sector. Same as the Philippines, Thailand only supplies other sectors in this fisheries sector, amounting to 93 out of 180 industries from 4 countries. In using inputs from other countries, Thailand is more varied and depends on three other countries.

From table K (appendix), it can be seen that the value of Thailand's exports to a total of three countries is relatively high for the chemical industry (20), which is a proxy for palm oil, as well as other industries such as petroleum (19), trade (45T47), and food product (10T12) that are proxies of rice, coffee, and palm oil commodities. While in the fisheries sector, Thailand barely supplies products to three other countries, just like Indonesia and the Philippines.

Thailand's exports are also dominated by intermediate demand products except for the food-beverages production sector, indicating that these intermediate products will be inputs or raw materials for industry in 3 other countries. The food-beverages production sector suggests that Thailand's products tend to be directly consumed by the end consumer without going through the derivative industry.

The global value chain shows that Thailand plays an active role in supplying commodities to Indonesia, the Philippines, Vietnam, and other countries to be processed by these export

destination countries. Unfortunately, Thailand's fisheries' value is relatively low, like their final consumption export.

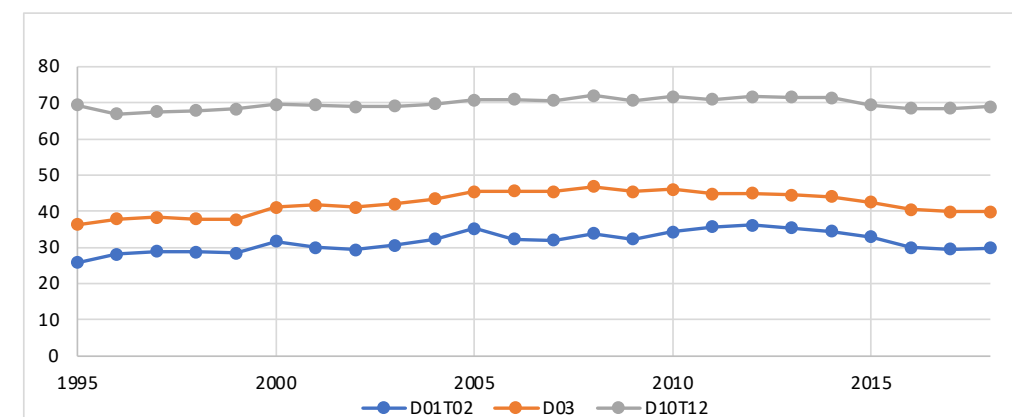
Next, the results of calculating the value and index of the relationship in the Thailand industry that becomes a commodity proxy can be seen in table L (see appendix). Based on the results of estimating the value of interrelationships for each sector (Table L), the value of the interrelationship of industries proxies of rice, fisheries, coffee, and palm oil commodities in Thailand can be seen. In 2018, coke and refined petroleum products (19) and food-beverages production (10T12) had the highest backward linkage value. The trade and food production sector had the highest forward linkage value.

This value means that the final increase in demand in coke and refined petroleum products sector by 1 million USD, assuming *ceteris paribus* (the final demand of other sectors remains) will increase its output in the Indonesian economy by 2.44 million USD. This TBL value is also commonly referred to as the multiplier output. In comparison, the value of forward linkage can mean that an increase in primary inputs (gross added value (NTB) of 1 million USD in food-beverages production, the assumption of *ceteris paribus*, will encourage an increase in output for the Thailand economy by 3.17 million USD.

Sectors with more than one ITBL and ITFL value are categorized as key economic sectors. This is due to its relatively strong influence on its upstream and downstream sectors. In Thailand, based on the ITBL and ITFL values detailed in Table L (appendix), it can be seen that food-beverages production (10T12), petroleum (19), and the accommodation and service (55T56) are critical sectors in all sectors that are commodity proxies. This means that the relationship between Thailand and Indonesia, the Philippines, Vietnam, and the rest of the world has not been very significant in the studied industry.

Regarding GVC participation, from 1995 to 2018, Thailand seemed to have a stable value of GVC participation, as seen in Figure 7 below.

Figure 7. Thailand's GVC Participation, 1995-2018

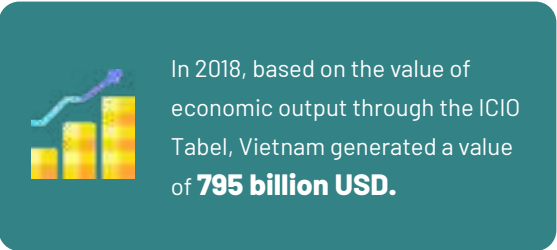


Source: OECD's TIVA, 2018 (processed)

The figure above shows that Food products, beverages, and tobacco sectors experienced relatively stable GVC participation at 69 percent as a proxy for four commodities. The agriculture (01T02) and fisheries (03) industries are also sound at 30 and 40 percent. This means that the intensity of Thailand's involvement in the GVC sector is relatively immense.



4.4 Input-output analysis for commodity in Vietnam



This analysis will provide an overview of the role of the studied industry in making goods and services (output) in Vietnam.

From table M (see appendix), the food products, beverages, and tobacco (10T12) and agriculture, hunting, and

forestry(01T02) became two main industries contributing to Vietnam economy in 2018. This result is relatively different from the other three countries. These four commodities i.e. rice, fisheries, coffee, and palm oil has a high and significant role in the country's economic structure. Analysis can be deepened by comparing the function of intermediate demand and final demand in each sector in Vietnam. Vietnam's petroleum (19) and chemical (10T12) sectors are more widely consumed downstream for derivative industries in terms of this output structure. While the industry has more final demand, its output tends to be directly consumed by domestic end consumers in Vietnam and consumers outside Vietnam.

Based on table M (appendix), food-beverages production (10T12), petroleum (19), and chemical (10T12) sectors have the highest intermediate input values. The output of these sectors relies more on production (raw materials) from sectors of the economy than primary inputs (GVA). At the same time, in industries with high GVA values, such as the trade sector (45T47) in Vietnam, the production of these sectors relies more on direct inputs such as wages and taxes than output (raw materials) from other economic sectors.

Primary input or gross value added (GVA) is the value of returning services obtained from the production of goods and services. The amount of gross value added (GVA) for each sector is determined by the production value (output) and the costs required in the production process in each industry. Therefore, sectors with high output values do not necessarily produce a significant value-added structure. Based on table N (appendix), the agricultural

(01T02) and trade (45T47) industries have a sizeable value-added contribution. It is just that the contribution of petroleum (09) value-added to the nation is still meager. Vietnam has a relatively significant fishery contribution value, unlike the other three countries. Therefore, the possibility of these commodities will have a small value-added formation to the nation in terms of wages, taxes, subsidies, business surpluses, and rental costs.

In addition, from a total of 45 sectors and four countries processed in our IO analysis, it can be seen that Vietnam's commodities are closely related to other industries domestically and with Indonesia, the Philippines, and Thailand, even in the fisheries sector. In Vietnam, almost all industries containing the four commodities are very competitive and are more related upstream and downstream. The accommodation and food service activities sector (45T46) was also used in 176 sectors from all four studied countries. Vietnam is also very varied in using inputs from other countries and depends on three other countries.

From table O (see appendix), it can be seen that the value of Vietnam's exports to a total of three countries is relatively high for the food-beverages production (10T12), which is a proxy for our all commodities. While in the fisheries sector, Vietnam supplies products to three other countries, which is also the case of the other three countries.

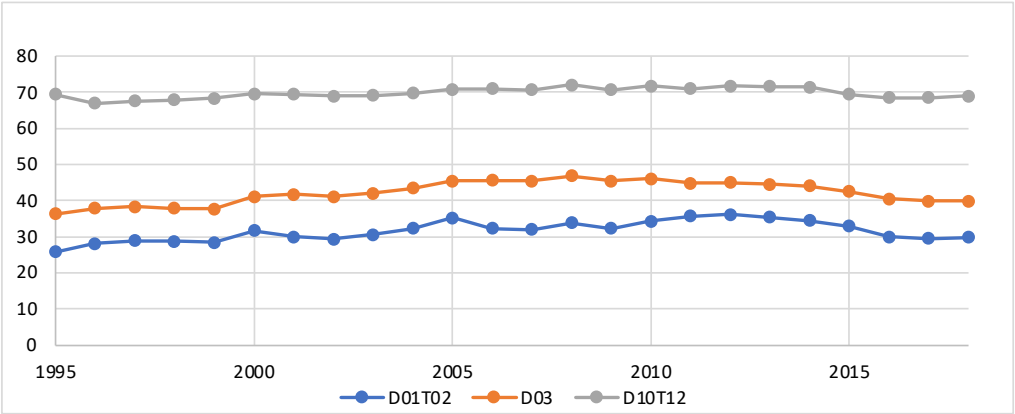
Vietnam's exports are also dominated by intermediate demand products except for the food-beverages production sector, indicating that these intermediate products will be inputs or raw materials for industry in 3 other countries. Although the intermediate demand value is high, higher household final consumption (HFC) suggests that Vietnam's products tend to be directly consumed by the end consumer rather than through the derivative industry. The global value chain shows that Vietnam plays an active role in supplying commodities to Indonesia, the Philippines, Vietnam, and other countries to be processed by these export destination countries.

Subsequently, the results of calculating the value and index of the relationship in Vietnam industry that becomes a commodity proxy can be seen in table P (appendix). Based on the estimation of the value of interrelationships for each sector (Table P), the value of the interrelationship of industries proxies of rice, fisheries, coffee, and palm oil commodities in Vietnam can be seen. In 2018, the food-beverages production (10T12) and petroleum (19) sectors had the highest backward linkage value. The trade and food production sector had the highest forward linkage value.

This value means that the final increase in demand in the food-beverages production sector by 1 million USD, assuming ceteris paribus (the final demand of other sectors remains) will increase output in the Indonesian economy by 3.38 million USD. This TBL value is also commonly referred to as the multiplier output. In comparison, the value of forward linkage can mean that an increase in primary inputs (gross added value (NTB) of 1 million USD in food-beverages production, the assumption of ceteris paribus, will encourage an increase in output for the Vietnam economy by 5.69 million USD. It is far greater than the other three countries'.

Sectors with more than one ITBL and ITFL value are categorized as key economic sectors. This is due to their relatively strong influence on their upstream and downstream sectors. In Vietnam, based on the ITBL and ITFL values detailed in Table P, it can be seen that agriculture (01T02), fishery (03), and food-beverages production (10T12) sectors are most critical in all sectors that are commodity proxies. This means that the relationship between Vietnam and Indonesia, the Philippines, Thailand, and the rest of the world has been relatively significant in the studied industries.

Figure 8. Vietnam's GVC Participation, 1995-2018



Source: OECD's TiVA, 2018 (processed)

Regarding GVC participation, from 1995 to 2018, Vietnam seemed to have a stable and tended to go up the value GVC participation, as seen in Figure 8. There was a shock in 2001 that caused the three sectors namely agriculture (01T02), fishery (03), and food-beverages production (10T12), simultaneously experience a significant increase in the value of GVC. Figure 8 shows that the food products, beverages, and tobacco sectors experienced relatively stable GVC participation in 81 percent as a proxy for four commodities. Agriculture (01T02) and Fisheries (03) industries increased significantly over 25 years. This means that the intensity of Vietnam's involvement in the GVC sector is vast.

Photo by: What is Picture Perfect

Chapter 5

Global Value Chain in Four Selected Commodities

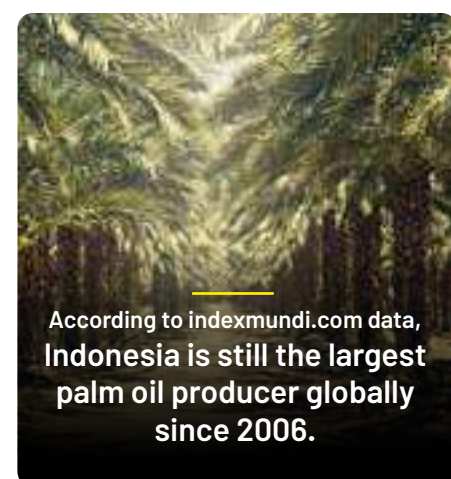
This chapter will describe the analysis of each GVC dimension on selected commodities in Indonesia, Thailand, Vietnam, and the Philippines simultaneously. The Input-Output (IO) dimension is used to describe the interrelationships between economic activity units (sectors). We using the 2018 Inter-Country Input-Output (ICIO) table data from the OECD which is most updated in 2021 through a 45-sector data proxy.



5.1 Global value chain of palm oil in Indonesia

5.1.1 Input-output structure of palm oil commodity

We take six sectors as proxies of the palm oil commodities, each of which contains palm oil commodities according to the IMF guidelines. Oil palm fruit production is categorized generally in plantations and agriculture. However, in adding value (processing), palm oil can be used in various products from food, beverages, and fuel to cosmetics. It is not easy to determine the value of each sub-sector in more detail without sufficient data, so in this proxy, we do not know precisely the value or percentage that is purely a palm oil commodity. Therefore, as shown in the table (8 and 9), we discuss this commodity in general and are expected to reflect the palm oil value chain structure statistically.



In its release, Indonesia's Ministry of Investment/ Investment Coordinating Board (BKPM) noted that foreign investment (FDI) in the agricultural sector in the 2015-March 2021 period was still dominated by oil palm plantation investment. The realization of FDI in the agricultural industry, which is dominated by oil palm plantations, from 2015 to March 2021, reached 9.5 billion US dollars or contributed around 5.2 per cent of the total FDI in Indonesia. Table 8 shows the contribution of agricultural sector and palm oil commodity to the four countries' economies and the input/ output structure of the commodity.

Table 8. Industrial Contribution, Input, and Output Structure of Palm Oil Commodity, 2018

Country and Sectoral Code	Commodity Proxies	Products/ Industries/ Sectors	Total Output (Million USD)	Contribution to Economy (%)	Output Structure		Input Structure	
					Intermediate Demand (%)	Final Demand (%)	Intermediate Input (%)	GVA (%)
Indonesia								
IDN_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	142.726,1	7,48	60,06	39,94	25,19	74,81
IDN_10T12	All	Food products, beverages, and tobacco	160.201,6	8,39	23,27	76,73	64,61	35,39
IDN_19	Palm Oil	Coke and refined petroleum products	92.056,9	4,82	67,43	32,57	76,74	23,26
IDN_20	Palm Oil	Chemical and chemical products	39.817,2	2,09	61,67	38,33	65,41	34,59
IDN_45T47	All	Wholesale and retail trade; repair of motor vehicles	196.028,3	10,27	45,92	54,08	29,77	70,23
IDN_55T56	All	Accommodation and food service activities	63.174,1	3,31	13,91	86,09	53,17	46,83
The Philippines								
PHL_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	52.432,0	8,36	58,40	41,60	30,26	69,74
PHL_10T12	All	Food products, beverages, and tobacco	84.552,3	13,48	41,90	58,10	63,02	36,98

Country and Sectoral Code	Commodity Proxies	Products/ Industries/ Sectors	Total Output (Million USD)	Contribution to Economy (%)	Output Structure		Input Structure	
					Intermediate Demand (%)	Final Demand (%)	Intermediate Input (%)	GVA (%)
PHL_19	Palm Oil	Coke and refined petroleum products	15.321,2	2,44	60,86	39,14	71,55	28,45
PHL_20	Palm Oil	Chemical and chemical products	8.475,2	1,35	63,89	36,11	65,55	34,45
PHL_45T47	All	Wholesale and retail trade; repair of motor vehicles	86.987,2	13,87	52,48	47,52	45,23	54,77
PHL_55T56	All	Accommodation and food service activities	26.072,6	4,16	17,87	82,13	63,59	36,41
Thailand								
THA_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	60.073,4	4,11	60,33	39,67	35,90	64,10
THA_10T12	All	Food products, beverages, and tobacco	88.886,8	6,08	31,03	68,97	73,57	26,43
THA_19	Palm Oil	Coke and refined petroleum products	38.354,1	2,62	61,03	38,97	82,74	17,26
THA_20	Palm Oil	Chemical and chemical products	32.576,3	2,23	57,36	42,64	66,02	33,98
THA_45T47	All	Wholesale and retail trade; repair of motor vehicles	122.598,1	8,39	52,99	47,01	21,98	78,02
THA_55T56	All	Accommodation and food service activities	46.051,7	3,15	14,88	85,12	61,56	38,44

Vietnam								
VNM_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	78.793,6	9,91	69,98	30,02	62,18	37,82
VNM_10T12	All	Food products, beverages, and tobacco	97.080,1	12,21	50,14	49,86	88,11	11,89
VNM_19	Palm Oil	Coke and refined petroleum products	14.296,7	1,80	94,44	5,56	87,02	12,98
VNM_20	Palm Oil	Chemical and chemical products	19.185,9	2,41	86,24	13,76	82,30	17,70
VNM_45T47	All	Wholesale and retail trade; repair of motor vehicles	44.372,5	5,58	64,35	35,65	45,57	54,43
VNM_55T56	All	Accommodation and food service activities	19.411,3	2,44	25,67	74,33	63,15	36,85

Source: OECD's ICIO, 2018 (processed)



From the table above, it can be seen that the total value of proxy for palm oil commodities in Indonesia is relatively large. However, the contribution to the economy is still higher in Thailand (THA) and Vietnam (VNM). In terms of commodity output of the four countries, this commodity certainly has a significant contribution that is more consumed for the needs of derivative industries compared to direct consumption. By nature, palm oil products are more helpful through a series of processes that produce many variations of product types.

Contrary to the output value, the input value is the value of goods and services needed to produce goods and services in each economic sector. Total inputs also consist of two parts, namely intermediate input and primary input or gross value added (GVA). Intermediate input is the value of goods or services needed to produce goods and services in each sector. Primary input (GVA) is another cost required for the production process, which is the value of service reciprocity for production factors. Based on table 9, intermediate input values are relatively balanced with the percentage of GVA. Sectors with higher input structures rely more on output (raw materials) from sectors of the economy than primary inputs. At the same time, in industries with high GVA values, the production of these sectors relies more on direct inputs such as wages and taxes than output (raw materials) from other economic sectors.

Table 9. Value and Index Total Backward and Forward Linkages of Palm Oil Commodity, 2018

Country and Sectoral Code	Commodity Proxy	Industries/ Sectors	Backward Linkage	Forward Linkage	Backward Linkage Index	Forward Linkage Index	Note
IDN_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	1,44	1,76	0,71	0,95	Not Key Sector
IDN_10T12	All	Food products, beverages, and tobacco	2,01	2,84	0,99	0,71	Not Key Sector
IDN_19	Palm Oil	Coke and refined petroleum products	2,22	2,56	1,09	1,13	Key Sector
IDN_20	Palm Oil	Chemical and chemical products	2,12	1,64	1,04	1,33	Key Sector

IDN_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,54	3,05	0,75	0,86	Not Key Sector
THA_55T56	All	Accommodation and food service activities	2,12	2,18	1,04	0,62	Not Key Sector
PHL_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	1,50	1,82	0,74	0,78	Not Key Sector
PHL_10T12	All	Food products, beverages, and tobacco	1,85	3,48	0,91	0,84	Not Key Sector
PHL_19	Palm Oil	Coke and refined petroleum products	2,12	1,73	1,04	1,01	Key Sector
PHL_20	Palm Oil	Chemical and chemical products	2,12	1,36	1,04	1,08	Key Sector
PHL_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,85	3,56	0,90	1,76	Not Key Sector
PHL_55T56	All	Accommodation and food service activities	1,93	2,04	0,95	1,01	Not Key Sector
THA_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	1,68	1,82	0,83	0,90	Not Key Sector
THA_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	1,68	1,82	0,83	0,90	Not Key Sector
THA_19	Palm Oil	Coke and refined petroleum products	2,44	2,57	1,20	1,10	Key Sector

THA_20	Palm Oil	Chemical and chemical products	2,16	1,73	1,06	1,52	Key Sector
THA_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,42	2,36	0,69	1,17	Not Key Sector
THA_55T56	All	Accommodation and food service activities	2,12	2,18	1,04	0,62	Not Key Sector
THA_55T56	All	Accommodation and food service activities	2,12	2,18	1,04	0,62	Not Key Sector
VNM_10T12	All	Food products, beverages, and tobacco	3,38	5,69	1,66	2,82	Key Sector
VNM_19	Palm Oil	Coke and refined petroleum products	3,02	1,59	1,48	1,53	Key Sector
VNM_20	Palm Oil	Chemical and chemical products	2,92	2,01	1,43	1,42	Key Sector
VNM_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,97	3,08	0,97	1,53	Not Key Sector
VNM_55T56	All	Accommodation and food service activities	2,50	1,66	1,22	0,82	Not Key Sector

Source: OECD's ICIO, 2018 (processed)

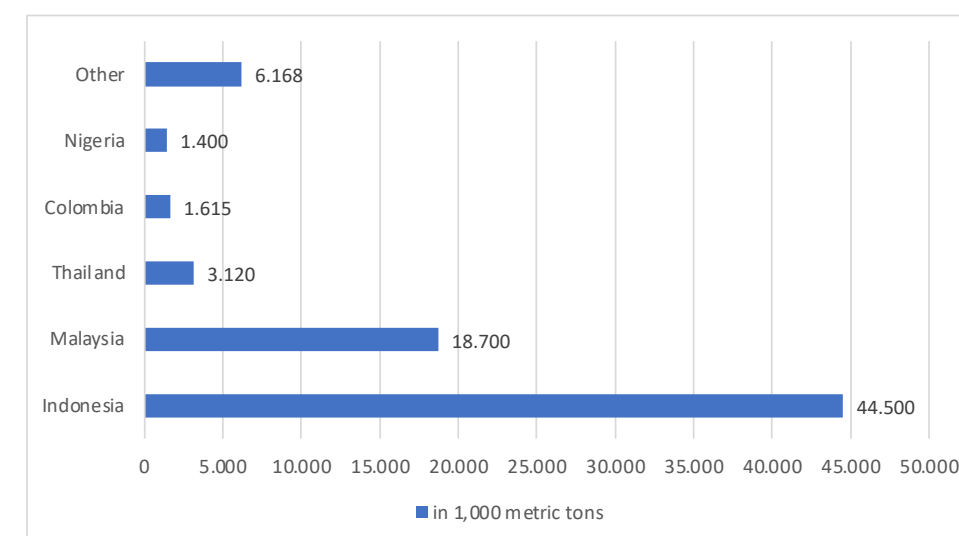
Table 9 shows that in the global value chain structure, the four countries are relatively dominant for palm oil proxies. This dominance is seen in each calculated sector as a key sector with a forward index and backward linkages of more than one. If the value is more than this, then the global connection significantly impacts both the upstream (backward) and downstream (forward) sectors.

However, the important sectors are the petroleum (19) and chemical (20) which seem not to use palm oil commodities too much. If we look at it in detail, Vietnam (VNM) is the most superior country, with 4 out of 6 key sectors for the global supply chain. The backward and forward linkage values indicate the multiplier amount or contribution to the whole domestic economy if the industry is increased by one unit.

5.1.2 Geographical scope of palm oil commodity

Palm oil is an important part of the global vegetable oil market. It is mainly used as cooking oil and as raw material for consumer goods such as processed foods, detergents, cosmetics, and even biodiesel. Palm oil is therefore grown in many countries across Africa, South America, and Southeast Asia. Figure 9 shows that oil palm grown in Asia, Africa and South America regions, but the global market is dominated by Indonesia and Malaysia only. Indonesia and Malaysia contribute 84% of the global production of palm oil in the world (ourworldindata.org). In 2021, Indonesia produced 44.5 million metric tons of palm oil and contributed 59% of global palm oil production. Malaysia as the second largest producer has 18.7 million metric tons of palm oil and contributes to 25% of global palm production (Statista, 2022).

Figure 9. Palm oil top global producers 2021



Source: Statista, 2022

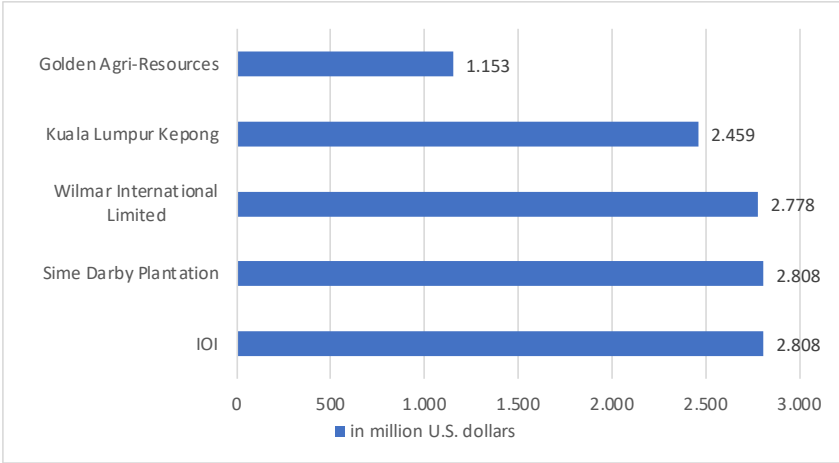
Oil palm trees are widespread in Southeast Asia (particularly in Indonesia and Malaysia) as monocultures. Government of the palm oil producing countries also rely on the palm oil industry as it is seen as a driving force for the national economy, thus they are supporting the expansion of the palm oil industry. Palm oil production is on the rise worldwide. In

2020/2021, around 75.45 million metric tons of palm oil were produced, a substantial increase from 58.9 million metric tons in the 2015/2016 crop year. Palm oil has been a controversial subject in recent years because much of the deforestation in Southeast Asia is attributed to palm oil cultivation. This has contributed to increased carbon emission and often human rights abuses of the local citizens. Many reports issued by NGOs showing how the palm oil industry causing socio-economic and environmental problems. The international communities have criticised and advised countries like Indonesia and Malaysia to apply environmental, social and governance (ESG) standards to make palm oil production sustainable.

Palm oil also have many derivative products and can substitute other production components in the domestic and global market. In addition to meeting basic food and non-food needs, palm oil products also become import substitution products for various goods in the domestic market (Ministry of Industry, 2021). In the overseas market, Crude Palm Oil (CPO) export data shows a tendency of a relatively increasing demand as the consumption of vegetable oil in the world increases. Potential markets that absorb palm oil (CPO) and palm kernel oil (PKO) are the fractionation/advanced industry (especially the cooking oil industry), special fats (cocoa butter substitute), margarine/shortening, oleochemical, and bath soap. The diversification of the global palm oil products also caused their value chain to grow rapidly and becoming more complex. Many companies that produce consumer goods depend on palm oil supply, while on the processing and refining side they are concentrated in a small number of palm oil corporate groups where they use supplies from various types of supply chains: subsidiaries, third-party supply companies and smallholders.

Although palm oil is a highly diversified in terms of its derivate products, only few big players dominated the global palm oil market. For instance, the IOI Corporation Berhad (IOI), a company operating in plantation business that covers Malaysia and Indonesia which becomes the top leading company in the world for palm oil based on market capitalization (see Figure 11). Wilmar International Limited, a Singapore-based agricultural business, is the third leading palm oil production company in the world, in terms of market capitalization. In 2021, Wilmar International's palm oil market capitalization amounted to 2.78 billion U.S. dollars (Statista, 2022).

Figure 10. Palm oil companies worldwide in 2021 based on market capitalization (in million U.S. dollars)



Source: Statista, 2022

Figure 12 describes Worldwide Palm Oil Exporters in 2021, where Indonesia and Malaysia are the leading countries for producers and exporters of palm oil in the world, with an export value of about 17.4 billion USD in 2021, followed by Malaysia with an export value of about 9.8 billion USD (Statista, 2022). Indonesia's exports of palm oil products, consisting of CPO, processed CPO, palm kernel oil (PKO), oleochemicals (including those of the code of HS 2905, 2915, 3401 and 3823) and biodiesel (code of HS 3826) reached 34.2 million tons or an increase of only 0.6% from the export in 2020 at 34.0 million tons. The low increase of exports was caused by limited supply, high price and the lower gap between the price of palm oil and other vegetable oils, especially soybeans (GAPKI, 2022).

Figure 11. Worldwide Palm Oil Exporters in 2021

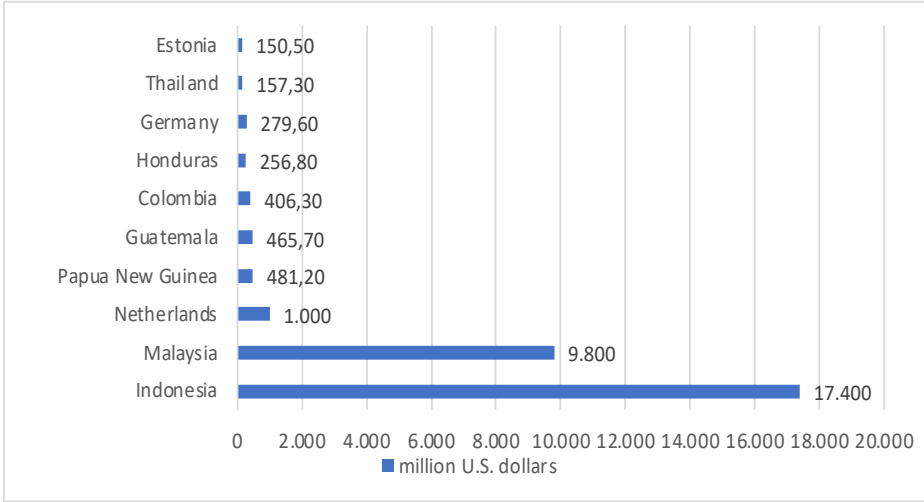
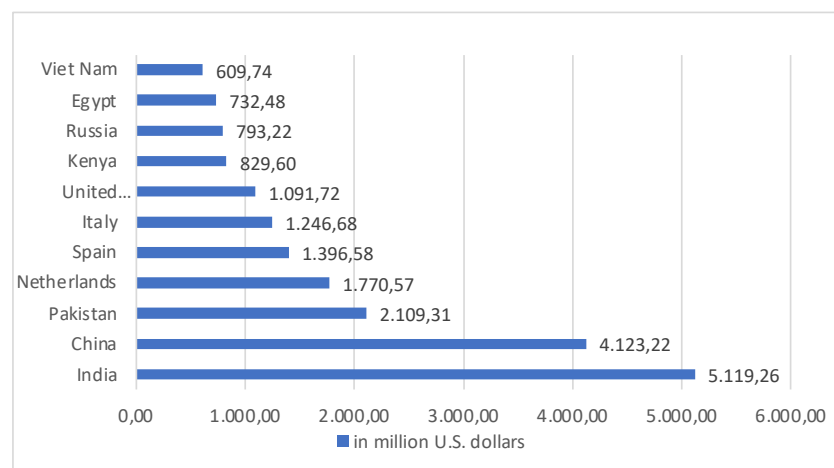


Figure 13 describes the worldwide Palm Oil Importers in 2021, where India is the largest importer of palm oil worldwide, with an import value of about 5.12 billion USD (Statista, 2022). India is the largest importer of palm oil in the world and is dependent on Indonesia and Malaysia for its demand. India imports over 13.5 million tons of edible oil every year, of which 45% comes from Indonesia and the remaining from Malaysia. India imports roughly 4 million tons of palm oil from Indonesia each year. Palm oil and its derivatives are used in food products, detergents, cosmetics, and biofuels. These are used to manufacture several daily consumption goods such as soaps, margarine, shampoos, noodles, biscuits, and chocolates.

Figure 12. Worldwide Palm Oil Importers in 2021



Source: Statista, 2022

Table 10. Top-10 Indonesian palm oil exporting groups to China, July 2019–June 2020 (tons)

Exporter	PO	PKO	PKE	PFAD	Biodiesel	Total
Musim Mas	999,675	4,296	7,700	-	60,426	1,070,097
Wilmar International	322,703	35,706	185,957	129,040	121,636	795,042
RGE	552,360	198,296	95,527	50,079	30,502	926,764
GAR	265,553	91,608	49,748	5,900	70,019	482,828
Astra Agpajro Lestari	424,896	-	-	2,850	-	427,745
SSMS	291,996	-	-	394	-	292,390
Sime Darby	195,515	-	-	-	-	195,515

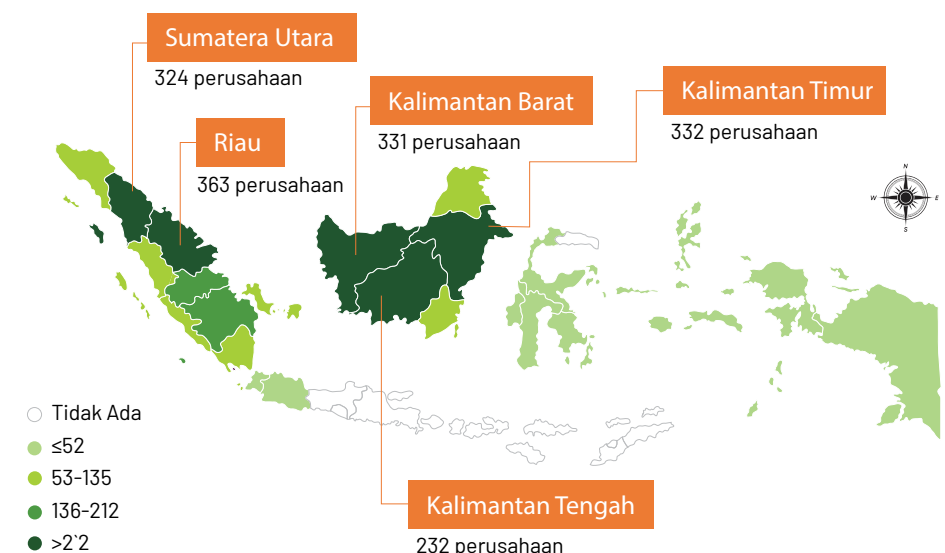
LDC	176,298	-	-	-	19,000	195,298
Wings Group	142,105	36,252	-	1,008	-	179,365
Best Group	47,105	37,404	-	21,955	12,000	118,481
Total top-10	3,516,636	445,088	338,932	313,583	313,583	4,825,463
Total Identified	3,970,698	544,825	577,543	387,673	387,673	5,777,923

Source: Chain Reaction Research, 2021

China is the second-largest country importing palm oil from Indonesia. Table 10 presents the 10 Indonesian companies that export palm oil to China in the period July 2019–June 2020. Musimas is the largest exporter of palm oil in Indonesia with a total of 1070077 tons of total processed palm oil products exported to China. Then the biggest exporters to China are RGE and Wilmar. These three companies are also companies that dominate the production of refined palm oil in Indonesia and the island of Sumatra.

Total crude palm oil production in Indonesia in 2021 amounted to 46.88 million tons and 10.27 million tons came from Riau province (GAPKI, 2022). The area of palm oil plantations in Indonesia reached 15.08 million hectares (ha) in 2021. Riau is the province that has the largest palm oil plantation area in Indonesia at 2.89 million ha (Ministry of Agriculture, 2021). Therefore, we decided to take Riau Province as the sample area for qualitative study. In the domestic market, palm oil plantations in Indonesia are dominated by large private plantations (93%) (BPS, 2020). Out of 2,511 palm oil plantation companies in Indonesia, 2,348 companies are large private plantations and 163 of them are large state plantations.

Figure 13. Directory of Oil Palm Plantation Companies in Indonesia in 2020



Source: BPS, 2020

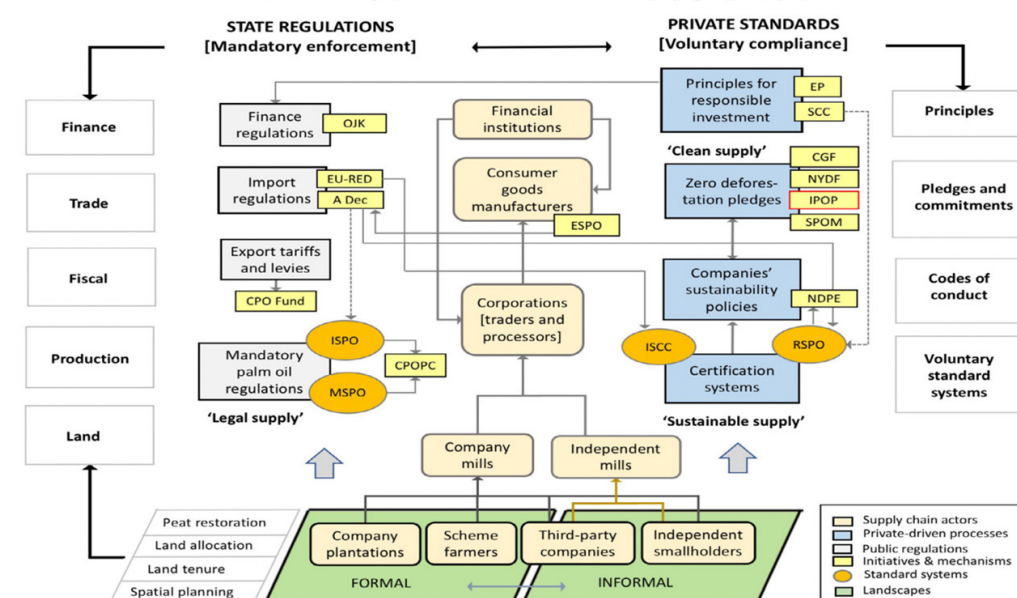
Geographically, palm oil plantation companies in Indonesia are mainly located in Sumatra and Kalimantan Islands. In 2020, almost half (54%) of oil palm plantations are situated in Sumatra and 42% are in Kalimantan (see Figure 14). The rest are located in Sulawesi, Java, Maluku, and Papua Islands (BPS, 2020).

5.1.3 Governance of Oil Palm: case study in Indonesia

The journey of palm oil value chain starts from plantation and ends with any forms of palm oil products distributed globally. Such a long-chained process indicates a complex institutional arrangement, involving multi-national companies, non-governmental organizations, trade union, national and sub-national government, to the upstream suppliers like smallholders. As such, to find a single dominant regulator might not be relevant to do, but rather importantly to flesh out the power relation exercised between several actors involved. To do so, this section is attempting to elaborate: cross-sectional policies and regulations, developed and implemented by state and non-state actors (or a combination of both); and differences in the types of environmental, social, or economic issues prioritized (Pacheco et al, 2020). Therefore, this study is able to analyze the complexity of the information between actors in the chain of palm oil commodity: the codification of information for production, and the level of competence among actors (Gereffi & Fernandez-Stark, 2011).

As depicted in Figure 15, the left side shows different policies, regulations, and institutional bodies managing the palm oil sector, crossing from global to sub-national level. While at the right side of figure serves the different private sector standards developed to govern the palm oil sector, including certification systems, guidelines and codes of conduct, and self-regulatory initiatives. Though the companies in all level of chains is highly possible to have internal rules that has an effect among actors in the chain such as: risk management, product enhancement process, monitoring, these aspects are not able to account for as each companies set different practices. The figure, thus, only descriptively accounts for the private actors and their roles through which those are affected by national level regulations in Indonesia.

Figure 14. Policies, regulations, and institutional bodies managing the palm oil sector, crossing from global to sub-national level



Source: Pacheco et al (2020)

Over the past few decades, non-state actors such as private companies, non-governmental organizations, trade unions, and organizations representing consumer rights, have attempted to formulate regulatory procedures in palm oil products. One of the certification initiatives is the RSPO (Roundtable for Sustainable Palm Oil). The aim of this initiative is to align demand for palm oil with sustainable practices and environmentally safe products (Mithöfer et al, 2016). This certification was initially implemented at the company level, but later also involved smallholders as the main actors at the lower chain level. In addition, the certification led to several adjustments in palm oil supply chain practices. The adoption of the RSPO has consequences from commodity financing practices, trade, fiscal policy readjustments, to production practices at the bottom of the palm oil chain.

Financial sector plays significant roles to fund the production, plantation, and distribution of products. In response to RSPO, many International Financial Institution (IFIs) decided to formulate Equator Principles – the initiative that regulates the social and environmental misconduct for the palm oil actors as the IFI's clients (Pacheco et al, 2020). Moreover, the adoption of RSPO also render the Government of Indonesia introduced the Indonesia Estate Crop Fund (IECF) for palm oil. IECF is a public-private partnership, supervised by the Ministry of Finance, that provides finance schemes for biofuel development, smallholder support (including to fund ISPO certification), research and education, and promotion of palm oil commodity. (Pramudya et al, 2017). This adoption also drives the Indonesian Financial Service Authority (OJK) to formulate “sustainable financial roadmap” to provide

a pathway to integrate responsible lending practices for palm oil actors in eight of Indonesia's largest banks (idem).

Moreover, the Gol also established the Palm Oil Plantation Fund Management Agency (BPDPKS) by 2015. This agency acts to collect the tax levied to CPO exporter companies that further to fund the sustainable practices on palm oil commodity in Indonesia, one of which is the replantation and operational cost of smallholders (BPDPKS website, 2022). This fund also commonly known as CPO fund. However, it is such an irony for province producing palm oil that despite tax revenue from palm oil commodities in Indonesia amount to 64 percent, yet as of 2013 only 11-14 percent flowing back to palm oil producing provinces (Pacheco et al, 2020), due to centralized tax collection. To this end, provincial government has lower financial capacity to develop their region, as it is explained by one interviewee:

“ The Law no 38/2008 about regional governments only regulates profit sharing for forestry, fishery, and mining commodities. And so, the plantation commodities are not included, and therefore we don't have strong financial capacity to “let's say to build a better road for local people

SAK

Department of Plantation of Riau Province

As explained earlier, Indonesia sees the palm oil as a highly demanded commodity that could boost the national GDP. As such, the Gol introduced national CPO products certification called as Indonesia Sustainable Palm Oil (ISPO) by 2009 to ensure the sustainability and global market 'acceptance' on palm oil products from Indonesia (Pramudya, et.al, 2017). This is public-managed certification process that is mandatory to companies, and latter applied to smallholders. Along with the implementation of ISPO, the Gol has more interest to export the palm oil products to 'south countries' such as India and China. As of 2020, more than half total export from Indonesia went to India, amounting to 61% (Statista.com, 2022). Export tendency to global south countries is rendered by the less strict sustainable product certification, as most these countries are yet to adopt RSPO principles (Kadarusman & Pramudya, 2019).

However, the complexities of the aforementioned oil palm governance network are undoubtedly vulnerable to disconnects and further contradictions between actors and regulations. The apparent disconnect is in the aspect of certification, where Malaysia and Indonesia as the two main producing countries stand with their own certifications. Meanwhile, the downstream actors such as consumer in the well-off countries (EU, USA, and UK) are leaning more towards international standardization (RSPO). The disconnect, hence, lead to the 'double budget' for the smallholders at the upstream level, in which they have to plan the budget for technical procurement prerequisites in both RSPO and ISPO.

Moreover, at the national level in Indonesia, the fiscal policy that collects the levied tax from the exporters, are not used to support the producing province. The disharmony and disconnect on the local level will be elaborated further on the local context chapter below. To this end, this study argue that the upward chain actors have to bear the brunt.

5.1.4 Upgrading

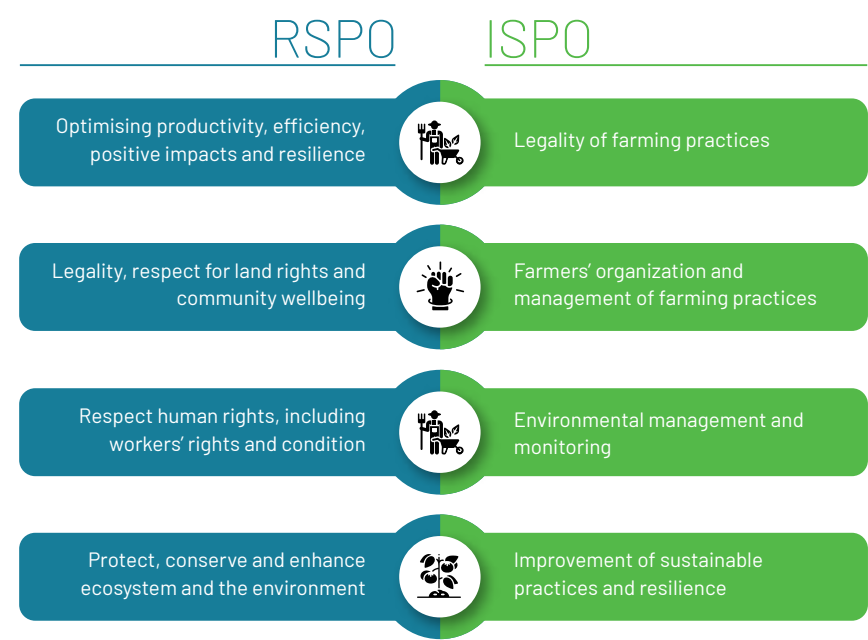
The study finds that upgrading process in palm oil commodity in Indonesia takes place in three main domains namely environmental, product, and economic upgrading. The upgrading term refers to the strategies used by value chain actors (countries, private sectors, and other chain stakeholders) to maintain or to improve their position in the value chain, so that they can earn greater amount of benefit (Gereffi & Fernandez-Stark, 2011, pp.12). The environmental upgrading happens as a consequence of the massive adoption of international certification 'RSPO certification regime' in every stream level of palm oil value chain. In light of the rising global demand on palm oil products, some strategies are used by companies and Gol to upgrade the products in domestic level, some development will be highlighted further in this section. As for the economic upgrading, this study sees it as the consequence of the effective measures taken by the Gol and the local mills to upgrade the products at the national level.

The expansion of palm oil demand globally has raised concerns, especially for Northern non-government organizations, consumers, producers and independent researchers on the environmental sustainability issues. Many studies conducted earlier found out that tropical areas are more favorable to grow the palm oil trees. The growing demands for palm oil, thus, bring the consequence on the decreasing number of forest in the most tropical countries, due to expanding palm oil plantation areas. In response to this concern, the international initiative was introduced in 2004 by several actors of palm oil supply chain, including government, producers, consumers, non-government organization, and business association (Hidayat, 2017). This initiative meant to certify and to ensure that the various forms of palm oil products are environmentally friendly from the upstream level to the product served to consumers. One of the most immense certification initiatives is Roundtable on Sustainable Palm Oil (RSPO).

Moreover, the government of Indonesia (Gol) enacted the national certification under the Ministry of Agriculture's regulation No. 19.2011, which is the Indonesia Sustainable Palm Oil (ISPO). This certification aims to ensure that national companies and actors of palm oil comply to sustainability and carbon emission, as well as to maintain the economic growth from palm oil products (Chandra, 2020). As shown by figure 11, both RSPO and ISPO are attempting to address the issue related to legality, institutional arrangement, environmental protection, and to emphasizes the practice of sustainability. Technically speaking, both ISPO and RSPO certification use similar standard operating procedure that applied to companies and smallholders. As a case in point, an interview mentioned that smallholders are not allowed to spray the pesticides 10 meters from the irrigation flow (MY,

Smallholder, Riau). However, ISPO certification is a mandatory as it is publicly managed by Gol, while the RSPO certification is voluntary (Chandra, 2020).

Figure 15. ISPO and RSPO certification



Source: Chandra (2020)

The certification process has improved the process, product, and inter-sectoral improvement on the palm oil commodity in Indonesia. The smallholders should attend the training, such as: work safety training, environmentally palm oil tree treatment, waste management system (MY, Smallholder, Riau). Emphasizes knowledge capacity and directs farmers to reduce dependence on pesticide use, thereby reducing the cost of producing pesticide spray from Rp. 400,000 to 500,000 ha/year (Hidayat, 2017).

Nevertheless, ISPO and RSPO offer different benefit, especially for the smallholders. The RSPO certified smallholders gain the annual premium fee – additional fee based on the calculation of smallholders association's plantation area times annual FFB's sale to predict the annual CPO sale – paid by RSPO association (Hidayat, 2017). The smallholders deem this premium fee as an annual bonus that increase their income, which later can impact to their livelihood. This annual premium fee, however, is not given by the Indonesian government for ISPO certified smallholders.

In line with the findings from Hidayat (2017), our observation on the field found that smallholder's participation in certification process, both ISPO and RSPO, does not change their economic vulnerability and access to the wider market, which means the certified smallholders are not different from the uncertified ones. The smallholders remain to have little insight on the setting of global CPO's price so that they are subjected to the price

volatility.

The table below shows how the different stage of production process yields different products of palm oil. The journey of palm oil production starts in the district level, where the smallholders (inti and plasma) plan and produce the fresh fruit bunches and further proceed FFBs into CPO by the local mills. Due to technological advancement in district level, local mills are now able to diversify the product in the milling and crushing process in order to minimize the waste and the residue from FFBs productions. This surely makes the local mills to maximize the benefit, as explained by an informant below:

“

As for local activities, we receive palm fruit from farmers, we process several derivative products of palm oil, such as: CPO (crude palm oil), CPKO (core oil which is processed from the kernel of palm fruit seeds) which is the highest quality oil. However, in the past, in the palm oil mill, palm fruit shells were included in the waste section, now they are included in the finished product. The fourth is Fibar (palm pulp), this is produced from the process of pressing the palm fruit that is already available and squeezing the oil, the pulp of the fruit becomes this fibar for burning. In the past, the boiler fuel was used for burning from shells, now the shells have become a product of interest to Fibar for fuel, pulp from palm shells for fuel and traded.

MS

KMS company, Rokan Hulu

As an attempt to gain greater benefit, the Gol stimulates the local palm oil market, especially in Riau Province, by emphasizing the local infrastructure to minimize logistical costs. Since Riau Province is one of the expansive plantation areas, the Gol enlisted Riau as one of the provinces in Indonesia to get the national strategic development by 2016 under the Presidential Regulation number 3/2016 on the Acceleration of National Strategic Project Implementation. The Gol further built the highway sprang from Pekanbaru (capital city of Riau Province) to Dumai (the city port of Riau Province). Infrastructure development in Riau has encouraged local mills to transport CPO to refineries in the port area of Dumai city. For this reason, the economic circulation of palm oil in Riau Province can be said to be fast. This has an impact on local factories to increase their production capacity. This effective measure makes farmers less worried that their FFB will not be purchased by any local mills. Therefore, the increase in production and infrastructure by the Government of Indonesia has stimulated local economic growth in Riau Province.

Table 11. Production Process on Palm Oil Commodities

Stage	Key segment	Segment description	Product
Upstream	Input supply	Produce and distribute agriculture appliances and production materials to be used by planters to their farmland	1. Machinery/equipment 2. Agrochemicals 3. Fertilizer 4. Seeds and planting materials
	Plantation	Thrive and harvest the fresh fruit bunches (FFBs)	FFBs
	Milling & crushing (primary processing)	Process the FFBs into CPO (crude palm oil), CPKO (Crude palm kernel oil).	CPO (crude palm oil), CPKO (Crude palm kernel oil) Palm fruit shell Fibor (oilcake of palm fruit)
	Waste and Reside Management	Convert biomass wastes and residues into further uses	<ul style="list-style-type: none"> • Palm Kernel Cake (PKC) • Electricity • By-products (e.g: fiberboard)
Midstream	Trading	Trade palm oil onwards on domestic and export markets	Service
	Transport & Logistic	Coordinate transportation, storage and delivery of goods	Service
	Basic refining (secondary processing)	Refine and fractionate crude products in a wide range of basic processed palm oil (PPO) and processed palm kernel oil (PPKO) products	<ul style="list-style-type: none"> • Main PPOs: refined, bleached, deodorized (RBD) palm oil; RBD palm oil; RBD palm stearin. • Main PPKOs: RDB palm kernel oil; RBD palm kernel stearin.

			<ul style="list-style-type: none"> • Palm fatty acid distillates (PFAD) and palm kernel fatty acid distillates (by-products from refining)
			<ul style="list-style-type: none"> • Crude Palm with specialized code (e.g: CP 10 as a raw material for cooking oil, CP08 for cosmetic raw material products)
Downstream	Further refining (secondary processing)	Further refining (secondary processing)	<ul style="list-style-type: none"> • Edibles oils • Specialty fats • Oleochemicals • Biofuel • Phytonutrients
	Food and non-food manufacturing	Produce consumer goods using palm oil derivatives as functional ingredients or processing aids	<ul style="list-style-type: none"> • Food products • Personal and household care products

Source: Perdana (2019) with some adjustments from author.

5.1.5 Local Institutional Context: Case study of Indonesia

Palm oil commodity contributes a significant share of employment in Indonesia. It is estimated that a total of 20 million people work in the entire value chain of palm oil in Indonesia, albeit 60% of them are bind in unsafe industrial relations (Sawit Watch, 2021). However, palm oil plantations' workers comprising only about 10% of total workers in the agricultural sector, with private sector companies has the largest share. More than 4 million people worked in oil palm plantations (Ministry of Agriculture, 2019). Most of them (90%) worked for large national private plantations, 321 thousand (7.26%) worked for large state palm oil plantations and 91 thousand (2.07%) worked for foreign private palm oil plantations.

To gain a deeper understanding of the local context, this research collected data through field observation and interviews with several stakeholders in Riau Province, the province with the largest oil palm plantation area. To gain a deeper understanding of the local context, this research collected data through field observation and interviews with several stakeholders in Riau Province, the province with the largest oil palm plantation

area. The fast-paced palm oil product circulation from FFBs to refinery company in Dumai (as explained on the upgrading section) has contributed to the local economic growth, especially for the smallholders in Rokan Hulu. The effect of palm oil plantation expansion in Rokan Hulu, Riau is described by one of the informants:

“First of all, what is obvious is that oil palm in our area improves the local economy. In general, it can be seen that the conditions are better off as of now compared 20 years later was very less developed. Many children in our village are now able to attend to college, our village head is an alumnus of UGM. Now, we have a lot of youth with tertiary education degrees, Alhamdulillah. The second is for the progress of the area, the children’s education is good, then of course it supports regional development here, right?

AR
Plasma smallholders, Rokan Hulu

Although palm oil commodities have been argued to contribute greatly to the local economy, however it is determined by the status of oil palm farmers. The status is divided into several types including plasma farmers, cooperative self-help farmers, and independent palm oil farmers. Plasma farmers have a relatively better level of security, because plasma partner companies have guaranteed land production needs such as stable fertilizer supply, and the company also provides human resources trained in managing plasma palm oil land. Plasma farmers also legally guaranteed land-use contracts, and palm oil price determination, and have better access to government assistance than independent farmers. Nonetheless, plasma smallholders often take it for granted and not fully aware of their rights.

“We (plasma farmers) do not need to come to the plantation to monitor the development of oil palm plantations. All maintenance processes, including fertilizing, were carried out by the foreman of the company. We only know the price of palm oil emitted by the provincial government weekly, but we also only receive profit-sharing money from the company. We do not complain for the amount of transferred money from the company.

U
plasma farmer, Rokan Hulu

Plasma farmers felt they do not need to monitor the plantation area and the total amount of shared benefit by the company because the company has been transparent to them and they trust it. This only applied when companies are transparent. Therefore, the economic wellbeing of plasma farmers are depending on the transparency and integrity of company.

As such, the company compliance on the plasma agreement is critical on plasma farmers’ wellbeing. Acknowledging the issues, some plasma farmers in Rokan Hulu formed a cooperative group. This group aims to advocate plasma farmers to access the agreed price of FFBs so that they have price reference to the company calculation on shared benefits, to access the fertilizer, and to help all the plasma farmers to gain better access for RSPO certification.

On the other hand, independent farmers have difficulties to access fertilizer due to the price increase, unable to be involved in determining the price of palm oil commodities at the local level, and lacking access to some government assistance programs. Some independent farmers initiated to form cooperatives to facilitate access to good seeds, stable fertilizer supply, and are able to access government assistance programs.

To ensure the same FFB’s price for both inti and plasma smallholders, the provincial government of Riau enacted provincial regulation no.5/2021 to renew the previous regulation regarding to price per FFB for all categorized smallholders in Riau. This measure was taken by considering that independent smallholders often sell the FFB underprice, resulting the wide economic gap between plasma and inti smallholders. The provincial FFB price in Riau is decided every week through deliberation process among provincial government, local NGO, local palm oil trade union, plasma smallholders, and inti/ independent smallholders. The provincial government announces the FFB price by What’s App Group of FFB price decision maker. Next, the stakeholder involved FFB price decision maker circulate the announcement in their own group.

Despite of this good initiative, our findings from the field show two reasons of why this provincial regulation is less favorable for the independent smallholders. *First*, the price announcement rarely reaching independent smallholders who are not the members of cooperative group. As explained earlier, there are two types of smallholders – plasma and inti/independent smallholders. Within this inti category, independent smallholders are identified as cooperative group members and non-members. The decision maker only accounts for cooperative independent smallholders so that the FFB price circulate internally among cooperative members, leaving the non-members independent smallholders to be uninformed.

Two, the regulation applies K-Index to determine the FFB price, yet only the companies have the right to propose this index. The K-Index is the percentage paid to oil palm farmers after deducting all Palm Oil Mill (PKS) expenses for FFB processing. Meanwhile, farmers also found lack of transparency in partnership between them and companies. In some cases, farmers did not receive clear information from company on how profits are being shared. This raised suspicion of an unfair shared of profit from the farmers to the company. On the other hand, price determination based on the K-Index is detrimental to farmers, because it includes the non-farmer’s burden as the responsibility of the farmer.

“ The price set from K-index for instance, 6000 rupiah, multiplied by how many kilograms, for independent farmers, they take home the whole sales outcomes, even when the price of palm oil declined, (but) now it is increasing (the price). With partnership, the cost of partnership is calculated. Well, that’s what I said transparency problem, how much is actually the total cost? How much debts I still have? I often have more debts in my bank account after harvest instead, I did not receive more money, I ended up with more debts than income.

G
Member of SPKS National Council, Jakarta

In the palm oil plantation partnership model, “single management” is applied where the management of plasma plantations is carried out by the company in terms of planting, maintaining, to harvesting, and yielding the results. Farmers will receive a net profit from the company, which means the company does not allow farmers to manage their land in order to maintain production quality. Under this system, the non-involvement of farmers prevents them from increasing their knowledge and practice in growing palm oil trees. In addition, the farmers were not informed about the borders of their land. Therefore, when they wish to manage the land they have won, it can lead to conflict with land owned by farmers or other companies.

“ What is the difference between the partnership model before ‘one-stop management’ and after? Before ‘one roof management’, farmers knew which land they belonged to, now they cannot differentiate between their own land and partnership land. Ownership is unclear, so farmers are accused of stealing on their own land. Such stories are happening, so if the position of the land is not transparent, automatically the costs will also become non-transparent

G
SPKS Board Member, Jakarta

Single management system is also impacted the way of how daily casual laborers (Buruh Harian Lepas or BHL) were hired. Some of plasma farmers decided to work at their own land paid by the companies to maintain their working activities. The farmers in the plasma relationship unable to work once they handed the land to the companies. Hence working as the BHL is one of the options to keep them work.

“ Yes, if (it happens) under single management (farmer as the landholder does not work his own palm trees), perhaps it was because the company thinks that the quality of palm fruits fail to meet its standard requirements. That is why during discussions

about plantation, farmers and companies also raised issue on BHL, BHL does not supposed to exist, farmers should be allowed to harvest the crops themselves. themselves. When company does not allow farmers to work in that land, they are turned into BHL – in their own land.

G
Member of SPKS National Council, Jakarta

Palm oil farmers in Riau face a multidimensional poverty situation. Although from the economic perspective, palm oil is claimed to have a positive impact on local farmers, people work in plantations are often unable to access public facilities and work without decent working conditions. They work without contracts or with unclear contract, and far from health facilities (palm oil plantations usually situated far from settlements and towns) even though some companies provide ambulances both paid and free. The community residing in the surrounding area of the palm oil plantation are lack of educational attainment because schools are not available. Workers from indigenous peoples or marginal groups only receive salary without profit-sharing from the land which are being used by companies. Remuneration and contracts are unclear, but no protests have been raised so far (because they are not aware of it). Harvest workers are obliged to work and meet a high company’s target, thus the involvement of family members to increase crop yields becomes mandatory, because they could fail to meet the target if otherwise. Additional workers from family members such as women and children are commonly not paid, only the main workers (mainly adult males in the family) will receive remuneration. PRAKARSA’s previous research in other areas found that palm oil workers do not work in decent work conditions. Companies often violate workers’ rights by paying their workers less than a living wage, lack of measures to keep their health and safety, restrictions in their freedom of association, no clear working contracts, and sometimes people are hired as forced labor. In some cases, child labor is still practiced. The continued violation of palm oil workers’ rights indicates that sustainability standards for palm oil industry such as the RSPO and ISPO have not been able to effectively become a ground for companies and plantations to place workers as an important part of the sustainable palm oil industry (PRAKARSA, 2021).

Gender dimension in the palm oil value chain in Indonesia

In the palm oil sector, women also hold and fill certain positions including as freelancers or helping their husbands without any contract with plantation companies (PRAKARSA, 2021). It is sometimes the only source of income and livelihood opportunity for women to earn amidst household’s income scarcity. It is because the income of their husbands (farmers) often unable to meet the household needs. Such conditions encourage women to be involved in the plantation by helping husbands to harvest or by working as freelance day laborers such as fertilizers, sprayers and knitters in the plantations.

In general, there are different conditions between male and female workers, although the division of labor between men and women in palm oil plantations is not as sharp and rigid as in the agricultural sector in the countryside. Women workers in oil palm plantations involve in the production process such as *idol* (collecting palm oil fruit that is released from bunches), participating in work as *menol* (freelance day laborers), although men (husbands) consider that their hard work (women) as a complement to the source of family income.

Gender discrimination can also be seen in two ways; First, gender-based discrimination, where women are marginalized in low-wage types of jobs. Female workers are rated as supplements, therefore women in the payroll system or wages are paid less. The rights of women in special treatment such as during menstruation, childbirth, breastfeeding are also not fulfilled. Second, structural discrimination, in which female workers are subjected to violence, particularly by husbands. Although women have access to work in oil palm plantations, they have limited control over household income. The division of sexual roles that put men as the head of the family positions women as complementary personnel in meeting family needs PRAKARSA (2021).

Regarding land ownership status, women do not legally own the land. Commonly, land ownership is registered after the man's name (husband) as the head of the family. However, in the family farming tradition, the status of land ownership in the husband's name does not affect the family farming culture where work is carried out collectively.

In the context of oil palm independent smallholders, the division of labor between men and women is carried out based on the physical workload required of certain types of work. For example, women do the work of clearing and tending, while the harvesting is done by men even though women are also helping men in this process.

“ Women work in fertilization and pruning. For the harvest, men do all the work. Sometimes there are also women but only as members, helping their husbands, when their husbands work, women's labor become part of their husband's labor.

Karya Bakti Cooperatives
Riau

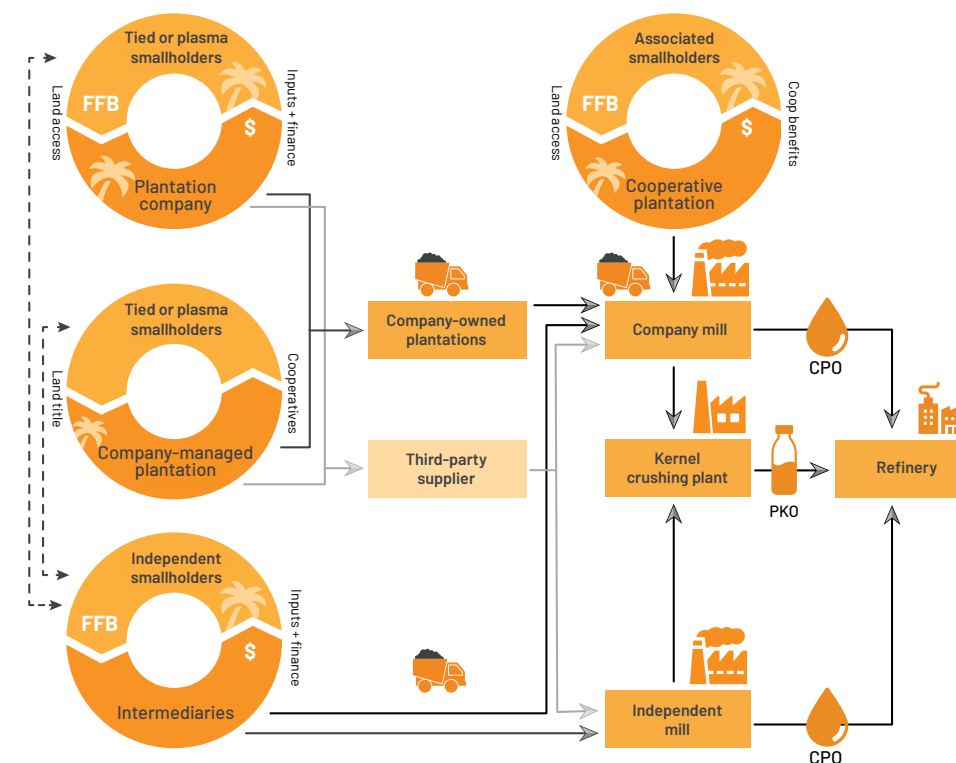
In short, women's role in palm oil production mainly seen as supplementary and their roles are often left unrecognized. Because they often do not have legal rights to own land, they do not have the power to negotiate or organize production relations with plantations or companies. Furthermore, their labor is also only seen as extra labor of the men because they are mainly deployed when the male family members have working target or responsibility.

5.1.6 Industry Stakeholder

Palm oil commodities have a multilevel market pattern, from the upstream level – farmers

– to the downstream level – to processed certain raw materials. At the upstream level, farmers only play a role in maintaining crops and selling palm fruit to middlemen, middlemen selling to local companies, and producing CPO products. Furthermore, local companies will sell CPO to refinery companies in the port, which further produces CP results with certain categories, for example, CP8 (raw material product code for cosmetic products). In addition, the role of each actor is also multi-closed, where upstream actors were not informed the allocation of processed CPO that will be CP products and with what code. The role of each actor is cut at every level of the transaction (see Figure 12).

Figure 16. Palm Oil Global Value Chain



There are 43 local companies in Rokan Hulu Regency, Riau, each of which has several middlemen who directly buy palm fruit from farmers. This condition makes palm oil farmers have the choice of selling their palm fruit. The local palm oil market is an oligopoly, where there is no single company that controls the supply of palm fruit from farmers. Thus, farmers' interactions with oil palm companies are interdependent – companies need supplies from farmers, and farmers themselves need companies to buy their crops.

Smallholders, according to Ministry of Agriculture (MoA) Regulation No. 33/2006 article 1, smallholders are “farmers owning plantations smaller than 25 ha.” As of 2018, smallholders

in Riau Province accounts for 1.5 million ha (26% of total plantation area in Indonesia) and manage 56% oil palm plantation in Riau, higher than state-owned (2%) and private company (41%) (Chandra, 2020). There are two types of smallholders: independent smallholders (called inti) and smallholders managed by private/state-owned companies (called plasma). As depicted at the figure 12, plasma smallholders have direct access to the mills, while the independent ones should access the company through the middlemen. The direct access owned by Plasma smallholders allow them to get a secured FFBs price, certification, and relatively easy to access the bank loan to rejuvenate the plantation. Since the independent smallholders do not have this favor, they are vulnerably trapped into vicious circle of low-income group and barriers for upgrading.

Middlemen (intermediaries) are “unregulated” actors in local value chain due to growing number of oil palm plantation area. They collect FFBs directly from the independent smallholders or other middlemen if they have stronger financial capability, and sell the FFBs to the mills. The middlemen are also highly possible to transport the FFBs to other places where the price is higher than price in the originate place. However, as an unregulated actor, these middlemen are able to determine the FFBs price to smallholders lower than government-determined price. With lower access directly to mills, smallholders in this research sometime sell the FFBs to middlemen with lower price, especially during lower quality season in the drought season.

Mills in the local level process the FFBs to be five different products, one of which is Crude Palm Oil (CPO). The mills get the FFBs from their own plasma smallholders and middlemen who have been contracted as a Delivery Order (DO) before. The mills later will ship this CPO product to refinery company. Additionally, the Central Government of Indonesia (GoI) had imposed the private/state-owned mills to provide technical or financial assistance to the local smallholders through Law no. 39 art. 58 that states “the company is obliged to facilitate the development of smallholder plantation with the total area of 20% of their concession”. Yet, this law has low performance in implementation since this article has no technical interpretation, resulting the debate in the field between local governments, NGOs, and mills (BPHN, 2020) and local smallholders should bear the burnt.

NGOs and Labor Association plays significance role in assisting smallholder with technical, institutional, administrative, and financial supports. One example is an independent smallholder cooperative in Rokan Hulu which obtained RSPO certification through institutional and financial assistance from NGOs. On the other hand, trade unions (SPKS) also help farmers to access government financial support for rejuvenating plantations. In addition, SPKS also assists employees in production companies to obtain employment social protection.

Government holds a major role in ensuring equality principle for all actors and business players in palm oil value chain through its policies. In terms of taxation, palm oil plantation is taxed from the central and regional government taxes based on Law No. 28 year 2009

about local taxes and retribution. From our findings, we found that local governments did not receive taxes from companies because companies only paid taxes to central government directly. Yet, companies must pay many different retribution and levies as third-party contributions. Government authority did not monitor companies very well, so tax avoidance practices still occur.

The Indonesian government has implemented a number of measures to improve the country’s role in GVC scheme. One of the efforts is to improve a number of through Omnibus Law. Such policy aims to ease business climate and investment in Indonesia. It is expected that Indonesia can increase its competitiveness and its export of prime commodities such as palm oil, can grow further. However, Indonesia’s weakness in leveraging global value chains is also further complicated by high transportation costs. It is caused by burdensome regulations and distortions in port prices (port-pricing).

The existing policies are considered to have not been in favour of the community, especially the lowest chain in the value chain of the palm oil industry. This can be seen in the absence of a value chain that can provide protection and guarantee the same bargaining position for all palm oil business actors.

5.2 Global value chain of rice in Thailand and The Philippines

The idea of value chain in rice commodity is to increase the share of value by the farmers from production to consumption as a strategy that can be developed from each of their core activities. This development hopefully be able to facilitate the change of behavior, transforming relationships, and empowering the private sector that involved in this rice value chain commodity. The upstream of rice farming is mainly the farmers. While the downstream of rice farming include milling factory, rice collectors/enterprise, retail traders, broker, and exporters. The involvement of farmers does not only constrain within the plantation process, but they also involved greatly in determining the types of equipment, fertilizers, and weeding which are done manually by the farmers and in every stage of the rice production (Othman, 2012). In the next sub section, this report will analyze six dimensions of global value chain in rice commodity.

5.2.1 Input-output structure

In rice commodities, this study uses four sector proxies in the OECD, such as agriculture (01T02), food products (10T12), trade (45T47), and food service activities (55T56), referring to the IMF guidelines. The four proxy sectors are relatively describing rice more, especially in ASEAN countries that use rice as the main food. The chain is more visible, and we hope that it can be significantly illustrated.

Table 12. Industrial Contribution, Input, and Output Structure of Rice Commodity, 2018

Country and Sectoral Code	Commodity Proxies	Products/ Industries/ Sectors	Total Output (Million USD)	Contribution to Economy (%)	Output Structure		Input Structure	
					Intermediate Demand (%)	Final Demand (%)	Intermediate Input (%)	GVA (%)
Indonesia								
IDN_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	142.726,1	7,48	60,06	39,94	25,19	74,81
IDN_10T12	All	Food products, beverages, and tobacco	160.201,6	8,39	23,27	76,73	64,61	35,39
IDN_45T47	All	Wholesale and retail trade; repair of motor vehicles	196.028,3	10,27	45,92	54,08	29,77	70,23
IDN_55T56	All	Accommodation and food service activities	63.174,1	3,31	13,91	86,09	53,17	46,83
The Philippines								
PHL_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	52.432,0	8,36	58,40	41,60	30,26	69,74
PHL_10T12	All	Food products, beverages, and tobacco	84.552,3	13,48	41,90	58,10	63,02	36,98
PHL_45T47	All	Wholesale and retail trade; repair of motor vehicles	86.987,2	13,87	52,48	47,52	45,23	54,77
PHL_55T56	All	Accommodation and food service activities	26.072,6	4,16	17,87	82,13	63,59	36,41

Thailand								
THA_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	60.073,4	4,11	60,33	39,67	35,90	64,10
THA_10T12	All	Food products, beverages, and tobacco	88.886,8	6,08	31,03	68,97	73,57	26,43
THA_45T47	All	Wholesale and retail trade; repair of motor vehicles	122.598,1	8,39	52,99	47,01	21,98	78,02
THA_55T56	All	Accommodation and food service activities	46.051,7	3,15	14,88	85,12	61,56	38,44
Vietnam								
VNM_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	78.793,6	9,91	69,98	30,02	62,18	37,82
VNM_10T12	All	Food products, beverages, and tobacco	97.080,1	12,21	50,14	49,86	88,11	11,89
VNM_45T47	All	Wholesale and retail trade; repair of motor vehicles	44.372,5	5,58	64,35	35,65	45,57	54,43
VNM_55T56	All	Accommodation and food service activities	19.411,3	2,44	25,67	74,33	63,15	36,85

Source: OECD'sICIO, 2018 (processed)

In table 12 above, the analysis is not too different from the study of palm oil commodities (the previous subsection), considering that the proxies used are relatively similar. However, rice commodities in these four countries can be emphasized because their contribution and input-output structure are certainly more significant than other commodities considering rice as a main food and the main agricultural crop in the four countries. From the table above, the total value can be seen that the proxy for rice commodities in Indonesia is relatively large. However, the contribution to the economy is still higher in Thailand (THA) and Vietnam (VNM).

Table 13. Value and Index of Total Backward and Forward Linkages of Rice Sector, 2018

Code	Commodity Proxy	Industries/ Sectors	Backward Linkage	Forward Linkage	Backward Linkage Index	Forward Linkage Index	Note
IDN_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	1,44	1,76	0,71	0,95	Not Key Sector
IDN_10T12	All	Food products, beverages, and tobacco	2,01	2,84	0,99	0,71	Not Key Sector
IDN_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,54	3,05	0,75	0,86	Not Key Sector
IDN_55T56	All	Accommodation and food service activities	1,90	1,69	0,93	0,57	Not Key Sector
PHL_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	1,50	1,82	0,74	0,78	Not Key Sector
PHL_10T12	All	Food products, beverages, and tobacco	1,85	3,48	0,91	0,84	Not Key Sector
PHL_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,85	3,56	0,90	1,76	Not Key Sector

PHL_55T56	All	Accommodation and food service activities	1,93	2,04	0,95	1,01	Not Key Sector
THA_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	1,68	1,82	0,83	0,90	Not Key Sector
THA_10T12	All	Food products, beverages, and tobacco	2,31	3,17	1,13	1,57	Key Sector
THA_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,42	2,36	0,69	1,17	Not Key Sector
THA_55T56	All	Accommodation and food service activities	2,12	2,18	1,04	0,62	Not Key Sector
VNM_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	2,42	3,06	1,19	1,52	Key Sector
VNM_10T12	All	Food products, beverages, and tobacco	3,38	5,69	1,66	2,82	Key Sector
VNM_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,97	3,08	0,97	1,53	Not Key Sector
VNM_55T56	All	Accommodation and food service activities	2,50	1,66	1,22	0,82	Not Key Sector

Source: OECD's ICIO, 2018 (processed)

Table 13 above shows the value and index of total backward and forward linkage for sectors that are proxies for rice commodities. The analysis has become much different from the most updated OECD data for 2018, although these four sectors are in the palm oil commodity proxies. This is due to the key sectors of two countries that do not exist for rice proxies, such as Indonesia (IDN) and the Philippines (PHL). This shows that rice commodities in these two countries are not a key sector for the domestic economy and play less of a role in global supply chains. This can also be interpreted as that although this commodity's

backward and forward linkage value is significant and plays a role in the economy, other sectors likely have a much more substantial part.

While the other two countries have relatively different values, Thailand has a key sector in food and beverage processing (10T12). At the same time, Vietnam excels and has a key industry for its agricultural products (01T02) and food processing (10T12). Even the forward linkage multiplier for Vietnamese food processing reached 5.69, which can be interpreted that the increase in this sector by 1 million USD will increase Vietnam's economy by 5.69 million USD.

5.2.2 Geographical scope of rice supply chain in the world

Rice is one of the most important foods in humanity's food chain, especially that of Asian people. In 2020, 503 billion tons of rice was consumed; Asian countries accounted for approximately 82% of global rice consumption, in which China and India are the top two countries that consume rice in the world (Table 14). Rice also becomes a four corps account for about half of global primary crop production (FAOSTAT, 2021).

Table 14. Global rice production and consumption in 2020 (Million ton)

Country	Production	Consumption	Export	Import
China	148.990	155.440		6.450
Indonesia	34.400	103.500		69.100
Bangladesh	35.850	36.500		650
Japan	7.640	35.200		27.560
Vietnam	27.331	21.500	5.831	
Philippines	12.474	15.200		2.726
Thailand	19.650	13.000	6.650	
Burma	12.352	10.500	1.852	
Korea, South	3.882	8.200		4.318
Brazil	7.140	7.300		160
Nigeria	5.255	7.250		1.995
Nepal	3.417	4.717		1.300
Cambodia	5.862	4.400	1.462	
India	129.000	4.250	124.750	
Pakistan	8.700	4.100	4.600	
World Total	509.314	503.567		

Source: USDA (2021)

The demand for rice is determined by population size (especially in rice-consuming countries), price, income and urbanization rate. As a basic commodity, rice consumption demand is less influenced by price and more strongly influenced by income, especially the rate of urbanization. For developing countries, income and demand have a positive relationship, while in relatively developed countries (such as Malaysia or China), the relationship is negative.

The demand for rice continues to increase in Asia based on the population expansion. However, the improvement in living standards in these countries caused the demand of rice to decrease. According to Timmer (2014), rice consumption per capita in Asia has decreased from 87 kg/person in 1996 to 83 kg/person in 2005.

Rice imports and exports in the world are mainly conducted through international trading companies. These are private companies, most of which deals in a variety of grains and other agricultural products, not just rice. Many companies have warehouses, processing plants, and transportation facilities from exporting countries to countries with import needs. These companies often act as both financial intermediaries between buyers and sellers.

In recent years, India, Thailand, Vietnam, and Pakistan have become the main exporting countries. China, Philippines, Nigeria and Cote d'Ivoire are the main importers (see Table 15). In the 2019-2020 crop year, the top four exporting countries accounted for 73.81% of total global rice exports. Meanwhile, the top four importing countries account for only 22.51% of total global rice imports. This again reflects that rice exporting countries tend to be more concentrated, while importing countries are quite dispersed.

Table 15. Main exporters and importers of rice (2019 – 2020)

Main exporters			Main importers		
Country	Quantity (Million tons)	Proportion (%)	Country	Quantity (Million tons)	Proportion (%)
India	21	39.90%	China	5.2	9.88%
Thailand	7	13.30%	Philippines	3	5.70%
Vietnam	6.5	12.35%	Nigeria	2.2	4.18%
Pakistan	4.35	8.26%	Cote d'Ivoire	1.45	2.75%
United States	2.7	5.13%	Saudi Arabia	1.4	2.66%
China	2.25	4.27%	Nepal	1.35	2.56%
Burma	2.1	3.99%	Iraq	1.25	2.37%

Cambodia	1.4	2.66%	Senegal	1.25	2.37%
Uruguay	0.82	1.56%	Iran	1.2	2.28%
Brazil	0.78	1.48%	Malaysia	1.2	2.28%

Source: USDA (2021)

Each rice-exporting country usually has its own major export markets and competes in other export markets. This may stem from rice tastes, migrant communities, cultural similarities of rice consuming countries with rice exporting countries. Indian rice is often exported to Africa (Nigeria, Senegal, Cote d'Ivoire, Benin) and Arab and Muslim countries (Saudi Arabia, U.A.E, Indonesia), while Pakistani rice is strongly directed to the Middle East, Northern Europe, North America, and some other Asian countries (China, Bangladesh). As for American rice, it is mainly consumed in Latin American countries, Japan, and Canada. Vietnam and Thailand are two countries that export large quantities of rice to Asia (China, ASEAN) and Africa (South Africa, Cote d'Ivoire). Thailand also has the ability to penetrate the rice markets of developed countries such as Japan, the US, Canada, etc. Meanwhile, Vietnam can export rice to EU countries. In addition to the group of traditional import-export countries as described above, in recent years, a number of emerging countries have appeared in the global rice export-import market.

In terms of exports, the Asian region has an abundant rice supply and is a competitor for traditional rice-exporting countries. Those are Cambodia and Myanmar. Cambodia has raised its export volume from 750,000 tons in 2016/17 to 1 million tons in 2019/20. Cambodia's main rice export markets in 2013 were European countries, Malaysia, Thailand, and China. In particular, Cambodia is gradually approaching the US and Korean markets.

Myanmar has also nearly doubled its export volume from 700 thousand tons to 1.300 thousand tons between 2016/17 and 2019/20. As a country that was once Asia's No. 1 rice exporting power in the 1960s, Myanmar promises to become a country with strong rice production and export potential in the world. Currently, Myanmar has exported rice to regional markets such as China, Thailand, Philippines and Indonesia.

Among the traditional exporting countries, India has emerged as a country with strong export breakthroughs. The country has increased its exports nearly five-fold from 2228 thousand tons in the 2016/2017 crop year to 10,000 tons in the 2019/2020 crop year. With this achievement, India has become the largest rice exporting country in the world. India has exported its distinctive basmati rice to 40 countries. Especially, in recent years, India has successfully expanded its rice export market share to South Africa. In 2013, India was able to compete on par with Thai rice in this market.

In terms of imports, China is increasingly becoming a major rice importer with the import scale increasing nearly tenfold, from 336 thousand tons in crop year 2016/2017 to 3,200 thousand tons in crop year 2019/2020. Many African countries have also become strong

importers, the most typical of which is South Africa. The country increased its imports by 1.5 times between 2016/2017 and 2019/2020.

Type of rice commodity in the world and case study of the Philippines, Thailand, and Vietnam

The explanation above shows that export and import of rice commodity are also influenced by the type of rice. Rice in the world can be divided into two main groups: Japonica (round grain rice) and Indica (long-grain rice). Japonica rice is usually grown in temperate climates like Japan, while Indica rice is usually grown in hot climates, such as South Asia, Southeast Asia, and South China (FAO, 2006).

Indica rice consists of three groups: long white rice, fragrant rice, and sticky (glutinous) rice. Fragrant rice has two famous varieties: Hom Mali from Thailand and Basmati from India and Pakistan. Japonica rice also has varieties of fragrant rice and sticky rice, but the quantity is quite small, so it is often not specified in the statistics of world production and trade (FAO, 2006).

According to the type, long grain white rice is the main rice exported, accounting for a large share in the international market. All the countries in the top 5 largest exporting countries export long grain white rice. Vietnam exported 2,412,027 tons of high-quality long-grain white rice out of a total export of 6,630,308 tons in the 2016/2017 season (USDA, 2021).

While the fragrant rice is exported with a proportion of about 15 - 18% of the world's exported rice. Thailand, India and Pakistan are the main exporting countries of this rice. Fragrant rice brands such as Thailand's hommali or India and Pakistan's basmati are very popular around the world. This basmati rice from India and Pakistan are exported mostly to Saudi Arabia, EU, Kuwait, the United Arab Emirates and the United States. Thai hommali rice is exported to China, Hong Kong, Singapore, USA, EU and Macau. Vietnam has also begun to shift towards the production and export of fragrant rice. However, Vietnam's export of fragrant rice has not yet created its own brand. Below are several case boxes that involved some cases about geographical scope dimension in 3 ASEAN country Thailand, Philippines, and Vietnam.



Case Box 1

Rice Value Chain in The Philippines

A main staple food, rice is being consumed by more than 90 percent of the population, and as the country's most important crop, it accounts for around 20 percent of the gross value added (GVA) of Philippine agriculture. The country's average per capita consumption of rice was 103.25 kilograms (kg), a little more than 2 cavans in 2018 (Arcalas, 2021). Demand for rice continues to expand as the country's population grows by around 2 percent a year. Since domestic production cannot keep pace with increasing demand, the country imports the staple from neighboring countries, just to plug the annual gap in domestic production.

In average, Filipinos consume 118.81 kilograms (kg) individually, every year (Department of Agriculture, 2020). This is equivalent to more than two 50-kilo sacks of rice consumption in a year by a Filipino, or almost two kilos in a month. According to Philippine government's estimation, the current population of 109 million would need more than 12 million metric ton (MMT) annually. This is the reason why despite being ranked 8th as a global major rice producer (FAOSTAT, 2020). in 2018, the Philippines has to import rice regularly to compensate for the deficiency in its local production.

In 2020, the country imported US\$1.21B in rice, becoming the 4th largest importer of rice in the world. At the same year, rice was the 10th most imported product in the Philippines (OEC, 2020). Conversely but in a much smaller scale in the same year, the Philippines exported US\$889 thousand in rice, making the country 83rd largest exporter of rice in the world. The main destination of rice exports was: United Arab Emirates (US\$261 thousands), Saudi Arabia (US\$156 thousands), Bangladesh (US\$118 thousands) (Qatar (US\$69.5 thousands), and United States (US\$62.9 thousands).

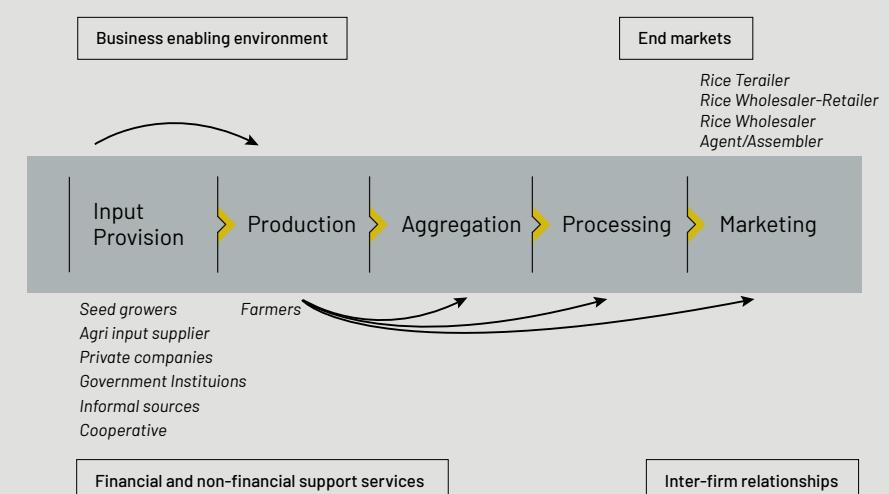
In 2012, the Philippine government released a result of a national survey of farm holdings. The survey listed 5.5 million individual farms or holdings, and an average of 1.29 hectares (ha) per individual holding (Grace, 2015). The increase of the number of holdings from 1980 baseline to 2012 is attributed to the partitioning of the same to the heirs. Consequently, the relatively larger land holding of 2.8 ha average was reduced.

The Philippines' rice value chain starts with the gathering of needed inputs and labour to prepare the field for planting, and ends with the consumption of ready to cook milled rice.

The main chain actors are: competing farmers, palay traders, millers, and rice traders; including brokers in palay aggregation and rice distribution, increasing further the final cost of rice. The entire value chain is constrained by high production and marketing costs, which are attributed to low yield, high labour cost and material inputs, as well as insufficient vital infrastructure and market facilities. Globally, the Philippines is a major rice player, but more on the import side, despite its considerable annual crop yield. It is currently importing huge chunk of its rice from 5 countries (Vietnam, Myanmar, India, China, and Thailand) and minimal amount from South Korea, Pakistan, Cambodia, and Spain. It is exporting in small amount to UAE, Bangladesh, Qatar, Saudi Arabia, Myanmar, Singapore, Canada, Jordan, Jordan, and the US.

In an IDS survey, rice farming is generally small scale: more than half (54%) cultivate an area less than 1 ha, translated to 1.296.000 rice farmers (Grace, 2015).

Figure 17. Rice Value Chain in The Philippines



Source: authors

Input cost. This includes production and distribution of material input such as fertilizer, seeds, packaging, and others utilized in the primary production, processing and/or trade of rice. Farmers cover the input costs in rice production such as seedlings, pesticides, and labor during planting, harvesting, and threshing. Seedlings are sometimes in-breed or bought from agricultural suppliers and very few from the Department of Agriculture and cooperatives. Most farmers in San Leonardo are dependent on inorganic fertilizers and pesticides, and they get it from commercial agricultural suppliers. Few get these inputs from financier or agents, or even cooperatives.

Post-production (harvesting, threshing, drying, transporting, milling). Once palay is ready for harvest, the agents find team leader who in turn will contact hired laborers for work. After harvest, palay is passed through a thresher. There were few combined thresher-harvester machine which the farmworkers bemoan because it competes with available employment for rural workers. But despite the presence of this type of machine, mechanization level in the Philippines remains low at 1.23 horsepower per hectare for rice, among the lowest in Asia, in a survey conducted by a Philippine agricultural agency in 2012 (Department of Agriculture, 2013).

Post-harvest loss is common in rice, with 15% after rice production (Pohl, 2003). Majority of loss occurs in drying period and milling, followed by harvesting and threshing. The market pays relatively higher amount for dry palay hence the farmers dry their wet palay in any concrete they can find: roads, basketball courts, and even village halls. The use of this method results in the non-uniformity of moisture content, which lowers the price.

At the milling station, palay can either be milled immediately or stored for milling after a period of time. Milling is considered important in the logistical chain as this one is a main determinant of rice quality that ultimately dictates the value of rice. There are some potentials of broken rice, which becomes the main consideration in the rice final price. Rice milling recovery is 62-65% for white rice and 70-75% for brown rice (Gragasin, Illustrismo, and Martinez, 2018).

Storage is usually done by traders and millers, and very few farmers have the capacity to store their palay for more than a week because they need the cash to pay for their loans used in the production, and for their daily household needs. Small-time palay traders and retailers can store palay but only for shorter time. The most common mode of packaging for palay is the 50-kilos plastic sacks. It protects the grain from moist and most insects and makes transport easier. Milled rice is also put in the same 50-kilos plastic sacks. It is only in retail stores that this

rice in sacks is sold in kilos or smaller quantities.

Marketing. There are two channels for distributing rice: through the private sector by selling to agents, buyers or traders and through the government by selling rice to the National Food Authority (NFA). Prior to the enactment of the Rice Tariffication Law in 2019, the presence of NFA influences traders to buy rice more competitively at the farm gate price level to improve the level of return on investment (ROI) of farmers, while stabilizing the rice supply even in times of calamity. The food agency releases the rice in selected stores at P27.00 a kilo, targeting the most vulnerable market segments.

After the RTL was enacted, the removal of P27/kg rice from the local market made the cheapest rice available at P38/kg, a difference of P10 a kilo for those who regularly buy NFA rice.

Physical distribution plays an important role because it has major impact on customer satisfaction and the cost involved. A poor distribution might destroy the commodity in transit. Trucking plays a major role in the high cost of rice in the Philippines. And even if grains are stored-dry at standard 14% moisture content, spoilage can still occur, from bulk storage to another storage, and to transport.

Case Box 2

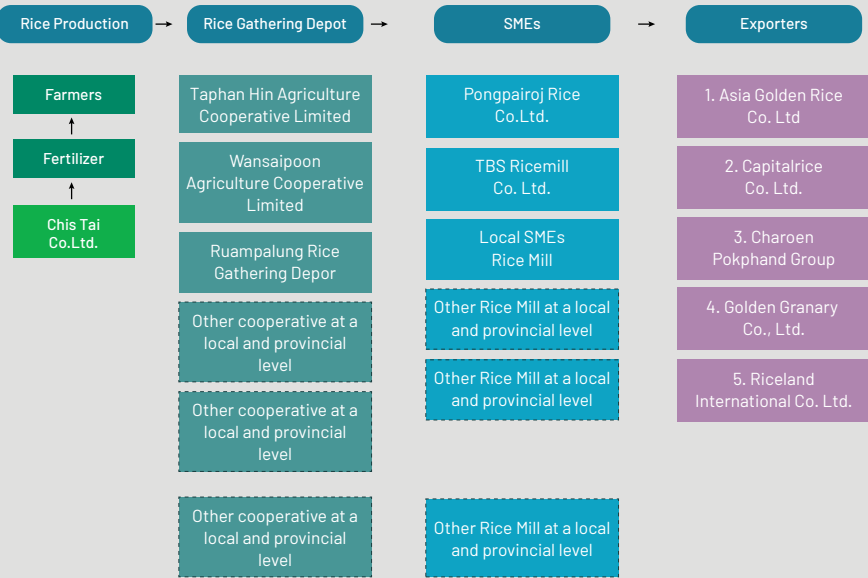
Rice value chain in Thailand

The study of rice has been conducted in farming communities of Pichit Province, in the Lower Northern Thailand where rice is a significant source of income, makes Thailand ranked as the world's third rice exporter after India and Vietnam (Rice Exporters Association, 2021). Farmers grow rice for their own consumption and sell the surplus for their household incomes. The area is with alluvial plains

with two main rivers –Yom and Nan– providing water resources for agricultural purposes. Rice, especially jasmine rice, is a seasonal crop and grown once a year using natural water. Off the season, some other varieties of rice are also grown for different income generating purposes e.g for stock feeds, sticky rice and other rice-based and processed products. Farmers here have been growing rice since the time of their ancestors and see rice as a different culture, not just a mere commodity. Since the last 30-40 years, national economic policies on export promotion have brought changes to traditional rice cultivation practices and have involved farmers in the market.

Farmers as the primary of rice production, to community/local rice cooperatives or rice collection depots, to provincial rice mills/SMEs and to the exporting companies, as shown in Figure 14 During times of plowing, farmers who have small tractors will plow themselves or employ other neighboring farmers who have been plowing their land to run the tractors. For those who do not have a tractor, will hire a tractor and driver to plow.

Figure 18. Stakeholder on Rice Value Chain in Thailand



During harvest time, farmers use harvest trucks that they rent and pay off the rent from the harvest. Because trucks are very expensive, they can't afford to own or buy trucks. However, the quality of traditional rice depends on exposure and sunlight, so it is ready to be harvested at almost the same time as other farmers in the area. This has the potential to cause conflict in the competition for the use of harvester trucks. There are cases where farmers try to pay more than the

standard price (400-600 Baht/rai). If farmers fail to harvest at the right time due to not getting harvest trucks or other factors, their rice becomes very dry which is considered to be of low quality and will not get a good price. In addition, during the harvest period, if there is an abnormal weather pattern such as rain or humidity, the rice will be exposed to bacteria, the rice is considered to be of low quality. In addition, rice is classified as a tall crop, if storms and rains come at harvest time, this will make it difficult for trucks/harvest workers to harvest, so farmers have to pay more.

During the management of rice yield, Farmers have allocated 3 ways of rice yield, as follows:

1. Household consumption and selling some for-community members (which is now becoming a trend),
2. Seed storage for the next cropping period, and
3. Selling especially the short-lived rice.



Case Box 3 Rice value chain in Vietnam

The cycle of the rice value chain at the production stage is the same in almost all rice producing countries. But what makes the difference is the length of the trade chain and the actors involved. Here we can see the rice value chain in Vietnam.

Production:
Rice is grown in most provinces across the country in Vietnam. The most important

rice-producing regions in the country are the Mekong Delta (accounting for 56% of production), the Red River Delta (16% of output), and the North Central and Central Coast regions (15% of output). Currently, there are 3 main rice production crops in a year in Vietnam. The winter-spring crop (harvesting time from February to April) is the main crop with the largest scale (accounting for 40.3% of the area and 46.5% of the output in 2016). The summer-autumn crop (harvested from June to August) has the second largest scale (in 2016 accounting for 34.3% of the area and 32% of the output) but due to harvesting in the middle of the rainy season and due to post-harvest technology is still poor, so the quality of rice is lowest in the year. The crop (harvested from October to December) has good quality of rice equivalent to the winter-spring crop, but has the smallest scale (in 2016 accounted for 25.4% of the area, 21.5% of the output).

Milling:

Three types of milling operations are involved in the production of rice in Vietnam: specialized milling operations (pure millers), specialized polishing operations (polishers), and integrated milling and polishing operations (miller-polishers). Pure millers engage in milling activities, such as the husking of paddy and milling of paddy into raw white rice, but do not conduct any polishing. Pure millers typically procure paddy from assemblers or farmers. Most paddy is purchased within the same province or within 100km from the mill, except in the Red River Delta where purchases can occur over longer distances. Sales by pure millers are made either for subsistence consumption, domestic retail sales, or sales to wholesalers, polishers, and miller-polishers for further processing. Most pure millers (80 percent) tend to be small or medium sized, defined as having a capacity of less than one ton per day (small) or between 1 ton and 10 tons per day (medium).

Polishers are specialized mills that only engage in polishing activities for domestic consumption and export. Unlike pure millers, polishers do not procure paddy from farmers or traders; rather, they purchase raw rice and re-process into polished rice. The average capacity of polishers in its survey was 7 tons per day (IFPRI 1996). The majority of polishers are located in the Mekong River Delta. Miller-polishers are the most sophisticated form of milling operation in Viet Nam and have the capability of processing paddy into polished rice suitable for export markets (IFPRI 1996).

While many miller-polishers and provincial food companies have the ability to produce rice from paddy, a portion of these enterprises choose to procure rice (brown rice or raw white rice) from other mills and further process it for export. This is particularly common in the South. Only 34 percent of total purchases by

miller-polishers in the Mekong River Delta were paddy; in the North East South (around Ho Chi Minh City), miller-polishers did not purchase any paddy.

Trade:

Rice traders are usually involved in the trade of other goods and services, and also may be involved in other parts of the marketing chain as farmer/collectors, farmer/retailers, miller/collector/wholesalers or wholesalers/retailers. The margins are small for traders and market opportunities are quickly taken. In addition to established traders who may operate in a specific market or commodity, there are many small-scale opportunistic traders who buy and sell whenever an arbitrage opportunity (spatial or temporal) arises. The distributed nature of the marketing chain and the many actors involved results in many inter-linkages between different parts of the chain. Most of the paddy and rice in the Mekong River Delta region is transported by boat, with transportation in other areas by road. Closer to urban centers and away from the canal and river system many 10- and 20-tons trucks carrying rice can be seen.

Storage:

Unlike paddy storage, rice storage is difficult, especially for IR varieties. These need to be purchased and consumed relatively quickly. Storing brown rice for long periods of time is difficult because bran oil reduces the quality of the grain when they are exposed to air. As a result, most of the storage is done by the small mills because they have to peel the grain before selling the brown rice to the larger mills for processing. Small mills have a storage capacity of less than 1000 tons.

Marketing:

The marketing chain for rice in Vietnam is quite complex. PHTI identified five separate channels of distribution for rice in the Mekong River Delta alone (PHTI-HCMC 1999). The first channel is a subsistence or localized channel whereby farmers bring paddy to a local miller (or mobile miller) for processing. The milled rice is either sold locally in the market or returned to the farmer for subsistence needs.

In the second channel, the farmer interacts (directly or indirectly) with provincial food companies. The farmer will either sell paddy directly to an agent of the food company or to a private trader, who will sell the paddy to the agent. The agent will store the paddy and sell them to the provincial food company for processing. The provincial food company will produce whole rice, brown rice, and bran for two separate channels – the export market and domestic markets. Rice sold for export markets is sent to other provincial food companies, VINAFOOD 1 or 2, or

directly to overseas markets, depending on market conditions and contractual obligations. In the domestic markets, rice is sold to private wholesalers, who sell to consumers and other processing units, which use rice in food and feeding purposes. Byproducts, such as bran and husk are sold to feed manufacturers and brick and sugar enterprises, respectively. PHTI notes that this channel is primarily oriented towards exported rice.

The third channel is a variation of the second channel in terms of the interaction between traders and provincial food companies and the role of private food companies. Here, farmers sell to private traders or wholesalers instead of provincial food company agents, who then sell directly to the provincial food companies themselves or to private companies for export. The distribution of rice by private and state companies into export is similar to that of the second channel. This third channel involves greater interaction with private entities throughout the chain (traders, wholesalers, and private millers).

The fourth channel is also a variation of the second and third channels. Paddy is sold by farmers to private wholesalers and traders, who then sell to other traders for processing into brown and/or raw white rice. This rice is then sold to provincial companies and food companies in Ho Chi Minh City for further re-processing for export, or in some cases, for domestic consumption. The channel for by-products is similar to the second channel.

The final marketing channel is what PHTI refers to as the inland circulation channel, which is primarily for domestically-consumed rice. The farmers sell paddy to traders, who sell to wholesale traders. Wholesale traders sell paddy to millers that produce brown rice and raw white rice for food consumption and further re-processing by wholesalers and other food companies. This channel is completely privatized, with little interaction with the state-owned provincial food companies or VINAFOOD.

5.2.3 Governance analysis of rice commodity in the Philippines, Thailand, and Vietnam

a. The rice trading company

Governance analysis in this sub section would explain how a rice commodity chain controlled and coordinated when each actor in this chain does not own equal power. This research has been identified that trading in rice is a very risky activity. That is why the world's rice trading companies are constantly changing their positions among their ranking. During the 1990s, three large private traders in the world rice market were Continental, Richco (Glencore) and Cargill; and alongside these three are niche companies such as André, Global Rice, Riz et Denrées, Rial Trading, New Field Partner, Inglewood and Orco. But in the 2000s, these

enterprises had to downsize or leave the international rice trading market. Table 3 lists some of the firms that emerged as top players with transactions of at least 500 million tons/year during the early 2000s.

Besides private trading companies, rice is also exported by state rice companies or other state institutions. State-owned trading companies play an important role in conducting transactions on the basis of rice trade agreements between governments (G2G). G2G is usually conducted between importing countries such as Cuba, Malaysia, Indonesia, Iran, Iraq, the Philippines and Sri Lanka, with rice-exporting countries such as Myanmar, Pakistan, Thailand and Vietnam.

In rice-importing countries, the role of state-owned importing companies is also relatively important, even though most rice imports are carried out by the private sector. Domestic companies often play the role of international rice tenders, rice storage, and domestic distribution of rice to serve the government's food security policy.

Table 16. List of commercial company in rice

Company category	Description
Private company	<ul style="list-style-type: none"> American Rice Inc: accounts for about 4% of the world rice market and distributes about one-fifth of America's rice. Archer Daniels Midland Co. (ADM): This is a large US agricultural product processing and trading company Ascot Commodities: has its head office located in Switzerland and mainly sells rice to the African market. Capital Rice Co.Ltd: a subsidiary of STC Group, a large Thai corporation in the agricultural industry, accounting for about one-fifth of Thailand's rice exports. Churchgate: This is an Indian trading company mainly operating in Nigeria Louis Dreyfus: this is a French family company. Nidera: this is a Dutch family company and mainly operates on the Latin American market. Novel: one of the largest private companies in the rice business, headquartered in Switzerland. Olam: A trading company located in Singapore, belonging to a large corporation of India, and one of the main suppliers of rice to the African market.

	<ul style="list-style-type: none"> • Rustal: a private Swiss company. • The Rice Corporation, TRC: located in the US; it is one of the major rice trading companies, with factories and operations throughout the European, Latin American and American markets.
State-Owned Enterprise (SOE)	<ul style="list-style-type: none"> • China: China National Cereals, Oils and Foodstuffs Import and Export Corporation (COFCO) • India: the state Project and Equipment Corporation (PEC) is a major exporter of Basmati rice • Myanmar: the Myanmar Agricultural Produce Trading (MAPT) remains a major Myanmar rice exporter, although the country's export market was opened to the private sector in 2002. • Pakistan: Trading Corporation of Pakistan (TCP), which plays an important role in coordinating G2G contracts for private businesses; • Thailand: Public Warehouse Organization (PWO), involved in negotiating G2G contracts;
	<ul style="list-style-type: none"> • Vietnam: Northern and Southern Food Corporation (Vinafood 1 and Vinafood 2). • Cape Verde: the import of rice is entirely done by the state-owned company EMPA. Since 1998, the private sector has been allowed to participate in this activity. • Comoros: state-owned corporation ONICOR ("Office National d'Importation et de Commercialization du Riz" has exclusive rights to import rice. • Cuba: rice is mostly imported exclusively by the state-owned company Empresa Cubana Importadora Alimentos (Alimport) • Indonesia's Badan Urusan Logistik (BULOG): imports most of the rice for Indonesia. • Islamic Republic of Iran: The Ministry of Commerce, and its affiliates (Bonyade Shahid, Bonyade Mostazafan, and Taavoni Marzneshinan) are in charge of importing rice to this country.

	<ul style="list-style-type: none"> • Japan: imports rice under the WTO's minimum quota and is managed by the Government Food Agency. • Kenya: rice is imported by the National Cereals and Produce Board (NCPB) through public tenders, along with the private sector. • The Republic of Korea: imports rice under the WTO's minimum quota, managed by the Ministry of Agriculture and Forestry (Ministry of Agriculture and Forestry (MAF)) • Malawi: The National Food Reserve Agency (NFRA) imports grain as needed (and manages foreign assistance). • Malaysia: Padiberas Nasional Berhad (BERNAS), Formerly a state-owned trading company, now privatized, had exclusive rights to import rice until 2010. • Mauritania: the state-owned company, the Société Nationale d'Importation & d'Exportation, SONIMEX, imports and distributes rice along with other private companies.
	<ul style="list-style-type: none"> • Mauritius: the State Trading Corporation (STC) holds a monopoly in importing medium and low-grade rice; and import premium rice compete with other private companies. • The Philippines: rice imports are largely controlled by the National Food Agency; however, farmers are allowed to import a limited amount of rice. • Sri Lanka: the Cooperative Wholesale Establishment (CWE) had a monopoly on grain imports until 2002 when the country liberalized trade. Today, rice imports are done through open tenders, and compete with private companies.

Source: Nguyen Duc Thanh & Dinh Tuan Minh (2015)

In addition, brokers play a rather important role in promoting trade in the rice market especially with African countries. Brokers look for suitable buyers and sellers for a certain type and quality of rice and earn commissions from their services. Rice brokers include: Jacksons, Marius Brun et Fils, Schepens & Co SA based in Europe, Creed Rice in the US, or Western Rice Mills Ltd in Canada.



Case Box 4

Governance Structure Rice Value Chain in Thailand

At the farmer level, the governance structure is simple—members in the family, women and men working on the farms of which additional burdens are more on women as they are working both on the farms and performing care work in the house. Cooperatives are seen as quite similar to farmers' associations to increase farmers' bargaining and political power to deal with SMEs. At the SMEs and export company level, many of them are sharing the same owners or shareholders. The export company has its shareholders in two SMEs. The large local shop selling seeds, fertilizers and other agricultural materials are owned by one of the largest rice exporters of Thailand. It has been observed that SMEs and exporting companies are sharing the same shareholders. Also, exporting companies are making their business from upstream to downstream level.

b. Agricultural policy on rice commodity at The Philippines, Thailand, and Vietnam

1) Rice Tariffication Law (RA 11203) in The Philippines

The Rice Tariffication Law of 2019, otherwise known as RA 11203, was enacted in early 2019, and took effect on March 15 in the same year. Rice traders can now import unlimited quantities of rice at any time—even during the harvest season which can force the price of locally produced rice down by flooding the market with imported rice, or even during the growing season when supply is running low which can easily increase prices due to demand. Even the small local rice traders have nowhere to go if this continues, as they will not have months when rice is in short supply, so this is the perfect time to release the rice they store in warehouses.

It removed the Quantity Restrictions (QRs) on rice entering the local market. These

restrictions were put down while the WTO was being negotiated to protect the country's local rice industry and its 2.5 million rice farmers. The provisions in RTL actually exceeded the country's commitments to the World Trade Organization (WTO) because by deregulating the entire rice industry, the government eliminated almost all regulatory and trading functions of the NFA. The rice QRs were instead replaced by tariffs, specifically the 35 percent prudential tax the Philippines has previously imposed on imports coming from its ASEAN Neighbors. The RTL also created the Rice Competitiveness Enhancement Fund (RCEF). The fund is disbursed P10 billion annual budget for six years, supposedly to assist farmers with rice production inputs, including farm machineries and technical assistance.

RTL proponents, mainly the economic managers, justified the rice tariffication by pointing out that rice farmers themselves are net rice consumers, in other words, consume rice more than what they produce. But this assumption is premised on the idea that the farmers as consumers would be able to afford the rice and not incur income losses, and the reduction of rice in general will benefit the consumers as a whole. Few months after the enactment, the country became the world's top rice importer at 2.8 MMT, surpassing even China (Briones, 2020). The economic managers assured the public that systems are placed to prevent the freefall of the palay price. But for some reasons, the rice price instead spiked and refused to bulge up to this day. And the palay prices fell, surprising even government officials (Ordinario, 2019).

Some of the reasons offered by economist for the persistent low palay rice are: the enactment was ill-timed; it was signed when the country was coming from high rice prices in the last half of the previous year, that was quickly subdued by harvest season in 2018 responsible for dropping the prices of rice even before 2019, and the RTL made it worst when it flooded the local market with imported rice. The irony is that, the rice prices remained high, almost identical in a year prior and after the RTL's enactment, but the price of palay continued to drop, hurting the farmers, wherein during the QR regime, the government could help the farmers by buying certain volume of their produce, some which as calamity buffer, while the rest are released in the market at lower prices of P27.00/kg. Farmers interviewed in San Leonardo Nueva Ecija reported that some farming families stopped sending to school their children because of the steep fall in palay's prices hence loss of income.

According to Dante S. Delima, the former head of the Department of Agriculture's National Rice Program during Benigno Aquino III's term, Filipino farmers are at the losing end with the RTL. The government could have afforded the P10 billion annual losses in its local rice procurement program through NFA, and strictly minimized corruption. The social cost of impact to rice farmers is also not being accounted for, such as their role in food security in times of climate change. What if they suddenly stop producing rice altogether, Delima said.

An analysis was provided by a Raul Montemayor, National Manager of Federation of Free Farmers Cooperatives. He reported that the benefits to 108 million Filipino consumers

totaled only Php 232 million, using 2017–2020 rice prices. In other words, each Filipino was able to save only P 2 in one whole year of initial RTL implementation.

He said that even with the computational adjustments prescribed by RTL proponents, farmers' loss is at P34 billion, or more than 150 times bigger than what consumers have gained from the RTL (Montemayor, 2020). This is similar to what Delima's idea of better for the government to shoulder the loss of P10 billion annually in rice procumbent program through the NFA. Under the RTL, government fund, or taxes, are instead absorbed by big rice traders and importers.

According to Delima, the problem with the position of RTL proponents is that the government has yet to come up with a comprehensive baseline study on the actual capacity of the Philippines in producing rice, taking into consideration its topography and different soil characteristics across the regions, actual data of land planted with rice, areas with functional irrigation, partial, and those that are only rainfed, including mechanization. The former official said that there is no real data collected entirely, although many documents or researches are partially complete but they are different.

He cited a very simple problem in which in his time the people the government refuse to address despite his pleadings: the problem of rice fields not drain of water in time after irrigation or strong rains resulting the fields submerged in waters in extended times, drastically reducing the rice yield. The problem is so simple to solve—construct drainage canals. Instead, he added, the economic managers would always prescribe food importation to solve food needs.

There researchers challenging Montemayor's claims and even data used, but as study by Philippine think-tank Philippine Institute for Development Studies (PIDS) acknowledges that impact to the loss of income to farmers (Briones, 2020).

Similar to Delima's idea of a comprehensive baseline data on rice production, on the rice tariffication (Briones 2020) proposes a more empirical work on the rice sector, first comprehensive research that will study on much deeper on the rice value chain, all the stakeholders, particularly the farmers. Assessment to the rice fund is needed and its impact to the rice industry.

2) The agricultural and rice policy in Thailand

In 2009 be appointed policy about the first farmer income guaranteed policy by the Abhisit Vejajiva to pay farmers (rice, maize, and cassava) the difference between the guaranteed price and the market reference price. This policy valid until 2019 (Poapongsakorn, 2010). After that at 2011 the government put out the paddy pledging for every grain of rice policy by the Yingluck Shinawatra government to provide the price support for all rice production and to control the rice supply of rice. Then in 2014–2018 the agricultural policy has changed into four main point (Poapongsakorn and Puntakua, 2014):

- Elimination of the paddy pledging policy and sale of all government rice stock pile through auctions.
- Long term integrated rice policy: (a) to reduce the production of dry-season rice by diversifying towards other agricultural activities, (b) to increase productivity and reduce production cost by adopting large-scale farm (or grouping of small holders).
- Short term policies (a) a policy to delay paddy sale (paddy pledging) by providing soft loan at the price lower than the market price plus 1.500 Baht storage subsidy, (b) a 1.000 Baht cost reduction subsidy to farmers for a maximum of 10 rai (1.200 baht in 2017/2018 and 15.000 Baht for 15 rai in 2018/2019) of land holding.

The rice department in national rice policy and management committee issued rice policy objective and marketing plans in 2016–2018. These table below will show the pointers about these policy:

Table 17. Integrated rice production and marketing plan

Before 2016	2016	2017	2018
1. High supply surplus	1. Production planning	1. Production planning before planting season	1. Improving rice supply planning
2. Farmers have high production costs, low prices, and low profit	2. Farmers integration of 4 ministries. Plan to produce rice to match supply and demand for 5 types of rice	2. Improve the registration process for farmers	2. Farmer registration and digitize 9 million plots
3. The quality of rice is lower than standard	2. Promote rice planting twice a year	3. Extension of the large-scale farm to 1.175 plants	3. Extension of the large-scale farm to double (2.350 plots) with GAP certification
4. High market competition	3. Change the area of rice cultivation in the low productivity area	4. Promotion of organic production of 300.000 rai	4. Extension of the organic farm to double (600.000 rai)
5. Decreasing trend of the rice prices	4. Crop rotation after rice planting	5. Development of rice production system	5. Integrated organic rice market and GAP rice
		6. Implementing a 3 project to change cultivation of rice fields <ul style="list-style-type: none"> • Divers/field cropping 	6. Promote precision agriculture

		<ul style="list-style-type: none"> • Green manure • Crop for animal feeding after rice planting <p>7. Create awareness for farmers</p>	<p>7. Promote the rice innovation and increase the value of rice</p> <p>8. Promote rice barn for farmers and farmer organization</p> <p>9. Determine the price of a tree as a reference price to be used as collateral for a loan</p> <p>10. Compensation for farmers 1.200 baht per rai for cost subsidy limit 10 rai/HH</p>
--	--	--	---

Source: Poapongsakorn, 2019

The national rice policy committee in Thailand approved providing 1,92 billion Baht to support the rice insurance scheme for the main crop of the 2022 season. The insurance scheme is operated by the Bank for Agriculture and Agricultural Cooperatives (BAAC). This scheme covers 28,5 million rai of rice farmland nationwide, of which 28 million rai belongs to farmers who are customers of the state-owned BAAC. Some 500 thousand rai are owned by general farmers. This insurance covering damaged caused by seven types of natural disasters: flooding/heavy rains, drought, storms, cold, hail, fires, and wild elephants (Poapongsakorn, 2019).

3) The rice policy in Vietnam

a. Rice production policy

Vietnam government provides support to maintain and develop paddy land and paddy production for rice commodity. Decree number 42/2012/ND-CP aims to maintain agricultural land, which would contribute to exporting rice, ensuring food security and raising farmers income. They also have circular number 205/2012/TT-BTC by ministry of finance about implementation of policies to protect and support development of paddy land. The objective of these policies is to protect and develop paddy land, it is difficult to identify upland rice area in land use planning. The support has low effectiveness because

income of rice farmers has not improved significantly. In recent years, several farmers have switched to others corps or to non-farms activities (Cong and Thi, 2015).

According to decree number 42/2012/ND-CP farmers are supported 50-70% of the cost of agricultural materials based on the extent of damage caused by diseases and natural disasters, 70% of land reclamation costs, and 100% costs of rice seeds on reclaimed land in the first year. This decree also publishes several roles for government stakeholders in rice commodity like The Ministry of Agriculture and Rural Development (MARD), provincial people, Ministry of Finance (MOF), and Ministry of Natural Resources and Environment (MONRE). These policies have gradually improved agricultural input market both in terms of price stability and quality/food safety management and has helped to reduce influences of price shock on farmers' production and livelihood (*Ibid*).

In December 2013 the government issued decree number 210/2013/ND-CP on policy for encouraging investments in agriculture and rural development. These policies contribute to develop infrastructure for rice production in rural area and maintain the agricultural production. But these are some challenges when government implemented the policy. The first is the inefficient management of resources and infrastructure. Second, infrastructure management may be lax to attract business and investment. Third, the lack of local incentives (taxes, management mechanisms) for the dissemination of investment and infrastructure management, resulting in limited participation of private investors (*Ibid*).

b. Rice trade policies

Vietnam publish a national trade promotion program through decision number 72/2010/QD-TTg, this policy granted funds for trade promotion activities, such as hiring of domestic and foreign experts for advice and assistance on export development or product quality improvements; the organization of trade fairs, exhibitions. The enterprises were sponsored to participate in several trade events in Vietnam and abroad to carrying out surveys or market investigation. The government cover 100% expenses for construction and decoration of booth at trade fairs, but the fee consultant or participation in overseas fair required co-funding 50% by the enterprises (Cong and Thi, 2015).

c. Policies on developing rice value chain

Based on decision number 62/2013-QD-TTg the policy to encourage linkage between stakeholders and investments in large-scale agricultural production has signed by the Prime Minister of Vietnam. This decision support on large-scale production development for enterprises include preferential and support policies on large-scale production development for enterprises include preferential on land use charges, land rentals and priority on implementing agro-product export contracts or temporary programs of the government, for examples, support on a part of expenditure for infrastructure in the project and support on training expense for farmers in projects (Cong and Thi, 2015).

For representative organizations of farmers there are also support on a part of the expenses for plant protection chemicals, labor cost, machinery rental cost, etc. For farmers, this policy focuses on supporting the training and guiding the production techniques, expenses for seeds and storage at enterprises (*Ibid*).

Vietnam government tries to enhance the competitiveness and bargain power of Vietnamese rice exporters by added the regulation on rice exporting right. Decision number 109/2010/ND-CP state that rice exporter has to meet the following conditions (*Ibid*):

1. At least one specialized store with minimum capacity of 5.000tons of paddy, in accordance with common standards issued by the Ministry of Agriculture and Rural Development.
2. At least one griding grain, rice factory with minimum capacity of 10 tons of paddy per hour, in accordance with common standards issued by the Ministry of Agriculture and Rural Development.

To ensure decent income from rice production for farmers, MOF and MARD cooperate to present pricing method. This policy involved in the official document number 430/TTg-KTN. This policy also states that the Provincial People's Committees determines minimum purchase prices or floor price policy at which enterprise buy rice from farmers. The expectation of this policy is to bring a profitable price paid to farmers. The government has to ensure the floor price paid to farmer are at least 30% higher than production cost (*Ibid*).

5.2.4 Upgrading

Increasing mitigation of farmers' losses and damages due to weather/climate

Sustained income losses of rice farmers over longer period of time could be happened based on the combination of rice imports and crop destruction from climate change might eventually force them to give up planting rice altogether, threatening the country's food security. As no country is immune from the impact of climate change, traditional rice exporting countries, at some point, would need to prioritize their own food security.

In 2019, a study (Lacap & Magat, 2019) was conducted to assess the effects of climate change in Pampanga, another rice growing province near Nueva Ecija Vietnam. The study observed that the temperature in Pampanga has been increasing for the past years, with highest temperatures registered from 1998-2017, while extreme rainfall counts were observed in the years 1999 and 2002, and the highest rainfall count for the past 20 years. The rise in temperature at the current or near-future level may not affect rice yield, while the relationship of rainfall and rice yield is low inverse and significant.

In 2020, palay production was 19.32 MMT (Philippine Statistic Authority, 2021), and with average postharvest losses incurred from harvesting to milling which is estimated to up to 31 percent (Department of Agriculture, 2013), the resulting milled rice equivalent would be

less than 13 MMT. This does not include further losses in transportation and storage, and destruction of palay plant from typhoons and other calamities.

According to Hazel Tanchuling of Rice Watch Action Network(R1), despite growing evidence of the impact of climate change to rice farmers, the actions of the government has been limited to securing food supply through import activities, as if the policymakers are not aware that the countries where the importing countries are also experiencing the impact of climate change.

The cropping calendar—the period for the planting and harvesting seasons of the current cropping calendar should be adjusted to avoid the heavy rainfalls during ripening of rice and during harvests. But a similar study done at the national level is necessary, because adjusting the cropping season calendar would mean adjusting the calendar whole rice value chain in each country.

5.2.5 Local Institutional Context

a. Poverty in the agricultural sector

Labour and migrant workers are hired along the chain. At the farm level, they are treated as neighbours - or relatives-like relationship e.g. farmers preparing or sparing food for them, donating them with vegetables or meat. While at the SMEs and the export company, they are contracted and paid on a daily basis (less or at the minimum daily wage). Social welfare and health insurance is not provided as they are not seen as permanent workers. It is observed that SMEs and export company are making money but paying less to social welfares.

And while these rice farmers have no room for additional area for rice productions, therefore additional income other than their one or less than hectare of land, the traders and wholesalers can go to as many farmers as they can, to buy more rice, produce for bigger margin of profit. The biggest traders in fact, does not have to contend with local or national rice trading—the 2019 Rice Tariffication Law allow them to benefit from the country's regular rice imports.

The condition of "invisible" stakeholders, or the farm workers which are hired as planters or harvesters are worst. On the average, they have to contend with P200-30016 a day, being employed only during planting or harvest seasons, which last for only several weeks in a year.

In 2018, around 36 percent of the country's total employment is in the agricultural sector in The Philippine. In the same year, the Philippine Statistics Authority(PSA) data indicated that farmers and fisherfolk have the highest poverty incidence among the basic sectors in the Philippines at 31.6 percent and 26.2 percent, respectively. The contribution of the sector to GDP has been declining (15% in 2009 and 9% in 2019). This has been partly attributed to

the inadequate credit and insurance in the agricultural sector that can adversely affect small farmers and fisherfolk (SFF). During the pandemic-induced lockdowns, the farmers' situation worsened. There is concrete evidence that poverty in the Philippines has always been agricultural. The declining agricultural contribution to the GDP in 2009 mentioned above is correlated in 2009 poverty incidence among agricultural households, which is 57 percent, non-agricultural is 17 percent. The poverty rates of both types of households have significantly increased since 2003, but the gap to some extent has narrowed. However, majority of the poor population remains in the agricultural households (Department of Agriculture, 2019).

b. Gender in agricultural sector

Gender is not seen as an 'issue' at the farmer level but more on working-together for the survival of a household. There has been no gender consideration or gender policies at the cooperative, SMEs and the export company being addressed. Women have been employed at the administrative and finance related tasks and units.

In Vietnam, a national congress of farmers and fisherfolks was held in 2021. It was series of consultations from different sectors leading up to the actual congress on May 10, 2021. Rice Watch Action Network served as secretariat to the said congress. Women farmers held a separate whole day workshop to discuss their concerns. As the congress was held at second year of covid pandemic, information on how the covid affected their families' livelihood abound. But they also identified that the Rice Tariffication further eroded their income. Just like their compatriots in Southeast Asia, the burden of finding additional income to augment their family's meagre livelihood fall on their shoulders. And that burden includes arcing for the need of young children most of the time.

One of their main proposals is for the government to change the definition of "farmers." Women, even actual rice farmers, are not eligible for registration to RSBSA, a government registry for all farmers, and are used for accessing benefits, if the husband was declared as head of the family even in cases that the husband has a different work.

c. SMEs

While the price of rice has increased along the value chain – from farmers of approximately 150-250 USD/tonne of rice to at least 400 USD/tonne of rice at the export company (to be verified), the price is not reflected the total of costs farmers have invested especially the investment to respond to climate impacts which are strongly felt by the farmers. Social and environmental costs are pushed and become an additional burden for farmers and those un-associated with SMEs and the export company. These external costs are not addressed at the SMEs and export company levels.

Profit and benefits are gained at the SMEs and the export company who benefit from the

policy incentives (different tax holiday schemes), compared to farmers who have not been provided with schemes responding to farmer's needs. Government's revenues should have been increased should the income tax be collected from the company who is making profit. It has been seen that finance and policy has been facilitating and allowing companies to continue making profits.

The farmers who are the significant primary rice producer in the value chain has contributed to the rice exporting business but they are not provided with necessary supports –policy, technology and finance– to maintain their rice growing, to respond to external impacts especially climate change, and to ensure they have quality rice for export.

d. Environmental and health

Farmers are concerned about health, and resources and environmental conservatism in the way they are growing rice –using more organic fertilisers, resources conservation (fuels, waters), less chemical use, and investigating more on different means to reduce their farming expenditure. This is an issue of consumption practice among farmers. At the SMEs and export company, environment and ecology conservatism are not seen as the primary concern, but as cost savings and profit maximisation. This then has raised a concern on companies being green has remained on the profit making rather than driving consumption pattern.

Climate impacts have been widely observed and severely affecting farmers – livelihoods, household incomes, savings and additional burden especially among women farmers. These impacts haven't been sufficiently responded to at the farmers levels. There are existing policies and measures claimed to support farmers' resilience and adaptation, but they are not responding to the needs of farmers and farmers are not consulted. Farmers themselves have to invest on their own measures to ensure rice yields. Particularly, heat, strong sunshine, droughts and floods have affected the volume of rice yield and the quality of rice. Once the quality does not meet the selling requirements, farmers get less price. SMEs and the export company have other choices to get the quality rice from different areas.

5.2.6 Industry Stakeholder

a. Stakeholders of rice value chain in the Philippines

The main chain actors in the Philippines' rice value chain are: competing farmers, palay (unhusked rice) traders, millers, and rice traders; including brokers in palay aggregation and rice distribution, increasing further the final cost of rice. The entire value chain is constrained by high production and marketing costs, which are attributed to low yield, high labor cost and material inputs, as well as insufficient vital infrastructure and market facilities. Globally, the Philippines is a major rice player, but more on the import side, despite

its considerable annual crop yield. It is currently importing huge chunk of its rice from 5 countries (Vietnam, Myanmar, India, China, and Thailand) and minimal amount from South Korea, Pakistan, Cambodia, and Spain. It is exporting in small amount to UAE, Bangladesh, Qatar, Saudi Arabia, Myanmar, Singapore, Canada, Jordan, Jordan, and the USA.

A study in 2020 (Mataia, Beltran, Manalili, et al) detailed how much different actors down the rice value chain spent in production, starting with farmers as producers of fresh paddy as the first actor down the chain followed by paddy traders as consolidator and for selling dry paddy to the miller (Mataia, et al., 2020). Other chain actors that add unit cost and correspondent profit are: rice millers, rice wholesalers, and retailers.

It is notable that the study recognized that farmers are receiving the largest profit share at 54 percent of the total chain's profit, while the remaining 46 percent is shared among other chain actors. In 2021, the PSA reported that Filipino rice farmers profit or net returns averaged P21.430 per hectare for the year 2020. In its annual Production Costs and Returns of Palay, the statistics agency reported that farmers netted higher during the dry season cropping at P24.271 per hectare compared with the wet season cropping at P18.890 per hectare.

Noting the findings of Mataia et al (2020) that rice farmers share is 54 percent from the entire chain's profit; it would seem that the farmers are well-off. This is far from the mark however. Using PSA's estimate of P21.430 per hectare net return harvest, about 1.296.000 rice farmers would be earning 42.860 annually (2 harvests), in other words, a measly P3.571.6 a month, or US\$68.23, for the farmer and 4 of his family members (Philippine Statistic Authority, 2016).

As no one would survive with this monthly income, Filipino rice farmers have been augmenting their income with the help of family members, by working in the fields of other farmers or landlords as daily farm workers, as construction workers, storekeepers in nearby towns, and selling wares from town to town. Some have gone overseas to work as migrant domestic or construction workers. The fields too, are source of additional food: mud fish and snails for protein, augmented by vegetable and fruits. This mode of survival in rural Philippines, together with all the conflict and dynamics among the different stakeholders in rice production, has remained almost unchanged since the early 1900s, when the country was still struggling and transitioning out of feudalism (Kerkvliet, 1991).

And while these rice farmers have no elbow room for additional area for rice productions and therefore additional income other than their one or less than hectare of land, the traders and wholesalers can go to as many farmers as they can, to buy more rice produce for bigger margin of profit. The biggest traders in fact, does not have to contend with local or national rice trading—the 2019 Rice Tariffication Law now allow them to benefit from the country's regular rice imports.

The condition of "invisible" stakeholders, or the farm workers which are hired as planters

or harvesters are worst. On the average, the planters and harvesters, have to contend with P200–300 a day, being employed only during planting or harvest seasons, which last for only several weeks in a year.



Case Box 5

The Case of Nueva Ecija

Nueva Ecija, particularly the municipality of San Leonardo, was chosen not only because of its proximity to Manila where the organization's office is located, but also because Nueva Ecija has been a major rice basket for Luzon, and its relatively flat areas are more conducive to irrigation and use of farm machineries. The municipality of San Leonardo is a three and a half drive away from Manila, without the usual traffic. Nueva Ecija is a landlocked province in the northern direction of Metro Manila.

Two farmers and an officer of a cooperative were interviewed in the field. A trader and a miller were initially interviewed during field work, and were asked additional questions through SMS. Two bank officials of San Leonardo Rural Bank were interviewed through email and phone calls. A former head of the Department of Agriculture's National Rice Program was interviewed to provide context to the production of rice at the national level. He was interviewed through phone, augmented by several chat sessions. The information gathered revealed the following:

In the rice market of San Leonardo, agents or middlemen, buyers or wholesalers, and traders control the price of the commodity. Other entities are those that provide production and financial support such as finance and insurance services, advisory services, and logistics and information such as the LGU (local

government units) Provincial and Municipal Agricultural Office, the National Food Authority (NFA), lending companies, rural banks, agricultural suppliers, and other individuals.

Rice farmers who own land use the services of farmworkers for rice production or ask the help of a team leader who in turn will look other farmworkers, particularly planters during planting season, and harvesters during harvest season. Cooperatives help the farmers with fertilizers and other inputs. After threshing, palay (unhusked rice) is brought to millers, or the agents would find buyers and traders. The buyers and traders usually sell to wholesalers in Bulacan, a province sandwiched by Nueva Ecija and Metro Manila.

1. Rice farmers

They generally fall into two categories: big and small. Big rice farmers can have five up to 25 hectares of lands. They hire farm workers or small farmers to work on their fields during planting and harvest seasons. They owned farm machineries, mostly tractors which are used for ploughing the fields. Some are fully mechanical while others are performed by human labor. While animals such as carabao are still used extensively in other parts of the country, this is not the case in Nueva Ecija. Carabaos and Cattle were used mainly as livestock or to carry loads in areas impassable to vehicles.

Small farmers on the other hand usually own one to three hectares. According to the small farmer interviewed who owns 1.5 hectares, he earned P105,000.00 in last year's wet season for one hectare of rice paddy. He admitted that his earning was better to other farmers he knows. He had access to fertilizer from a cooperative in which he was a member, and he was allowed to borrow money without interest from someone who owns a threshing machine, as long as he would go to that person for his threshing needs. He also said that he knows several farmers in other municipalities that earn only P20,000-P30,000 on the average per hectare per harvest because they have to pay up for high interest loans.

Under the 2009 Republic Act 9700, the amended version of the Comprehensive Agrarian Reform Program of RA 6657 of 1988, three hectares is the allowed distribution limit to landholding farmers. The owning of some farmers of bigger swaths of agricultural land became possible when many small farmers started to exchange their lands as collateral for loans that were used to till the pawned land.

2. Hired labors

Usually, they are landless farmworkers who are hired as harvesters or planters.

They earn on the average P200 a day during planting and harvest season. In between, they work for those with fruit orchards or vegetable plantations. Some would go back to driving tricycles, a motorcycle attached to a passenger cab which could carry four passengers, sometimes more, and the usual public transport in rural areas. Some of the small farmers themselves sometimes work for hire in other fields.

3. Rice financiers

Individuals who finance rice paddy production. They usually pay all the labor expenses as well as extend small loans to farmworkers, and provide other inputs from contacts in nearby areas. Harvest is usually bought by traders. They spend P27,000 per hectare. They also rent thresher and hand tractors, allowing others to also earn.

4. Rice Agents/Middlemen

Agents do not use broker immediately. They would just go around their areas or even further, looking for the best price for palay. Many of them usually find higher rice price offer in Bulacan, although some municipality in the said province controls the price of palay, hence uniformly lower. Some landed farmers also take the role of agents.

5. Rice buyers/wholesalers

Many of buyers here sold their bought palay from farmers to a trader based in Bulacan. Wet palay are usually bought at P18-20/kg, and dry palay at P24-25/kg. Some would provide financial support to farmers, but many do not. They sometimes also buy in bulk vegetables to augment their rice buying.

6. Rice traders

They operate bigger than the wholesalers. They can usually afford to haggle rice from the whole of Nueva Ecija and not just in few municipalities. On the average, they can buy 200 sacks per day at P24/kg and sell to Bulacan at P25.50. They maintain warehouse, and are able to "wait" when prices of rice go high enough. While some of them provide financial support to farmers, many do not and only help in transporting laborers for free in areas where they are needed.

While the rice farmers have the lion's share from the profit out of the value chain, their small land holdings limit their capacity to improve their income. Since nothing can be done in the small sizes of lands ultimately because of population growth, production cost can be lowered and yield improved by appropriate and well thought of government interventions. A mechanism that will halt the return of distributed lands to the few big landholders despite the agrarian reform law because of poverty would greatly help.

There is recognition that the current rice production capacity of the Philippines is not enough to feed its population, but the need is urgent to conduct a more complete data on the agricultural production capacity of the country, with consideration of its topography, climate change, actuarial study on food intake pattern of Filipinos, and appropriate technology and machineries in support of the lay of the land.

International trade is recognized as a positive economic opportunity, but hard-fought trade remedies and special differential treatment in the WTO to address import surges should fully employed by the government. Policies on the agricultural sector are not seriously addressing the agenda for the food producers. Food production, particularly in rice production, has a clear gender dimension. Women remain largely unseen, with their significant role not properly recognized.

The removal of NFA's major role in the local rice value chain has also removed from the market the P27/kg prized NFA rice, cheaper by P10 to the current cheapest commercially available rice of P38/kg. The P10 difference is not much as it is, but considering the annual average of 118/kg consumption, that is P1,180 a person annually. While it's true that the agency had been incurring losses for years because of this practice, worsened by corruption, the amount is still small compared to the income losses incurred by 2.4 million rice farmers. At the same, rice is still not hitting below P27/kg or to the level of NFA price, even after more than two years of RTL, as projected by the rice liberalization proponents. Clearly, the farmers have incurred losses, while the consumers are not enjoying the supposed benefit of cheaper rice.

There are several immediate proposals, particularly: putting a stop to smuggling and technical smuggling; institutionalization and up-to-date trade data system for use in policy, planning and invocation of trade remedies; returning the power of NFA to grant license to importers to curb the onslaught of cheaper imported rice which benefit only big traders; enforcement of regulation of conversion projects in ancestral areas; aggressive registry building and organizing of farmers, including women and IP farmers in the countryside to enhance productivity efforts, disaster preparedness, market initiatives and good governance; and organize farmers not just as production and marketing clusters to fulfil Department of Agriculture's targets but also as self-help groups to ensure sustainability of these community organizations.

Finally, there is a need to immediately review the RTL and conduct an audit to the Rice Competitiveness Enhancement Fund (RCEF) considering the substantial losses on the part

of the farmers and very little gain for consumers.

b. Stakeholders of rice value chain in Vietnam

There have been many studies on the value chain of the rice industry in the Mekong Delta. Studies have shown that traders and exporting companies are the actors that play an important role in the rice value chain of the Mekong Delta. Exporting companies are the units that determine the selling price of rice in the world market, thereby transmitting price signals along the entire value chain, through actors including traders, millers and other suppliers; agency. Meanwhile, only a small number of farmers have relations with exporting companies. More than 90% of the output they produce is sold directly to traders.

This section describes each actor in Vietnam's rice market, mainly in the Mekong Delta. The analysis of the actors in the rice market structure will not separate the rice and rice market segments. Instead, during the analysis, if any actor appears in both markets at the same time, we will discuss in detail.

In terms of the size of the group of rice-growing households in the Mekong Delta, they can be grouped according to the following criteria: small-scale households (with less than 2 hectares of rice growing area - including about 86% of rice-growing households in the Mekong Delta) and small-scale households. households growing rice on a larger scale (rice growing area from 2 hectares or more - accounting for about 14%); households owning land and households having to rent land; households participating in large fields/ associating with enterprises and non-participating households; households participating in cooperatives/cooperative groups and individual households outside.

Households participating in large fields or signing agricultural contracts with enterprises are mostly households with fields in convenient locations for production and transportation. There are many households in remote and isolated areas with difficult access to businesses yet.

Land leasing is more common in the Mekong Delta than in other regions. People in this area are willing to sell their land when needed, switch to other income-generating activities, or become hired laborers in agriculture. The price of land depends on the location and type of land, usually the selling price ranges from 45-85 million dong/land. Land rent is about 40 million VND/ha/year. However, at present, rice farming is still an important income-generating industry for farmers here, most of the households still stay in rice farming, so the market for buying, selling or renting rice in This is still underdeveloped. On the other hand, the expansion of land is still limited by the State's land limit policy.

Currently, rice growing households in the Mekong Delta hire up to 80% of production stages, from tillage, sowing, spraying pesticides, and reaping rice. The most common property that farmers own is a small pump, which has been used for more than 5 years, with a value of about 5-7 million VND.

The main rice varieties grown by farmers in the Mekong Delta belong to three main groups: fragrant short-day varieties: including Jasmine 85, VD20, ST5; short-lived common varieties: OM3536, VND95-20, OM57; local varieties: IR29723, IR 42 and other local varieties. High-quality rice varieties are mainly grown in the winter-spring crop because this is the time with the highest amount of alluvium. However, Vietnam's rice exports are still mainly ordinary rice and low-quality rice. Rice varieties are not much different. In the condition that there are many rice growing households, but the rice varieties are not different in terms of quality and grade, rice farmers will have less bargaining position in the market. Following sub section will explain about each stakeholder in Vietnam's rice value chain.

1. Type of farmer in Vietnam's rice value chain

a. For farmers participating in agricultural contracts with enterprises

For farmers in large fields or fully linked with enterprises such as the case of sample fields of A Giang Plant Protection Company, ADC company, ITA Rice company, farmers must use seeds, fertilizers are provided by the company and follow the Global GAP process or the company's production process. If they violate or break the contract, they will hardly have the opportunity to re-enter this value chain linkage model.

At looser levels of association, the company only signs contracts to offload products, farmers have more autonomy in choosing production techniques. The process of linking farmers with the company is completely voluntary. However, in the initial stage, local authorities have a very important role in introducing companies to, disseminating, propagating and mobilizing people to participate, and mediating to solve arising problems. in contract performance. Many cooperative groups have been formed since the beginning of the implementation of the large field program, however, most of these cooperative groups are organized by the government, not by the people voluntarily and find it necessary to set up Candlestick. The role of the cooperative group is still very limited in ensuring the rights of the people in the group. In many cases, the company can negotiate with the cooperative group, but the group does not receive the consent of the members, so the program of the enterprise cannot be implemented.

When signing contracts with enterprises, farmers are often required by many businesses to buy seeds and fertilizers provided by the company. However, the prices of these inputs are even higher than the market prices. Many farmers reported that they found that the quality of seeds and fertilizers was not really higher than the products they used to use. However, since it is the company's policy when signing the contract, they have no other choice.

Some farmers, after a few rice crops in cooperation with the company, decided to leave the big field or stop the contract. Even though they leave the big field, they can still have the opportunity to learn the production process of the households in the big field, such as the time of sowing, fertilizer use, irrigation procedure, etc.

b. Households' farmer that un-linkage contracts with enterprises

Farming households that do not enter into contracts with enterprises make their choices based mainly on production experience, general local trends, orientation of local extension officers and information search on farms, or mass media such as television, radio and newspapers. According to interviews, each rice crop are guided by agricultural extension for about 1-2 days, at the Commune People's Committee, mainly to negotiate and agree on the time of sowing, orient the rice varieties to use, and disseminate the procedures, techniques such as "5 down, 5 up", or "5 right, 1 down". Due to the small number of local extension workers, they cannot go to the fields to guide farmers in applying standard procedures.

Since rice farming is the main source of livelihood for most farmers in the Mekong Delta, they have no choice but to maximize the amount of rice they produce. Although directly affected by rice price fluctuations in the market, farmers hardly have to adjust their production in the following seasons. Farmers also understand very well that cultivating 3 rice crops in a year will cause the soil not to have time to recover, the use of fertilizers and chemicals will increase, making the soil more susceptible to degradation, as well as rice quality is not good. But most of the interviewed households responded that they have no other choice because the reduction of crop and output will lead to a decrease in income, while they have no alternative source of livelihood.

For many years now, the Government has had programs to encourage farmers to switch to higher quality rice varieties, through supporting seeds and inputs. However, the farmers themselves cannot do these conversions because they do not know the output. High-quality aromatic rice varieties have a longer cultivation period than other high yielding varieties. Fragrant rice varieties require more meticulous care and are more susceptible to pests and diseases. However, the selling price of fragrant rice is not higher than that of normal rice. There was a time when IR50404 rice was sold for 4,500 VND/kg; while fragrant rice sells for 4,750 VND/kg. Since rice exporters have long focused on the popular and low-grade rice segments, there is no demand for fragrant and quality rice higher. Therefore, the safest option of farmers is still to grow normal rice varieties.

c. Households' farmers linkage by contract with the enterprises

For households entering into contracts with enterprises in general, enterprises commit to purchase rice at prices 50-100 VND/kg higher than the market price. The time of rice harvest is agreed in advance by the company with the people to organize the harvest and transport the rice to the factories. Prices are given 3 to 7 days before the harvest time. Immediately after purchasing rice from farmers, the company will deduct advance payments to farmers and pay the rest in cash.

This linkage models allowing farmers to make choices that are most beneficial to them. The company allows farmers to choose to either sell it to the company immediately, or be

deposited in the enterprise's warehouse to wait until the price of rice rises. The company also allows farmers to sell rice to the market if the market price is higher than the company's purchase price. Other companies only sign contracts to consume products without other support for temporary storage. Farmers are sometimes forced to sell under adverse conditions (such as prolonging the time of purchase, causing the rice to dry out a lot).

Among the farmers interviewed in Can Tho and A Giang, only about 5% were aware of the existence of wholesale rice markets. However, none of them came here looking for information or making transactions. The reason given by them is that due to the long distance, moreover the amount of rice they have is not much, and they do not have the conditions to dry, so it is not effective to bring rice to the markets to sell.

d. The risks and choices of farmers

For most farmers, they really do not have much choice and bargaining power when selling their rice because: (i) the rice must be dried immediately or the quality will be reduced very quickly if otherwise, especially for summer-autumn rice, which is usually broken after only 3 days; (ii) the majority of farming households have very little capital for production and very few households invest in their own rice storage. They also do not have enough capital to bring the rice to dry and deposit it in the warehouse (this cost is also too great because of the small scale of production). On the other hand, many households need to turn their capital immediately to pay off debts due to buying inputs and investing in new crops. Therefore, farmers still mainly choose to sell fresh rice in the field. Only rice-producing households on a large scale and with a lot of capital have the ability to preserve rice to choose the most profitable selling time for them. About 75 - 80% of farmers sell fresh rice in the field, the rest sell dry rice (mainly large-scale households with financial potential). The price of dry rice is usually 900 - 1,000 VND/kg higher than the price of fresh rice.

With such characteristic limitations, farmers take a lot of risk when selling their products. Although the number of traders is large, farmers do not have an information channel to understand the purchasing prices of all traders as a basis for selection. They have almost no bargaining position with respect to collectors or with businesses. When the price of rice fell, they were forced to sell it at a low price with no other choice, or were forced to pay the price by the buyers.

In the case of signing a contract with the company, although the output is offsetting and the company commits to buy it at a price higher than the market price, farmers still have to face many potential risks. When the export price of rice is low, the company tries to delay the purchase of rice from farmers (for reasons such as not being able to arrange boats to cut and carry rice). Rice left to ripen for a long time on the plant will change in moisture and quality. When selling rice, the company may still buy at the committed price, but due to the decrease in humidity, the weight of the rice decreases; or the company deducts money because the rice does not meet the quality standards as originally committed.

On the farmer's side, in this case, they can choose to sell to the trader if the trader pays a higher price, the farmer will be penalized for breaking the contract (advance payment for inputs attached to the contract). interest rate), and may lose the opportunity to cooperate with the company in subsequent seasons. Obviously, this is still an option that neither businesses nor people want. Moreover, the costs incurred by factors such as the time searching and negotiating with traders and waiting for the merchant's boats to come to buy will also make them suffer more.

e. For households participating in large fields/agricultural contracts

Participating in large fields along the value chain brings great advantages to farmers in reducing production costs, improving productivity, quality and stabilizing output. This method also helps people overcome the lack of production capital because many businesses advance inputs or cash for people to buy production inputs. However, only large enterprises with strong potential have enough resources to directly cooperate with other enterprises to supply standard inputs (seeds, fertilizers) to farmers, to participate in guidance and training. technical supervision, as well as having output to off-sell output products at a price higher than the market price.

An investigation by Ho Cao Viet (2014) comparing costs, selling prices and profits from rice of farmer households before and after participating in value chain trade unions shows that this model is clearly more effective. Product off-take contracts, which do not follow the entire value chain, still put farmers in a precarious position because the company still has many reasons not to buy rice under contracts.

However, at present, the deployment and replication of the large-field model and the linkage between farmers and enterprises not along the value chain still face many obstacles such as: (i) farmers do not really believe in businesses and effectiveness of linkages and mainly produce and exchange through traditional methods, while many enterprises have not really invested seriously; (ii) cooperative groups, which almost only exist in terms of formality, have not played a significant role in changing farmers' behavior and increasing farmers' bargaining power; and (iii) lack of sanctions for breach of contracts between farmers and enterprises.

For households not participating in large fields: most sell fresh rice in the field to traders. The price they know is mainly due to reference in other areas in the locality, through the "storks" of rice brokers, through direct contact between traders, and references to local newspapers and radio stations. Usually, traders will negotiate with farmers on the purchase price, and deposit about 15-20% of the total amount in advance. Payment is made in cash, and is paid immediately upon product exchange.

f. For farmers not participating in agricultural contracts

Bear many risks, unstable income: These farmers have to be proactive in selling rice after

harvest, usually selling fresh rice in the field to traders. Their income is therefore more volatile and highly dependent on market fluctuations. Because there is absolutely no bargaining power in the market, they are also the subjects bearing the most risks when the demand for rice is low, when there are risks to the production process (natural disasters, epidemics).

Due to the small scale and production, although the profit earned per kilogram of rice by farmers in the value chain is relatively large, the total income of farmers from rice is very low (Dao The Anh, Thai Van Tinh, Nguyen Van Thang, & Vu Nguyen, 2013).

Limited financial resources for production investment: For small rice-growing households with low income, in order to have capital for production investment, they often have to borrow from the beginning of the crop. Due to the high transaction costs to access formal capital (long distances, complicated procedures, etc.), they often look to semi-formal or informal sources of capital. While access to capital from semi-formal sources is still limited, both in terms of the number of people and the scale of capital that can be accessed, informal capital proves to have more advantages. These lenders can be well-off villagers in the same village or commune, input agents, or traders. People can quickly access these capital sources, simple and timely procedures. However, the disadvantage is that lending interest rates from informal sources are often higher, so farmers usually only borrow a small amount, and quickly pay it back after the harvest. Therefore, they are less able to make big investments such as expanding the area, planting high-quality rice varieties or storing rice longer after harvest. If farmers borrow money or buy inputs from traders or rice storks, they usually have the only option of selling rice to these people right after harvesting. This pushes them into a vicious circle that is difficult to get out of their current situation to increase their income and wealth.

2. Local collectors

They are mainly farmers, without any other equipment such as boats. They are mainly quick-witted, have a firm grasp of the local production situation, and have a wide relationship with traders, so they become middlemen. These collectors will inform traders about the local harvest time, yield, and quality. Traders often have to pay a fee for them about 10-20 VND/kg. Research has shown that in the Mekong Delta, traders buy rice through local collectors accounting for 55% (Can Tho online, 2013). The existence of the local collectors save time and other transaction costs in finding sources of goods for traders, helping them to be more proactive in collecting rice.

Due to the small-scale farming households, the existence of local collectors is obvious. The operation of these local collectors saves time and other transaction costs in finding sources of goods for traders, helping them to be more active in rice collection. Instead of having to go to the site to survey and negotiate with each farmer one by one, traders only need to contact and negotiate with a few “storks” in each region. Farmers when doing

business with local collectors also feel very secure because they are local people, have closer relationships, and are informed by “storks” about the price situation as well as helping to sell rice.

Because they only act as brokers and earn commissions, and do not have to invest anything, they do not have to take risks and returns are usually relatively stable. However, they have the sole advantage of having a wide relationship, these local collectors also face high competition due to very low entry costs. Therefore, local collectors tend to expand their activities to brokerage other activities in agriculture such as brokering for rice harvesters and cultivators, looking for business opportunities with farmers. On the other hand, because they have stable profits and can accumulate capital (even if it is small), they have the potential to become an informal source of finance for farmers in the production process.

3. Traders

In the rice market, the main activities of traders are to carry out the process of purchasing rice, selling rice during the harvest season and the process of buying and selling rice at different prices in different regions. This section will focus on analyzing the role, characteristics and activities of rice purchasing and selling rice to the market of traders.

In terms of the entire rice export value chain in the Mekong Delta region, traders play a very important role in connecting rice producers to exporters, and have the longest running activities in the chain.

Firstly, according to Dao the Anh et al (2013) and Vo Thi Thanh Loc and Nguyen Phu Son (2011), up to 93% of rice is collected by traders. After that, the traders will sell off about 13% of the rice to the millers; 69% is milled and sold to polishing/exporting factories; 11% of rice is sold by traders to domestic wholesalers/retailers after it has been milled. Traders, who make up large numbers, have capital, the means of transportation, the experience and network of contacts, which help transfer price signals from production to consumption, have the ability to go all the way to the end of the market or remote areas to buy rice, connect the production process, help farmers reduce costs and resources to transport fresh rice to major rivers.

In addition, traders make immediate cash payments to farmers when purchasing rice in the field, providing liquidity to pay debts about fertilizers and pesticides for farmers. Meanwhile, other players in the market such as exporters or millers often find it difficult to have enough cash available to pay farmers directly, their capital must be invested in machinery, equipment, and enterprise management.

Characteristics of traders in the rice market

According to a survey by Dao the Anh et al. (2013), 100% of traders own at least 1 boat with an

average tonnage of about 26 tons. However, only a small number (0.02%) own warehouses and stalls; 8.3% represent an organization/business. This shows that traders are still mainly individuals operating independently in the market, mainly carrying out simple trading, without activities such as speculation and hoarding.

Because each trader carries out their purchasing activities in different areas in the Mekong Delta, their activities are difficult to control, and the number of traders is not fully reported by the authorities at all detail levels. Despite such a wide range of activities, traders have little ability to influence the price of rice in the market. Normally, traders will receive information from polishing/exporting mills or millers about the quantity of rice/paddy to buy and the price, and from there, traders will collect from farmers. The costs that traders have to bear include costs of paying for local collectors, transportation costs, drying and milling costs. Research by Dao the Anh et al (2013) shows that traders get up to 20% of the added value in the export rice value chain.

Although the connection between farmers and traders still has to be done through an intermediary “rice trigger”, and the agreements are mostly oral, this bond is relatively stable. In many places, traders even advance loans to farmers to buy seeds and inputs for production. When the harvest comes, the farmer will sell the rice to that merchant and deduct the amount owed along with a small profit. Thus, with the limitations of formal financial forms, and the underdevelopment of finance in rural areas of Vietnam, it is clear that traders have played a certain role in providing capital for manufacturing.

In the context of competition among traders, traders often deposit a small amount of money with farmers in advance. Prices are usually negotiated about 3 days before harvest. After purchasing rice from farmers, traders often pay cash immediately. This will help to strengthen the verbal commitments between farmers and traders.

In addition, the trader will perform a cash cycle from when paying farmers to buy fresh rice until receiving money from the enterprise’s warehouse within 5-7 days. After buying fresh rice and paying cash to farmers and storks, traders will rent boats, drying and milling plants, and pay fees to partners in cash; bringing brown rice to the warehouse of the exporter. Traders usually take 2-3 days to receive full cash from businesses; After that, the trader has to pay warehouse brokerage costs at the enterprise at 0.1% of the total sales value. The final amount collected will be used by traders to buy fresh rice in the next batch.

Operating with small capital, facilities consisting mainly of boats, and mostly oral agreements, traders also face certain risks from market fluctuations.

That is when the price of rice dropped, traders negotiated the purchase price with farmers and made a deposit in advance, but could not sell to businesses at a guaranteed profit. Their choices may be: (i) “drop the deposit” and stop buying rice from farmers. This option causes them to lose a small amount of money paid to farmers in advance; (ii) traders still

buy rice from farmers, bring it to dry and deposit it in warehouses, then sell it when the price goes up. However, this option requires traders to have a lot of capital. If the market price does not increase, they will still be forced to sell rice because rice cannot be stored for long time of period. Or they have another option is to find other sources of consumption (eg. domestic consumption); (iii) traders still buy rice from farmers and sell it right away, accepting losses because they can’t stockpile and cannot predict market prices. In this case, they will try to limit the damage by negotiating with farmers to reduce the purchase price. If negotiations failed to be reached, some may seek to delay the time of collection, and farmers, unable to keep the rice long after harvest and having no warehouses to dry and store it, are forced to sell it to traders at the prices that they offer.

Interviews in the Mekong Delta show that, during periods of rice price fluctuations, especially after 2008 and 2009 when Vietnam’s rice exports were suddenly stopped, many small traders went bankrupt or suffered losses. Some switched to working for larger traders, or renting boats. The remaining traders have more capital, and must be very active to expand their networks with export companies, millers, small-scale exporters and domestic traders.

The policy on regulation of raw material areas of exporting companies also has certain impacts on the group of traders. Because businesses are forced to work directly with farmers, link and pay output, there is no need for the participation of intermediary focal points such as local collectors or traders, perhaps just hire boats to carry rice. However, at present, due to the small area of raw materials, there has not been a truly large impact on these factors. Some traders tried to react to this adjustment by offering higher purchasing prices than businesses buy from people, enticing people to drop their commitment to the company to sell to traders. If the market price of rice increases, these traders can still make a profit. However, if it is not favorable, the traders are willing to give up the contract, making farmers unable to sell rice and pay a penalty for breaking their commitment to the company.

1. Milling factories

As many values chain studies have shown, rice mills in the Mekong Delta are not only engaged in outsourcing, but also directly supply rice for domestic consumption and export companies. Only a small number of mills and mills buy raw rice directly from farmers, accounting for about 3-4% of the total amount of rice sold. Traders collect rice and then sell about 30.3% to the milling factories or mill it into brown rice and then sell it to the company (accounting for about 47%) and then to the polishing factory (about 10.7%).).

Dao The Anh et al. (2013) classifies factories and their main functions include: small mills with an average capacity of 0.2 tons/hour, mainly milling rice for domestic use (separation), peel and scrub bran (accounting for 87.5%) and scrub bran (12.5%); medium-sized factories with a capacity of about 3.8 tons/hour mainly shelled (72.7%); large factory with a capacity

of about 9.6 tons/hour, performing shelling process (75%), and all stages (25%). Polishing factories mainly only perform polishing, accounting for 92.5% and doing all stages accounts for 7.5%.

Small factories with an area of only over 80m²; while the average factory has an area of about 1,550 m²; large factory with an area of about 2,500m²; Polishing/exporting factories have an average area of about 4,825m². The value of medium-sized and large-sized factories is up to 2 - 4 billion VND. Observations from field surveys in the Mekong Delta provinces show that, at present, milling factories have a tendency to expand in scale. This trend is also common in many countries around the world. Reardon et al. (2016) pointed out that in China, milling plants with a capacity of about 5 - 10 tons/day have almost disappeared since the second half of the 2000s. In 2007, China had about 7,600 millers, but the number of mills fell by 5% to 7,220 in 2008; the number of factories with a capacity greater than 400 tons/day has increased by 42% during the same period.

Along with the tendency to expand in scale, millers now perform both drying, peeling, and bran scrubbing. The products obtained from the milling process are used to make rice husk coal, and the bran is used to extract essential oils. This process is promoted along with the advancement of post-harvest rice processing technology. Medium-scale mills also build additional warehouses, the capacity of which is only about 3,000 tons. However, there are many large-scale factories long operating time, expanding warehouse area or building new warehouses to increase rice reserves for the factory, the capacity can be up to 10,000 - 50,000 tons. However, the storage time in these factories' warehouses is not long, only for about 2-3 months, and then they will be sold to polishing factories/exporting companies.

These mills are mostly located near the production site and along the waterways to facilitate the transportation of rice. Most factories operate continuously throughout the year. However, at times like March, June, July, August, almost all factories operate at full capacity. Factories operate at least in October, November, and December of the year. Winter-Spring crop, due to the highest yield and rice output, is also the time when factories operate at their highest capacity.

According to the provisions of Decree 109, many exporting companies have invested more in drying and milling systems. A large factory of the exporting company will perform all stages from drying, milling to polishing. Interviews show that the trend of linking export companies with milling factories is not much. These factories are mainly independent factories whose expansion is the result of their capital accumulation. The trend of new factories entering this industry is not much. Small-scale factories have also operated for more than 10 years. Currently, the main trend is that factories expand their scale and invest more in large export companies.

The profitability of millers is relatively stable, independent of price fluctuations in the market for rice. Normally, the rice milling fee is about 180 - 200,000 VND/ton for normal rice

and about 200 - 230,000 VND/ton for high quality rice, which requires a low rice-breaking ratio. Due to stable financial resources, millers also play a certain role in ensuring financial resources throughout the value chain. On the other hand, traders are also allowed to make deferred payments after they receive money from selling rice to polishing/exporting factories or get loans to buy rice from farmers. For mills that organize the purchase of rice directly from farmers, capital advances or advance deposits to farmers are the same as the case with traders. Research on the value chain of countries shows that financial supply from the miller is not much; for example, in Bangladesh and in India, only 18% and 13% of traders/traders/traders, respectively. Farmers receive prepayments/loans from millers; and about 7 - 19% of millers receive credit from their customers.

2. Brokers

These brokers can either work at rice exporting companies/millers or be independent. When companies or factories have a need for rice, they will use rice storks to help buy it from traders or from millers.

Like the local collectors, the only asset that brokers have is a good relationship with export companies / polishing factories, domestic rice wholesalers with traders or traders. milling machine. The local collectors help traders sell rice quickly, reducing transaction costs. local collectors also often enjoy a profit of about 20-30 VND/kg.

Due to the low cost of entering the industry, the competition of local collectors in this small segment is also relatively large. The local collectors are not able to influence the trading prices of rice.

3. Retail traders

In the domestic market, the actors involved in supplying rice to consumers include wholesalers, retail stores, traditional markets, and a system of supermarkets. These actors mainly buy rice from traders and millers. The main means of transport is by road. Wholesalers have built their own rice warehouses, or rented existing ones.

Wholesalers supply about 84.5% of rice to traditional retailers; selling 4.95% to other wholesalers; about 8.3% sell directly to consumers and only a small amount accounted for 0.09% to modern retail stores (Dao the Anh et al., 2013).

While state-owned enterprises dominate in the export stage, in the domestic rice distribution channel, the "players" are mainly private enterprises and individual households. Currently, besides the traditional agents and retailers, the number of supermarkets and shops participating in domestic rice distribution is increasing, focusing more on quality and origin to serve the needs of the local population. Many large rice trading groups, besides exporting rice, are also promoting the construction of domestic rice distribution channels, in the normal and high-grade rice segments.

The price of normal rice when sold to consumers in markets such as Can Tho, Da Nang, Hanoi, and Ho Chi Minh City. Ho Chi Minh City, usually ranges from 10,000 to 12,000 VND/kg (Agromonitor, 2014). This price is much higher than the export price of rice.

4. Exporters

Barriers to entering the industry: Before Decree No. 109/2010/ND-CP on management of rice export business, the number of enterprises participating in rice export sometimes reached more than 200 enterprises. However, after Decree 109 took effect, the number of enterprises has decreased, and now there are more than 100 enterprises. Up to now, there have been no foreign enterprises participating in this field in Vietnam, apart from Kitoku Company of Japan, a joint venture with AGIMEX Company of A Giang.

High degree of market concentration: In recent times, the number of private rice exporting enterprises participating in the market tends to increase. However, at present, rice exports are still concentrated in a few main enterprises, mainly state-owned enterprises such as Vinafood 1, Vinafood 2 and state-owned enterprises at the local level. Of the total rice exports, the top 10 exporting companies accounted for 56.93% of the country's rice exports in 2016. This share has decreased compared to 2008 when the 10 largest exporters accounted for 70% of the country's rice exports. Vietnam's total rice exports (Oxfam, 2013). Vinafood 2 and Vinafood 1 alone accounted for about 40% of the share, and much higher than the rest. Thus, large enterprises and state-owned enterprises still play a large role in Vietnam's export market.

Normally for government contracts, Vinafood 1 mainly exports to countries in the Middle East and America (such as Cuba, Iraq). Vinafood 2 exports to countries in Southeast Asia such as Indonesia and the Philippines.

Non-specific products: Currently, Vietnam's exported rice does not have a strong brand name in the market such as Homali rice of Thailand or Basmati of India. Most of them are rice varieties usually supplied to Asian and African markets. Fragrant, high-quality rice sold in high-end and private-branded markets accounts for a very small volume. Therefore, businesses have not invested in building raw material areas, but mainly rely on the available supply of rice collected by traders in the country. According to statistics from the Ministry of Industry and Trade, currently, the rice cultivation area where enterprises build large fields or sign agricultural contracts with farmers accounts for less than 10% of the total rice growing area in 13 provinces in the Mekong Delta.



Case Box 6

The behavior of businesses

No cross-linking: In-depth interviews with rice exporters show that, at present, Vietnam's rice exporters do not have links or cooperation to increase competitiveness in the world market. Businesses are very independent in finding customers, setting prices, and building brands. The relationship between enterprises is mainly in the entrusted export or supply of rice to perform export contracts.

The role of VFA is also limited in promoting linkages between businesses and increasing the industry's competitiveness. Interviews with businesses showed that they mainly search for information on the world market themselves rather than refer to VFA, especially information on forecasting market supply and demand, and prices. Trade promotion and market research activities of VFA are also limited. According to Vietnam's mechanism, the leadership of VFA is elected from representatives of enterprises in the rice export industry. Meanwhile, VFA holds too many executive and management rights in the industry, which easily leads to distortions in the distribution of benefits to member enterprises.

From the perspective of the international market, Vietnam's rice exporters also do not have an alliance or association with rice exporters in other countries to achieve a higher bargaining position in the market. At the end of 2013, Thailand proposed Cambodia, Laos, Myanmar and Vietnam and Thailand form a rice alliance to help stabilize prices and reduce competition in the region. These 5 countries can each year export about 20 million tons of rice. However, this is still just a proposal and there is no action for the formation of this alliance (Vinanet, 2014). Currently, countries have different facilities and processing capacity.

Lack of vertical linkage: Recently, the trend of vertical linkage in the rice value chain is being formed. A number of enterprises dealing in typical products, high-quality rice varieties, complicated production processes, have built raw material areas. Exporting enterprises also associate with enterprises producing seeds, fertilizers and pesticides to provide quality inputs for farmers. However, the percentage of businesses that make such linkages is not much because they mainly trade in rice varieties available in the market, and still only operate in the segment of medium and low-quality rice. on the world market.

Besides, the time to sign the contract of the enterprise is usually not too long. There are cases from signing the contract to the execution of the contract within 1 month, even 10 days. Therefore, if one invests in the raw material area, they will be exposed to many risks as they cannot take the initiative in output).

The difficulties of enterprises in implementing agricultural contracts with farmers include: (i) having a firm output market; (ii) large investment capital is required; (iii) unforeseen risks of market fluctuations; (iv) the size of each farmer household is small, making it difficult to reach consensus of a large number of households, guide and closely monitor the production process if the production is not organized according to the price chain.

No speculative activities: in-depth interviews with enterprises show that they are currently only storing rice, not paddy. Stock levels in the warehouse usually only reach about 30% of warehouse capacity. At peak times, the reserve level also only increased to about 70%. The time to store rice in the warehouse is usually 2-4 months.

5.3 Global value chain of fisheries in Indonesia

5.3.1 Input-output structure

In the OECD ICIO data, the fisheries commodity sector is the one that is statistically the luckiest of the other three commodities we are researching. The data is readily available on its own, and this is easy for research focused on the fisheries sector around the world. The fisheries sector (03) also includes capture fisheries and aquaculture. From the 2018 data, it can be seen that Indonesia's total fishery output is the highest ASEAN has been a major producer of fish and other fisheries products. Combined, the 10 ASEAN countries accounted for a quarter of global fish production. Of the world's top ten largest fish producers, four are from ASEAN - Indonesia, Thailand, Viet Nam, and the Philippines. among the three other countries. Still, in terms of contribution to Vietnam's domestic economy, it is more significant, with a contribution of 3.1 per cent (Table 17).

Table 18. Industrial Contribution, Input, and Output Structure of Coffee Commodity, 2018

Country and Sectoral Code	Commodity Proxies	Products/ Industries/ Sectors	Total Output (Million USD)	Contribution to Economy (%)	Output Structure		Input Structure	
					Intermediate Demand (%)	Final Demand (%)	Intermediate Input (%)	GVA (%)
Indonesia								
IDN_03	Fishery	Fishing and aquaculture	30.116,1	1,58	26,68	73,32	9,70	90,30
IDN_10T12	All	Food products, beverages, and tobacco	160.201,6	8,39	23,27	76,73	64,61	35,39
IDN_45T47	All	Wholesale and retail trade; repair of motor vehicles	196.028,3	10,27	45,92	54,08	29,77	70,23
IDN_55T56	All	Accommodation and food service activities	63.174,1	3,31	13,91	86,09	53,17	46,83
The Philippines								
PHL_03	Fishery	Fishing and aquaculture	8.725,8	1,39	26,60	73,40	33,90	66,10
PHL_10T12	All	Food products, beverages, and tobacco	84.552,3	13,48	41,90	58,10	63,02	36,98
PHL_45T47	All	Wholesale and retail trade; repair of motor vehicles	86.987,2	13,87	52,48	47,52	45,23	54,77
PHL_55T56	All	Accommodation and food service activities	26.072,6	4,16	17,87	82,13	63,59	36,41

Thailand									
THA_03	Fishery	Fishing and aquaculture	7,731.0	0.53	57,74	42,26	42,56	57,44	
THA_10T12	All	Food products, beverages, and tobacco	88,886.8	6.08	31,03	68,97	73,57	26,43	
THA_45T47	All	Wholesale and retail trade; repair of motor vehicles	122,598.1	8.39	52,99	47,01	21,98	78,02	
THA_55T56	All	Accommodation and food service activities	46,051.7	3.15	14,88	85,12	61,56	38,44	
Vietnam									
VNM_03	Fishery	Fishing and aquaculture	24,442.6	3.07	65,93	34,07	74,79	25,21	
VNM_10T12	All	Food products, beverages, and tobacco	97,080.1	12,21	50,14	49,86	88,11	11,89	
VNM_45T47	All	Wholesale and retail trade; repair of motor vehicles	44,372.5	5.58	64,35	35,65	45,57	54,43	
VNM_55T56	All	Accommodation and food service activities	19,411.3	2,44	25,67	74,33	63,15	36,85	

Source: OECD's ICIO, 2018 (processed)

In table 23 above, the analysis is similar to the study of rice commodities (the previous subsection), considering that the proxies used are the same. However, coffee commodities in the four countries can be more challenging because their contribution and input-output structure are no more significant than rice. After all, coffee is not a staple commodity. However, coffee not only plays a role in agriculture (01T02) that produces it, but it also seems to contribute a lot to the beverages (10T12) and food service (55T56) sectors.

In Table 17 above, in addition to looking at the contribution, we can see the structure of inputs and outputs of fishery commodities (03) directly. In terms of output/ production, Indonesia (IDN) and the Philippines (PHL) have similarities where their fishery production is dominated by the provision of final consumption, both domestically and externally. Meanwhile, Thailand (THA) and Vietnam (VNM) tend to be dominated by fisheries for the provision of intermediate demand or as inputs for other sectors/industries. In terms of inputs, Indonesia, the Philippines, and Thailand are dominated by primary inputs or GVA. This indicates that their fishery sector absorbs more inputs such as labour, wages, rents, taxes, and subsidies than intermediate inputs from other industries like Vietnam. The other three industries can be interpreted as other commodity subsections since they are the same industry.

Table 19. Value and Index Total Backward and Forward Linkages of Fishery Commodity, 2018

Code	Commodity Proxy	Industries/ Sectors	Backward Linkage	Forward Linkage	Backward Linkage Index	Forward Linkage Index	Note
IDN_03	Fishery	Fishing and aquaculture	1,12	1,35	0,55	0,67	Not Key Sector
IDN_10T12	All	Food products, beverages, and tobacco	2,01	2,84	0,99	0,71	Not Key Sector
IDN_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,54	3,05	0,75	0,86	Not Key Sector
IDN_55T56	All	Accommodation and food service activities	1,90	1,69	0,93	0,57	Not Key Sector
PHL_03	Fishery	Fishing and aquaculture	1,59	1,41	0,78	0,70	Not Key Sector
PHL_10T12	All	Food products, beverages, and tobacco	1,85	3,48	0,91	0,84	Not Key Sector

PHL_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,85	3,56	0,90	1,76	Not Key Sector
PHL_55T56	All	Accommodation and food service activities	1,93	2,04	0,95	1,01	Not Key Sector
THA_03	Fishery	Fishing and aquaculture	1,88	1,31	0,92	0,65	Not Key Sector
THA_10T12	All	Food products, beverages, and tobacco	2,31	3,17	1,13	1,57	Key Sector
THA_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,42	2,36	0,69	1,17	Not Key Sector
THA_55T56	All	Accommodation and food service activities	2,12	2,18	1,04	0,62	Not Key Sector
VNM_03	Fishery	Fishing and aquaculture	3,13	2,6	1,53	1,29	Key Sector
VNM_10T12	All	Food products, beverages, and tobacco	3,38	5,69	1,66	2,82	Key Sector
VNM_10T12	All	Food products, beverages, and tobacco	3,38	5,69	1,66	2,82	Key Sector
VNM_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,97	3,08	0,97	1,53	Not Key Sector
VNM_55T56	All	Accommodation and food service activities	2,50	1,66	1,22	0,82	Not Key Sector

Source: OECD's ICIO, 2018 (processed)

From table 18 above, we can see again that Vietnam excels in fisheries commodities as their backward and forward indices show that this sector is crucial. Vietnam also pointed out that it plays a role in global fisheries, but their fisheries also significantly improve their domestic economy. Its large backward and forward linkage values can be seen, such as 3.13 and 2.6. This means that their increase in fishery output by one million USD has a multiplier effect that will increase the economy by 3.13 million USD upstream and 2.6 million USD downstream of their industry.

As for Indonesia, the Philippines, and Thailand, they are still not the key sectors. This may be because most of their fisheries do not use intermediate inputs in conjunction with their fisheries' output unused for intermediate demand. Most likely, the majority of their production is still for the fulfilment of the final consumer.

5.3.2 Geographical scope

Fish and fishery products are becoming increasingly important as primary sources of protein for many peoples in the world, most especially for those in the Southeast Asian region. During the past decade, the region's production from capture fisheries and aquaculture has been considerably increasing, and recently, many Southeast Asian countries are among the highest producers of fish and fishery products in the world.

In this commodity, Indonesian fisheries' per capita consumption rate is the lowest in ASEAN even though their highest output value. This can also be explained through table 17 above, which shows that Indonesia's total output is only 25 per cent higher than Vietnam when the total population of Indonesia is three times more. This also explains because although Indonesia's final percentage of demand for fisheries is much higher than Vietnam's, the overall level of public consumption is still very low.

The Southeast Asian region has been a major contributor to the world's total fisheries production, and most of the region's fish and fishery products are traded not only in the international markets but also in domestic and local markets. The fisheries production of the Southeast Asian region during the five-year period from 2015 to 2019 attained average annual increases of 5.94% in terms of volume and 25.12% in terms of value (SEAFDEC, 2020). From 2015 to 2019, the worldwide trend of fishery production from both capture fisheries and aquaculture (Table 19) had been steadily increasing at an average about 1.53% annually. Countries from Asia are among the major fish producers, contributing about 52% to the total fishery production during the past 5 years. In the Southeast Asian region, fishery production increased from 44 million MT in 2015 to 46.8 million MT in 2019 with an annual average rate of increase of 1.53%, where the region's total contribution to the world's total fishery production in 2019 was approximately 22.17%. Such feat had been achieved because of the intensified efforts of the governments of the Southeast Asian countries to promote responsible fishing practices and sustainable management of the fisheries sector, and the countries' adherence to the new paradigm of change in fisheries management which gears towards sustainability.

Table 20. Fishery production of each continent from 2015 to 2019 by quantity (million MT)*

	2015	2016	2017	2018	2019
World	196.6	199.0	206.4	213.4	213.7
Africa	10.9	11.5	12.3	12.5	12.5
America	21.3	20.0	21.4	24.5	22.4
Asia**	101.5	103.5	107.5	109.7	112.9
Southeast Asia***	44.0	45.3	45.5	46.5	46.8
Europe	17.3	17.0	18.1	18.4	17.3

*Source (except for Southeast Asia): FAO FishStat Plus-Universal Software for Fishery Statistical Time Series

**Excludes Southeast Asia

***Source: Fishery Statistical Bulletin of Southeast Asia (SEAFDEC, 2020)

Table 19 shows that the fishery production of Southeast Asia from 2015 to 2019, which exhibited a continuously increasing trend especially in terms of quantity although the increases in terms of value were quite unstable. The annual average increase in quantity from 2015 to 2019 was 1.51%, while the annual average rate of increase of the value was about 6.62%.

Indonesia was the region with the highest producer of fish and fishery products in 2019 accounting for about 48.36% of the region's total fisheries production volume, followed by Vietnam 17.68%, Myanmar 12.68%, Philippines 9.44%, Thailand 5.32%, and Malaysia 4%. The contributions of Lao PDR, Brunei Darussalam and Singapore to the fishery production of Southeast Asia in 2019, were minimal in terms of quantity. In terms of value, Indonesia accounted for about 56.9% of the total value of the region's fishery production with Myanmar emerging second contributing about 16.82%, and Thailand came in third contributing about 13.22%. Meanwhile, the Philippines ranked fourth in terms of quantity and value, contributing about 9.52%, and Malaysia which ranked fifth in terms of production quantity as well as value accounted for 3.28%.

Table 21. Total fisheries production of Southeast Asia (by country): Volume (thousand mt) and Value (US\$ billion)

Country	2015		2016		2017		2018		2019	
	Volume	Value*	Volume	Value*	Volume	Value*	Volume	Value*	Volume	Value*
Brunei Darussalam	4.35	6,174	14.11	4,184	15.43	11,029	14.71	8,554	14.66	6,871
Cambodia	731.89	-	808.55	-	857.02	-	943.21	-	969.1	-
Indonesia	22,154.42	9,507,274	23,172.87	11,085,205	22,850.63	15,043,841	23,007.39	13,348,020	22,614.59	14,664,965
Lao DPR	158.6	-	166.88	-	180.78	-	179.1	-	183.9	-
Malaysia	1,998.25	825,651	1,987.68	736,323	1,897.30	815,355	1,672.45	796,148	1,872.80	845,233
Myanmar	5,316.95	3,915,759	5,598.00	4,445,259	5,675.46	4,219,804	5,877.46	3,973,916	5,931.81	4,326,885
Philippines	4,645.87	2,347,013	4,535.76	2,119,257	4,312.66	2,614,365	4,613.07	2,252,843	4,413.13	2,449,890
Singapore	8.16	30,520	7.35	55,803	6.99	33,697	7.01	44,585	7.25	35,213
Thailand	2,429.86	2,634,485	2,425.90	2,779,533	2,386.92	3,009,406	2,456.29	3,292,768	2,488.83	3,401,815
Viet Nam	6,549.70	-	6,803.90	-	7,313.40	-	7,768.50	-	8,270.20	-
TOTAL	43,998.05	19,266,876	45,336.00	21,226,564	45,496.59	25,297,497	46,539.19	23,716,834	46,766.27	25,730,872

Source: SEAFDEC (2020)

*Value: Total of (Marine Capture fisheries + Inland capture fisheries + aquaculture)

The fishery production of Southeast Asia comes from three sub-sectors, which are: marine capture fisheries, inland capture fisheries, and aquaculture. By sub-sector, the total fishery production of the region in 2019 as shown in Table 3 indicates that the largest portion of the production volume was derived from aquaculture accounting for approximately 54% followed by marine capture fisheries at about 39% and inland capture fisheries at 7%. In terms of production value, the trend was quite different as marine capture fisheries accounted for 53%, aquaculture at 39%, and inland capture fisheries at 8% (Fig. 15). While the value per quantity of marine capture fishery products was about US\$ 2,031/MT, those from inland capture fisheries and aquaculture were about US\$ 1,605/MT and US\$ 1,063/MT, respectively. This implies that the global market had started to recognize the value of aquatic products harvested through inland capture fisheries, and had been lately patronizing such products.

Table 22. Production of the fisheries sub-sectors of Southeast Asia in 2019 by quantity (MT) and value (USD thousand)

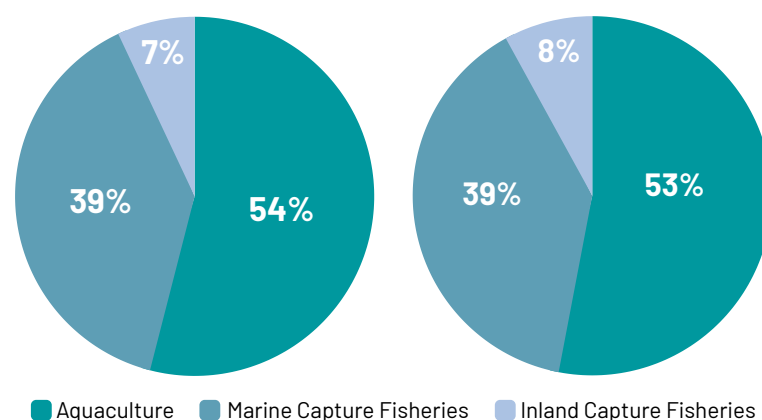
Sub Sector	Quantity (MT)	Value* (US\$ 1,000)	Value/Quantity** (US\$/MT)
Marine capture fisheries	18,167,839	29,343,867	2,031
Inland capture fisheries	3,316,808	4,056,224	1,605
Aquaculture	25,281,627	21,645,304	1,063

Source: Fishery Statistical Bulletin of Southeast Asia 2019 (SEAFDEC, 2022)

*Data not available from Cambodia, Lao PDR, and Vietnam

**Computation of price excludes corresponding quantity production from Cambodia, Lao PDR, and Vietnam

Figure 19. Percentage of the sub-sectors' contribution to Southeast Asia's fishery production in 2019 (left in quantity; right in value)



Marine species provided significant contribution to Southeast Asia's total fisheries production in 2019 include tuna and tuna-like species, small pelagic fishes (scads, mackerel, sardines, anchovies), demersal fish species, crustaceans, mollusks, and seaweeds. These species dominate the fishery exports of the Southeast Asian countries, in terms of highly in demand within the Southeast Asia region and in other regions of the world. Indonesia is the largest producers of marine species. In 2019, the volume of production is about 55.93% to total Southeast Asian regions, followed by Myanmar 18.27%, Malaysia 9.44%, Philippines 8.88%, Thailand 7.26%, Brunei Darussalam 0.18%, and Singapore about 0.03%.

Inland capture fisheries identified as the major source of livelihoods of peoples living in rural areas and improved incomes of rural households in Southeast Asia, and make use of natural inland waters that include vast river systems and lakes, reservoirs, dams, floodplains, and wetlands. Indonesia has more than 256 million ha of inland water bodies, followed by Myanmar with more than 82 million ha, Thailand with more than 66 million ha, and the Philippines with more than 12 million ha. In terms of production value, in 2019 only Indonesia, Malaysia, Myanmar, Philippines, and Thailand had reported their figures. The biggest producer is Myanmar about 61.14% to total Southeast Asian region, followed by Indonesia 28.49%, Thailand 5.57%, Philippines 4.26%, and Malaysia about 0.54%.

Aquaculture had grown dramatically, the total world's production from aquaculture in 2019, approximately 21.05% was contributed by the Southeast Asian countries. Aquaculture production had increased rapidly, therefore plays important roles in providing source of protein, contributing to food security, enhancing people's livelihoods, providing income and employment, as well as improving economic growth (SEAFDEC, 2020). From 2015 to 2019, the total production of aquaculture in the Southeast Asia region had continued to increase at an annual average rate about 1.5 thousand mt or 7.2 %. By country, Indonesia is the largest producer in 2019 contributed about 62.34%, followed by Thailand 14.66%, Philippines 10.51%, Myanmar 8.51%, Malaysia 3.79%, Singapore 0.16%, and Brunei Darussalam 0.03%.

Indonesia is the largest archipelagic country in the world. Indonesia has 17,499 islands with a total area of Indonesia of about 7.81 million km². Of the entire region, 3.25 million km² is the ocean, and 2.55 million km² is the Exclusive Economic Zone. Only about 2.01 million km² is landmass. Indonesia has an immense potential of aquaculture land of 17.91 million ha which includes freshwater cultivation land of 2.8 million ha (15.8%), brackish aquaculture land of 2.96 million ha (16.5%), and sea cultivation land of 12.12 million ha (67.7%) (Ministry of Maritime Affairs and Investment, 2020).

Covid-19 pandemic is claimed to be the main cause of world trade disruption today, not least the trade in fishery products where the total value of global fishery product exports reached USD152 billion or decreased by 7% compared to 2019. However, when all major exporters of fishery products have also experienced a decline in export value, the good news is that Indonesia's exports of fishery products have actually increased and Indonesia rose 2 places to be in the 8th position in the world's top exporter of fishery products in 2020 (KKP, 2021).

The ITC Trade map data showed that Indonesia’s fishery products export value in 2020 reached USD5.2 billion or grew positively by 5.7% compared to 2019. In contrast to Indonesia, most of the world’s major exporters of fishery products experienced a significant decline compared to 2019, such as China down 7.8%, Norway down 7.5%, Vietnam down 2.1%, India down 15.1%, Thailand down 2.2%, and Ecuador down 1.5%.

The destination countries for exporting fishery commodities include the United States (US) which recorded transactions amounting to USD1.1 billion or 44.4% of the total export value. Followed by China at USD382.9 million or 14.8% of the total export value and Japan at USD278.9 million (10.8%). Then ASEAN countries amounted to USD270.1 million (10.4%), the EUROPEAN Union amounted to USD132.0 million (5.1%), and Australia at USD55.2 million (2.1%).

Shrimp is Indonesia’s main export commodity. The export value of this commodity reached USD1 billion or 40.1% of the total export value. Then Tuna – Skipjack – Cob amounted to USD334.7 million (12.9%), Squid – Cuttlefish – Octopus amounted to USD268.6 million (10.4%), Rajungan – Crab amounted to USD256.6 million (9.9%), Seaweed at USD144.6 million (5.6%) and Layur at USD44.2 million (1.7%).

Meanwhile, Fishery’s Gross Domestic Product (GDP) in the second quarter of 2021 jumped by 9.69 percent. The contribution of Fisheries GDP to the national economy in the second quarter of 2021 amounted to Rp118 trillion, up from the previous quarter of Rp109 trillion.

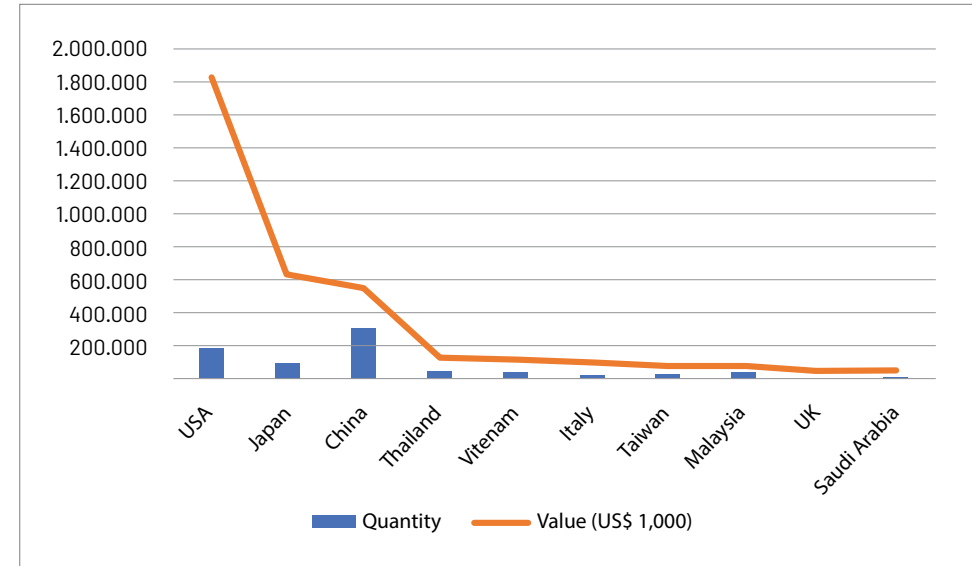
Central Java Province has great potential for the capture fisheries sector in Indonesia. The total volume of the province’s capture fisheries in 2020 was 4th nationally at 391 thousand tons with a value of around Rp 5 trillion. As for aquaculture, Central Java is in 8th place with a total volume of 510 thousand tons with a value of Rp11 trillion (BPS, 2021).

Rembang Regency itself is the district/city with the largest contribution to the capture fisheries sector in Central Java Province. In 2020, Rembang produced a capture fishery value of Rp 1.32 trillion. The area of Rembang Regency which amounts to 35.5 percent of the coastal area, is a very high potential for the economy in Rembang and Central Java Province. Therefore, Rembang and Semarang (the capital of Central Java and the fishery region) are representatives of the fisheries sector for this Global Value Chain research. It is expected that the value chain of each fishery stakeholders in these areas can describe the actual conditions of fisheries in Indonesia.

5.3.3 Governance analysis of fisheries in Indonesia

Indonesian government continues to improve its policies to enhance the living standards of fishermen and boost investment in the fishery sector. These policies include the opening of six sub-sectors in the fish processing industry to foreign investment, the provision of fishing equipment, storage and processing foreign investment, the provision of fishing equipment, storage and processing facilities such as modern ships and cold storage and facilitating access to financing (Putranti, 2016).

Figure 20. Value (US\$1,000) and quantity (t) of top countries destination of major fish and fishery products exported by Indonesia in 2018 (ranking based on value)



	USA	Japan	China	Thailand	Vietnam	Italy	Taiwan	Malaysia	UK	Saudi Arabia
Q	188,020	98,194	312,785	48,865	42,600	18,862	30,289	42,643	9,199	12,230
V	1,817,230	634,695	559,101	131,393	121,612	108,554	89,260	79,943	56,047	54,162

Source: MMAF of Indonesia, 2019

The Ministry of MAF issued a moratorium on ex-foreign vessels in November 2014 which were banned from fishing in Indonesian waters with those violating the policy facing the threat of having their ships sunk; often in rather public ways. As a result of this policy, many ex-foreign ships fled the country which resulted in a decline in exports to countries whose fishing boats engaged in illegal fishing including China, the Philippines, and Thailand. In 2018, China was the largest importer of Indonesian fishery products. The country accounted for 38.92% of total Indonesian fishery exports, followed by USA 23.39%, ASEAN Countries 20.46%, and Japan 12.22% (SEAFDEC, 2019).

Increased government support

As a maritime country with two-thirds of its territory consisting of sea; Indonesia’s fishery sector has been sorely neglected in the past. The marine and fishery sector’s contribution to gross domestic product of Indonesia is still small, only 3.57% in 2014 with growth of only 0.6% over the previous three years. This dire state is beginning to improve under the Widodo administration. In 2016, the government allocated 13.8 trillion IDR in the 2016 State Budget (APBN) for the Ministry of MAF, up 31.4% from the budget allocation in 2015.

Minister Susi Pudjiastuti has issued a number of policies in support of fishermen and the sustainability of the fisheries sector in Indonesia since her induction as the minister. One of her controversial yet widely applauded policies is the eradication of illegal fishing by sinking illegal foreign vessels. This policy has managed to increase the national fish supply by 240%, which in turn increases the catch of local fishermen. The demand for fish from Indonesia among global export markets has also risen, in line with the drop in fish production in neighboring countries (Putranti, 2016).

In 2020, the government has prepared a number of policies to help support the Indonesian fishery industry. One such policy, among others, is the construction of new ports in fish production centers so that fishermen can directly export their catch without having to transport them first to large ports in Indonesia.

Policy Direction and Strategy 2020 – 2024 from MMAF of Indonesia:

- I. Improve communication with fishermen, simplify licensing, develop fishing ports, regulate fishing up to the EEZ and the high seas, as well as protect and empower fishermen to increase fishermen's income.
- II. Aquaculture is optimized and strengthened to absorb employment and provide sources of animal protein for public consumption.
- III. To awaken the marine and fishery industry through meeting the needs of industrial raw materials, improving product quality and added value, to increase investment and export of fishery products.
- IV. Management of marine areas, coastal areas and small islands as well as strengthening supervision of marine and fishery resources and fish quarantine through coordination with relevant agencies.
- V. Strengthening human resources and marine and fishery research innovation.

This policy direction and strategy enclosed with the mainstream of gender focus, sustainable development, social culture capital, and digital transformation.

Although the Indonesian government has taken various steps to enhance the local fishery sector, a number of problems remain. One of the major weaknesses of Indonesia's fishery sector is that 95% of the 2.2 million people engaged in the sector are traditional fishermen. These fishermen lack the resources and capital to explore the huge potential of Indonesian aquatic resources. The majority of fishermen still use small boats and traditional equipment, which prevents them from going in to deep waters which results in lower catch volumes. They also have minimum access to finance as banks are generally reluctant to extend credit to the fishery sector, especially small hold players, due to the high level of bad debts, which reached 11.76% (Putranti, 2016).

Banks are more interested to disburse loan to the fish processing industry rather than the capture fishery or aquaculture industry. This is understandable given that the economic value of the fish processing industry reached 115 trillion IDR, far greater than the capture

fishery and aquaculture sectors of 70 trillion IDR and 75 trillion IDR, respectively. Other constraints faced by the Indonesian fishing industry are the lack of infrastructure, technology and equipment such as ports, container ships and cold chain systems such as a cool box, ice factories and cold storage. As a result, fishermen do not have the bargaining power when it comes to choosing a market their catch which resulted in lower incomes (Putranti, 2016).

Lastly, other major obstacles that hinder the growth of the fisheries sector is the low level of fish consumption in Indonesia, which in 2011 was ranked 5th in the ASEAN at 32.25 kg/capita/year. IN 2017 the number increased by rank four regarding to ASEAN Countries at 44.7 kg/capita/year. This is in contrast with national fish production which ranked number one in the ASEAN. In addition, the Indonesian palate tends to favor fresh and dried fish. As a result, it is difficult for fishermen to add value to their catch or the fish processing industry that produces fish meatballs and nuggets to thrive. This trend however is likely to change as the ranks of middle class continue to grow and the preference grows for frozen breaded fish and seafood from modern retail markets that offers greater convenience.

Issues on Fisheries Trade (SEAFDEC, 2019):

- IUU fishing by foreign vessels in the EEZ of Indonesia – the country lost around US\$ 3-20 billion/year because of IUU fishing and other associated activities such as money laundering, human trafficking, tax fraud as well as smuggling of illegal drugs, weapons, and endangered species
- Human trafficking – a prevailing issue associated with IUU fishing which was aggravated because of weak rule of law, inadequate data on violators, limited coordination among international actors, and increasing global demand for seafood products at an affordable price
- Foreign partnerships – the country is actively seeking foreign partners to invest in fisheries infrastructure (e.g., ports, cold storage) and reduce import tariff values in order to make Indonesian fish and fishery products more competitive

Indonesia's policy on fisheries

The fishing industry is one of the sectors that is expected to increase the country's economic growth. Thus, to develop independent, strong, to support national interests, Presidential Decree No. 7 of 2016 has been enacted. The purpose of this policy was to improve the welfare of fishermen, cultivators, processors, and marketers of fishery products, absorb labor and increase the country's foreign exchange. The President instructed the Minister of Maritime Affairs and Investment including coordinating and synergizing policies and supervision of national fisheries development activities. One form of support from the Ministry of Maritime Affairs and Investment in national fisheries development is to coordinate the development of the fishery product processing industry.

Both local and central governments do not have regulations related to the economic and

social reality conditions of these fishermen. Local governments have limited authority and only get retribution from TPI activities that tend to be very undervalued compared to the economic value of fisheries activities. The central government burdens fishermen with several regulations related to quotas, exports, fishing areas, fishing gear, and non-tax state revenues. Unfortunately, state revenues both tax and not tax on the fishery sector are still relatively low.

Reform in Indonesia's fisheries law and policy

The policy reform for fisheries in Indonesia (Ikrami, 2017) Closure of capture fisheries to foreign vessels, ex-foreign vessels, and foreign individuals and entities. Indonesia has prohibited foreigners, foreign vessels, ex-foreign vessels, and foreign entities from fishing, working, and investing in the capture fisheries sector. The government has stopped issuing fishing licenses for all vessels built outside Indonesia, meaning that foreign vessels and Indonesian-flagged vessels which were built overseas (also known as 'ex-foreign vessels') are now banned from fishing in Indonesian waters. This stipulated under a series of legislation, including MMAF Regulation No. 58 of 2014, which forbids government officials to issue or renew fishing licenses for the above vessels. Consistent with the 2008 Indonesian Maritime Law, the regulation also prohibits the employment of foreigners as shipmasters or other crew members of Indonesian fishing vessels. It further provides for disciplinary sanctions against officials who beach the Regulation. Under the 2016 Negative Investment List, the capture fisheries sector is completely closed to foreign investment, since the sector may only be run using 100% domestic capital. Despite this ban, foreign investment is still allowed on aquaculture, as well as marketing, distribution, and export of non-capture fishery products, insofar as the investors partner with local small and medium enterprises or cooperatives.

Under MMAF regulation No. 57 of 2014, the government bans transshipment at sea, that is the practice of landing fishery products in places other than the designated ports. Those engaging in transshipment are subject to revocation of their licenses.

5.3.4 Local Institutional Context

Gender dimension on the fisheries value chain in Indonesia

At the global level, women represent nearly half of the workforce in the fisheries, aquaculture, seafood processing, and related services sectors. In Indonesia, women represent 42% of the workforce in the fisheries sector. Most fish marketers are female, including at ports (72%). Four percent of fishermen are women. Many female fishermen use non-motorized boats and the majority are not legally recognized as fishermen. Their important role is also often overlooked in management or policy processes. Lack of recognition for the role of women fishermen can have a bad impact on the fisheries sector and the economy (WRI, 2020).

Table 23. World employment for Fishers and fish farmers, by region (thousands)

Fisheries and aquaculture	2015	2018
Africa	5,067	5,407
Americas	3,193	2,843
Asia	49,969	50,385
Europe	453	402
Total	58,682	59,037

Source: FAO, 2020

In 2018, an estimated 59.51 million people were engaged in the primary sector of fisheries and aquaculture, 14% of them are women. In total, about 20.53 million people were employed in aquaculture and 38.98 million in fisheries. Overall, total employment (including full-time, part-time and occasional work status) in the primary sector has grown slightly, following measured increases in both fisheries and aquaculture employment. The highest numbers of fishers and aquaculture workers are in Asia (85% of the world total), followed by Africa (9%), the Americas (4%), and Europe and Oceania (1% each). Asia continues to grow in terms of employment in the sector, albeit at a more measured pace with its large absolute number of people employed in the primary sector of aquaculture and fisheries (FAO, 2017).

Globally, the proportion of women in the total work force in aquaculture (19%) is larger than that in fisheries (12%). Overall, women play a crucial role throughout the fish value chain, providing labor in both commercial and artisanal fisheries. Where appropriate technologies and capital are at their disposal, they also act as a small-scale entrepreneur, particularly in household-level cottage operations. In most regions, women are less involved in offshore and long-distance capture fishing. In small-scale coastal fisheries, women are generally responsible for skilled and time-consuming onshore tasks, or they manage the smaller boats and canoes going out for fishing (FAO, 2017).

Aquaculture is being promoted as a significant growth sector, and as an activity that can empower women and young people, notably by facilitating women's decision-making on the consumption a provision of nutritious food (FAO, 2017).

In Indonesia, Law No. 7/2016 protects fishermen regardless of gender identity (defined as "fishermen"). However, in practice, the term "fisherman" tends to apply only to male fishermen. This is due to social and cultural norms that view women as housewives and men as breadwinners. Women are generally only seen as fishermen's wives or engaged in fishing activities as part of their household duties, without being paid. As a result, men tend to engage in high-end value chain activities such as fishing, transportation, distribution, and intermediary trade, while women hold roles in lower-end value chains, such as valuation, sorting, and sale of fish in the market (WRI, 2020).



WRI's (2020) research also shows that the work done by women during the pre-harvest and post-harvest periods is also quite a lot, most of female fishermen work more than 17 hours a day, and unfortunately, the work is unknown. Pre-harvest work varies from repairing nets to preparing food and logistics before traveling. Meanwhile, post-harvest activities include handling fish, processing catches, to fish marketing. Women also play an important role in the fishery's economic chain through fleet financing, recording fish catches and bookkeeping, and marketing of fish catches. The environmental conditions where fishermen live generally have poor sanitary conditions, dense settlements, no clean water is available, and there are still MCK in the surrounding rivers. Not infrequently found the location of the establishment is filled with drying fish activities with waste disposal in any place even to the roadside.

Men are predominantly involved in fishing, while women are essentially – but not exclusively – more actively involved in the downstream activities, such as the post-harvest handling, selling fresh fish, processing, storage, packaging, and marketing. In Indonesia, smoked fish plays an important role in everyday diets and is a vital source of small income for many coastal communities. Typically, small-scale fisheries processing is characterized by hot smoking and drying processes, where women are in charge (FAO, 2017).



Case Box 7

Fisheries Value Chain in Central Java Province

As one of the cities with the largest fisheries contribution in Central Java Province, Rembang has enormous fisheries potential with the length of the coastline, variety of catches, government support, and organizational awareness. The city is considered to be able to represent the condition of fisheries in Central Java, where the province itself can also be a representation of Indonesian fisheries. Semarang, the capital of Central Java, is part of the depiction of traditional fishers in Indonesia with all their limitations.

In general, the value chain of fisheries in Rembang and Semarang can reflect injustice for all categories of fishers. In the context of employment in local institutions, workers and small fishers do not receive welfare guarantees in contracts, decent working hours, standard wages, and insurance. On the other hand, large fishers and their employer have difficulty accessing financing, obtaining trade payments, and licensing due to the government's administrative policies that are still very poor and unorganized.

As a large fisher's regulator, the central government worsens the condition of fishers due to limited quota regulations, slow licensing, and non-tax revenues that target gross catches instead of net profits. Local governments with limited authority are also unable to provide the main convenience to fishers in terms of smooth payment, resulting in protracted cases of trade debt. Even though cash flow is one of the important points in this routine work, these fishermen also did not receive special assistance from the government when the expected subsidies were not on target.

In terms of governance, fisheries describe buyer drivers characterized by the powerful role of retailers or intermediaries with much better scale and market information supported by strong capital and technology in dictating the chain. These middlemen are highly successful in adjusting standards and protocols even though they do not have production capabilities. This type of governance reflects market governance where there is little formal cooperation between actors and the low cost of switching partners.

The supply chain of capture fisheries in Rembang is organized and has a relatively well-structured flow. The catch of medium and large fishers already must go through the Fish Auction Place (TPI = Tempat Pelelangan Ikan), spread across 11 places along the Rembang coast. TPI becomes a central location for anglers to sell and distribute fish catches to buyers who are all collectors or middlemen (retail and large). In this TPI, fish prices are formed through the auction process to follow the level of demand and supply, which powerfully describes the market mechanism.

Furthermore, through intermediaries or wholesalers and exporters, fish will obtain the process of increasing the added value. This is because most intermediaries have significant capital and relatively more perfect information related to facilities, infrastructure, and market networks to maximize fish's competitiveness (quality and quantity).

From the aspect of the local institutional context, the fisheries sector still illustrates the economic and social inequality between actors and fellow actors is enormous. Anglers have the highest job risk, but most of them still get meager job incentives and guarantees. Many factors influence this, such as natural phenomena, technology, education and skills, regulation, capital access, and lifestyle. Among the anglers, boat owners get the highest added value. Meanwhile, traders and exporters as intermediaries have the lowest risk with the most profit margins. Fisheries stakeholders have now begun to have and develop organizational awareness so that these fisheries actors can exchange information and cooperate in improving economic and social welfare together more evenly.

Fellow fishers are also experiencing income inequality. Of course, the worst cases found in fishers (labor) and small fishermen (capacity below 10 gross tonnage/GT). Every day, their lives seem to surrender to gambling. They did not have the facilities qualified to fight the fate of having to pull out of the sea a third of the year. They have to go out for four months every year because of the fish starvation season, and they are all just unemployed. With no income, they mortgage their work 8 months earlier and are in debt to their employer.

It is lame with advanced medium (10–30 GT) and large (above 30 GT) fishers who do not have to rely on the season. They have the capital and technology to harvest fish at any time. Therefore, they are certainly more prosperous with higher incomes. The distribution of fish catches also has provisions, and fish workers only get the right to half of the total catch. Half of it belongs to the shipowner. No matter how much they catch and how much labor they deploy, the distribution remains the same.

In Rembang (Central Java), women are performing job such as picking seaweed, rebon shrimp, installing nets, pulling nets from the beach, and cutting fish. Wages are divided based on their catch and will be paid with fish instead of cash money. The wives of fishermen mostly performing job like processing the fish into fish nuggets, sambal (Indonesian spicy sauce), and etc.

The thing that attracts attention and worries from the lives of fishermen in Rembang is that they have very low financial literacy, where the money generated from fishing tends to be spent immediately, such conditions can certainly harmful when the weather is bad, or when problems occur that forbids them fishing. But the fact is, they will have no money for a living when they do not go out and fish.

In Semarang, the condition of fisheries and fishers is much worse. Fishers in Semarang are mostly traditional fishers. Their fishing capacity is small. They go to

the sea and catch fish every day, which is performed by themselves or a maximum of two people in a small boat. Often the catch is depleted because of the cost of fishing, sometimes the catch is even less. Coastal fishing villages are also frequently affected by tides, often high in the first half of the year. Government assistance is minimal; even the rights to the diesel subsidy that should have been aimed at them never reached their hands, disappeared somewhere.'

In fisheries sector in Indonesia, in the context of employment in local institutions, workers and small fishers do not receive welfare guarantees in contracts, decent working hours, standard wages, and insurance. On the other hand, large fishers and their employer have difficulty accessing financing, obtaining trade payments, and licensing due to the government's administrative policies that are still very poor and unorganized. As a regulator, the central government worsens the condition of fishers due to limited quota regulations, slow licensing process, and non-tax revenues that target gross catches instead of net profits. Local governments with limited authority are unable to provide the main convenience to fishers in terms of smooth payment either, resulting in protracted cases of trade debt. Even though cash flow is one of the important points in this routine work, these fishermen also did not receive special assistance from the government when the expected subsidies were not on target.

5.3.5. Upgrading in fishery commodities

The fishing industry plays a vital role in the lives of millions of people in the world, and is one of the main sources of food and livelihood for many. It accounts for a significant percentage in global trade of agriculture commodities. Although fisheries production from 2015 to 2019 had grown at a slow rate and which had a tendency to be stagnant, aquaculture production had grown dramatically to serve the demand of the world. Such scenario had enabled the fishing industry to improve the fish supply for local consumption, which was decreasing because of increases in world population and the rising export growth. According to (FAO, 2020), 87.6% (156 million mt) of the global fish production in 2018 was used for human consumption. Of the portion not consumed by human, 12.4% (22.1 million mt) was destined from non-food products (FAO, 2020).

The fisheries and fish processing industry in Southeast Asia had shown tremendous growth over the past decades, because of the extension of cold chain distribution systems, diversification of fish processing techniques, and advances in quality control hygiene and sanitation management. Fisheries and aquaculture production is highly diversified in terms of species, processing and product forms destined for food or non-food uses.

As fish is a highly perishable food, particular care is required at harvesting and all along the supply chain in order to preserve fish quality and nutritional attributes, and to avoid contamination, loss and waste. In this context, many countries employ preservation and packaging to optimize the utilization of fish, increase shelf life and diversify products. Moreover, improved utilization of fisheries and aquaculture production reduces loss and waste, and can help reduce the pressure on the fisheries resources and foster the sustainability of the sector (FAO, 2020).

In recent decades, the fish sector has become more complex and dynamic, with developments driven by high demand from the retail industry, species diversification, outsourcing of processing, and stronger supply linkages between producers, processors and retailers. Expansion of supermarket chains and large retailers worldwide has increased their role as key players in influencing market access requirements and standards. Moreover, expansion in the global marketing, trade and consumption of fish products in recent decade has been accompanied by a significant development in food quality and safety standards, improved nutritional attributes and loss reduction. To meet these food safety and quality standards and ensure consumer protection, stringent hygiene measures have been adopted at the national, regional, and international levels, based on the Codex Code of Practice for Fish and Fishery Products (Codex Alimentarius Commission, 2016) and its guidance to countries on practical aspects of implementing good hygiene practices and the Hazard Analysis Critical Control Point (HACCP) food safety management system (FAO, 2020).

Down streaming is a part of the process of increasing added value to a product that involves aspects of research and human resources. Added value is obtained from a product from pre-production, production, processing and distribution activities by making maximum use of the parts that can be utilized optimally. The role of human resource research and development will greatly affect the increase in added value that is economically profitable. The value-added principle is directed in accordance with the blue economy concept i.e., nature's efficiency, zero waste, social inclusiveness, cyclic system of production, innovation and adaptation. Hence, research and development are critical elements (Coordinating Ministry of Maritime and Investments, 2020). Upgrading skill at the fishermen level is to process fish to become variant processed products such as sausages.

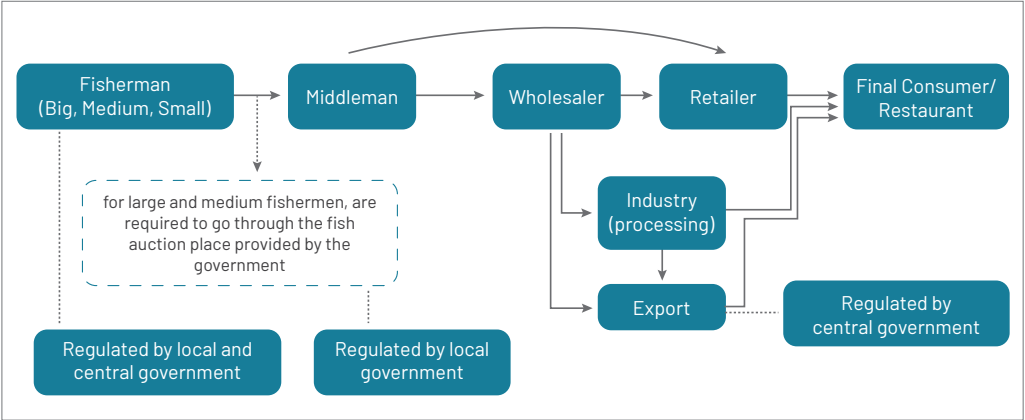
In many developing countries, fish processing had evolved from traditional methods to more advanced value-adding processes, depending on the commodity and market value. Growth was observed in the share of production destined for human consumption in frozen form and in prepared or preserved forms. Fish commercialized in live form is principally appreciated in east and Southeast Asia, and in niche markets in other countries, mainly among the Asian communities. In some cases, fish is also used to produce traditional fish products of the Southeast Asian region, i.e. fermented fish and fish sauce. Nonetheless, information on the region's data on disposition of its fisheries production, is not complete

because only two countries provide the relevant information, namely: Brunei Darussalam and Indonesia.

5.3.6 Industry Stakeholder

Fisheries in Rembang and Central Java are dominated by small fishermen with characteristics of short sea duration, shallow fishing gear, and only 1-2 crew members or workers. In addition, crew members on medium and large vessels also include small fishing groups. However, despite the large number, the ship owner as the financier are the main actor.

Figure 21. Fisheries Global Value Chain



Source: Authors

Based on Fig.4, the chain of fisheries sector in Indonesia are classified as:

Fisherman: Indonesia’s fishery sector is about 95% of the 2.2 million people engaged in the sector are traditional fishermen. These fishermen lack the resources and capital to explore the huge potential of Indonesian aquatic resources. Most of fishermen still use small boats and traditional equipment, which prevents them from going into deep water which results in low catch volumes. They also have minimum access to finance as banks are generally reluctant to extend credit to the fishery sector, especially small hold players, due to the high level of bad debts, which reached 11.76% (Global Business Guide Indonesia, 2016)

Middlemen: Based on regulation of the MMA of the republic of Indonesia number 26/ permen-kp/2016 concerning guidelines for the nomenclature of local equipment and work units on province and district/city regional appliances implementing government

affairs in the marine and marine fishing sector, article 17 concerning the formulation and implementation of policies and regulation evaluation of policies on empowerment of small fishermen and small fish farming businesses, issuance of SIUP in the field of fish cultivation whose business is in 1 (one) district/city, management and operation of Fish Auction Places (TPI), and fish farming management. The entire process of buying and selling when the ship is anchored carrying the fish catch will be processed at the auction place and the buyer is ready to make a purchase from the agreed price from the auction process.

Wholesaler: These wholesalers have a role in collecting large quantities of fish because they often already have partners to distribute fish through retailers such as markets or restaurants, processing industries, to exporters abroad. Often wholesalers already have a network with many intermediaries distributed to various fish auction places to buy fish from fishers. They do not have a specific contract and are pure as a channeling party. Their activities get the most value chain because their network can bring together the right buyers and sellers supported by very large infrastructure and capital. Unfortunately, in Indonesia, their practices are not subject to special taxes, and the government relatively does not get the cake from their business activities except for export activities.

Retailer: Retailer is a merchant who sells fish to end consumers. Generally, they are sellers in the market and are often part of the derivative network of the wholesalers.

Industry: Industries are relatively varied because they can be restaurant industries, supermarkets, hotels, or processing industries for derivative products such as flour, fish feed, or canned food. The industries often already contracts with wholesalers to get supplies, and as a food processing company, they already have a network to channel products to the market.

Export: Fish exporters are parties who distribute fish abroad. These exporters must have a license and comply with rigid government regulations regarding the fisheries sector. Often these exporters come from direct wholesalers who get orders from consumers or overseas industries. These exporters also do not have a fixed contract and will export if the production capacity follows foreign parties' demands

Final Consumer/Restaurant: The end consumer or restaurant is the last party in the fish value chain. They get fish products from much fresh fish and processed fish sources. Of course, as final users, they tend to spend the most costs on consuming fish.

5.4 Global value chain of coffee in Vietnam

5.4.1 Input-output structure

In processing IO tables, using global tables is not profitable for coffee commodities. It is true that ASEAN, especially Vietnam and Indonesia, is among the world's largest coffee-producing and supplier countries. However, the availability of value chain data that reflects this stand-alone commodity seems to be very limited, more limited than rice and palm oil. Therefore, in proxies, this coffee commodity is constrained by data that may exist in each country but is not standardized, which causes comparative studies such as this study, very limiting.



Table 24. Industrial Contribution, Input, and Output Structure of Coffee Commodity, 2018

Country and Sectoral Code	Commodity Proxies	Products/ Industries/ Sectors	Total Output (Million USD)	Contribution to Economy (%)	Output Structure		Input Structure	
					Intermediate Demand (%)	Final Demand (%)	Intermediate Input (%)	GVA (%)
Indonesia								
IDN_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	142.726,1	7,48	60,06	39,94	25,19	74,81
IDN_10T12	All	Food products, beverages, and tobacco	160.201,6	8,39	23,27	76,73	64,61	35,39
IDN_45T47	All	Wholesale and retail trade; repair of motor vehicles	196.028,3	10,27	45,92	54,08	29,77	70,23
IDN_55T56	All	Accommodation and food service activities	63.174,1	3,31	13,91	86,09	53,17	46,83
The Philippines								
PHL_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	52.432,0	8,36	58,40	41,60	30,26	69,74
PHL_10T12	All	Food products, beverages, and tobacco	84.552,3	13,48	41,90	58,10	63,02	36,98
PHL_45T47	All	Wholesale and retail trade; repair of motor vehicles	86.987,2	13,87	52,48	47,52	45,23	54,77
PHL_55T56	All	Accommodation and food service activities	26.072,6	4,16	17,87	82,13	63,59	36,41

Thailand								
THA_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	60.073,4	4,11	60,33	39,67	35,90	64,10
THA_10T12	All	Food products, beverages, and tobacco	88.886,8	6,08	31,03	68,97	73,57	26,43
THA_45T47	All	Wholesale and retail trade; repair of motor vehicles	122.598,1	8,39	52,99	47,01	21,98	78,02
THA_55T56	All	Accommodation and food service activities	46.051,7	3,15	14,88	85,12	61,56	38,44
Vietnam								
VNM_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	78.793,6	9,91	69,98	30,02	62,18	37,82
VNM_10T12	All	Food products, beverages, and tobacco	97.080,1	12,21	50,14	49,86	88,11	11,89
VNM_45T47	All	Wholesale and retail trade; repair of motor vehicles	44.372,5	5,58	64,35	35,65	45,57	54,43
VNM_55T56	All	Accommodation and food service activities	19.411,3	2,44	25,67	74,33	63,15	36,85

Source: OECD'sICIO, 2018 (processed)

In table 23 above, the analysis is similar to the study of rice commodities (the previous subsection), considering that the proxies used are the same. However, coffee commodities in the four countries can be more challenging because their contribution and input-output structure are no more significant than rice. After all, coffee is not a staple commodity. However, coffee not only plays a role in agriculture (01T02) that produces it, but it also seems to contribute a lot to the beverages (10T12) and food service (55T56) sectors.



Table 25. Value and Index of Total Backward and Forward Linkages of Coffee Sector, 2018

Country & Sectoral Code	Commodity Proxy	Industries/ Sectors	Backward Linkage	Forward Linkage	Backward Linkage Index	Forward Linkage Index	Note
IDN_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	1,44	1,76	0,71	0,95	Not Key Sector
IDN_10T12	All	Food products, beverages, and tobacco	2,01	2,84	0,99	0,71	Not Key Sector
IDN_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,54	3,05	0,75	0,86	Not Key Sector
IDN_55T56	All	Accommodation and food service activities	1,90	1,69	0,93	0,57	Not Key Sector
PHL_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	1,50	1,82	0,74	0,78	Not Key Sector
PHL_10T12	All	Food products, beverages, and tobacco	1,85	3,48	0,91	0,84	Not Key Sector
PHL_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,85	3,56	0,90	1,76	Not Key Sector
PHL_55T56	All	Accommodation and food service activities	1,93	2,04	0,95	1,01	Not Key Sector
THA_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	1,68	1,82	0,83	0,90	Not Key Sector

THA_10T12	All	Food products, beverages, and tobacco	2,31	3,17	1,13	1,57	Key Sector
THA_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,42	2,36	0,69	1,17	Not Key Sector
THA_55T56	All	Accommodation and food service activities	2,12	2,18	1,04	0,62	Not Key Sector
VNM_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	2,42	3,06	1,19	1,52	Key Sector
VNM_10T12	All	Food products, beverages, and tobacco	3,38	5,69	1,66	2,82	Key Sector
VNM_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,97	3,08	0,97	1,53	Not Key Sector
VNM_55T56	All	Accommodation and food service activities	2,50	1,66	1,22	0,82	Not Key Sector

Source: OECD's ICIO, 2018 (processed)

Table 24 above shows the value and index of total backward and forward linkage for sectors that are proxies for coffee commodities. The analysis has become much different from the most updated OECD data for 2018, although these four sectors are also in the palm oil commodity proxies. This is due to the key sectors of two countries that do not exist for coffee proxies: Indonesia (IDN) and the Philippines (PHL). This shows that coffee commodities in these two countries are not a key sector for the domestic economy and play less of a role in global supply chains. This can also be interpreted as that although this commodity's backward and forward linkage value is significant and plays a role in the economy, other sectors likely have a much more substantial part.

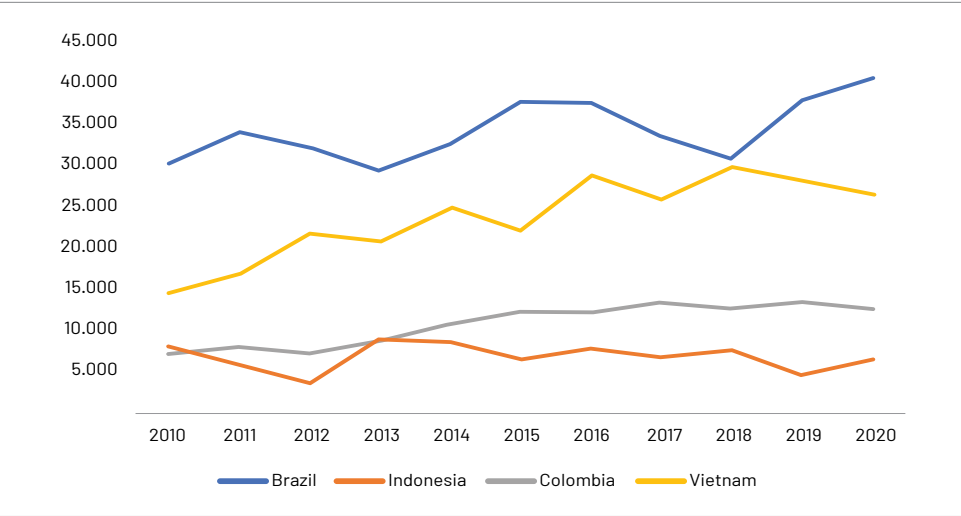
While the other two countries have relatively different values, Thailand has a key sector in food and beverage processing (10T12). At the same time, Vietnam excels and has a key industry for its agricultural products (01T02) and food processing (10T12). Even the forward linkage multiplier for Vietnamese food processing reached 5.69, which can be interpreted

that the increase in this sector by 1 million USD will increase Vietnam’s economy by 5.69 million USD.

5.4.2 Geographical scope

Nowadays, Vietnam is a large coffee producing country in the world. According to Aggro’s statistics, in 2016, coffee exports reached 1.8 million tons, with an export value of up to US \$ 3.4 billion, accounting for nearly 40% of the total agricultural export turnover. Coffee export markets are mainly Germany, USA, Belgium, Italy and Spain (UN COMTRADE, 2021). Vietnam’s market share in the period of 2013-2016 accounted for nearly 19% of the world export output, export value of about 3.4 billion dollars and the second largest coffee exporter, after Brazil (ICO, 2020).

Figure 22. Leading Producers of coffee, 2010 – 2020, (60kg bags)



Source: Authors calculation based on IOC

According to Fernandez-Stark and Bamber (2012), the coffee global value chain has 6 stages: input, production, processing, trade, roasting and marketing which:

Inputs: The production process for coffee requires several inputs, including physical inputs (seedlings, fertilizers and sprays), land and labour.

Production: During the production stage, coffee trees are cultivated on large estates or on small farms and it takes approximately 3-4 years to for a tree to become productive. Nearly 70% of the global coffee supply is produced on small coffee

farms of 1-5 hectares, usually using family labor, although occasionally additional labour is hired during harvesting periods. There are two species of coffee grown for consumption: Arabica and Robusta. Arabica beans are typically considered to impart a superior taste compared to Robusta beans and therefore fetch a higher market price relative to Robusta (ITC, 2011)

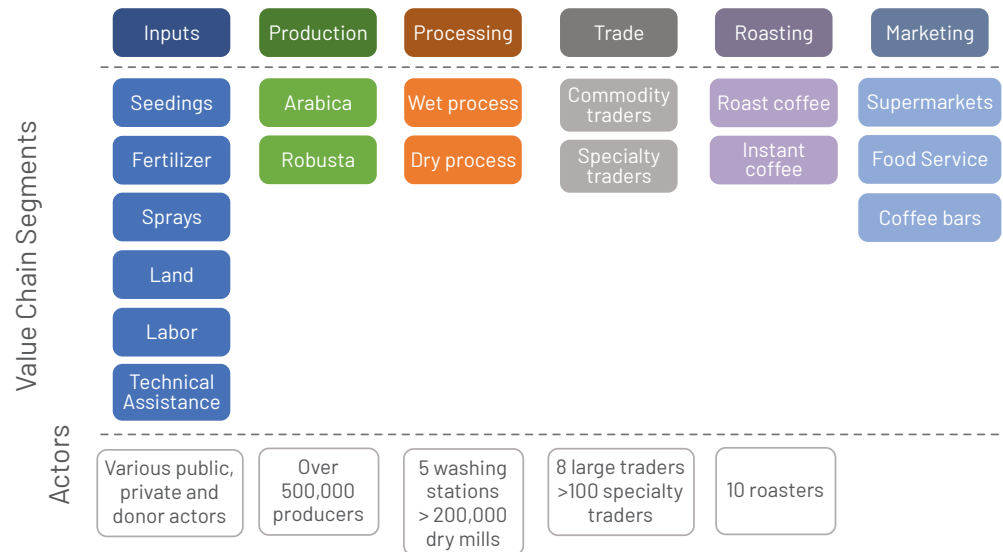
Processing: During this stage, the coffee cherry is cured and milled to remove the fruit from the bean. Curing occurs either through dry or wet processing. Dry processing involves exposing the coffee cherries to the sun to dry for one month, at which point the fruit becomes brittle and can be easily removed from the bean. Under wet processing, the cherry is immersed in water in order to soften the outer layer, and the fruit is removed. Wet processing is typically seen to impart a better flavour to the coffee, which often translates into a higher price. After curing (dry or wet), the bean must then be milled and washed in order to remove any remaining layers of skin or husk, and the resulting product is green coffee.

Trade: More than 80% of green coffee beans are traded internationally, and trading companies play an important role in coffee GVCs (TCC, 2012). Traders purchase green coffee from growers and grower associations and ship the beans to the end-market. Large roasters rarely source beans directly from producers

Roasting: Roasters produce roast coffee beans and instant coffee. The roast coffee market segment includes both blended and origin-specific beans from different traders. Arabica beans are more commonly found in the whole bean and ground segment, while Robusta beans are typically used for instant coffee.

Marketing: The three main channels through which coffee is marketed are retail, the food service industry, and specialty coffee bars. The retail channel makes up 70-80% of coffee consumption, and the main players are supermarket chains such as Tesco, Walmart and Aldi. Retail outlets sell commodity, specialty and certified coffee sourced from large specialty roasters as well as from smaller local and regional niche roasters.

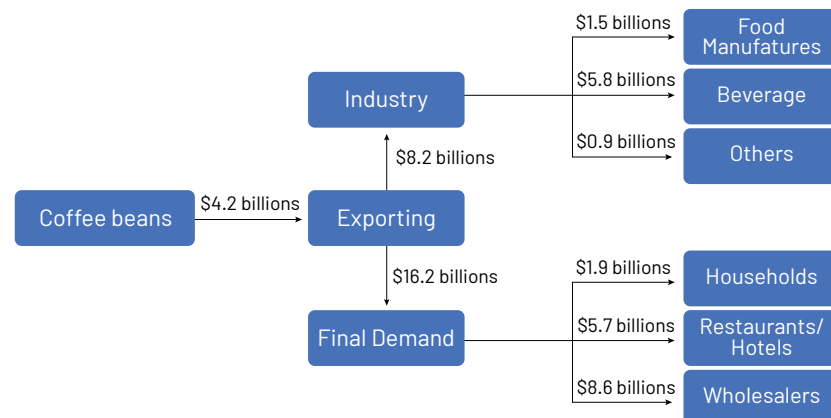
Figure 23. Vietnam in Coffee Global Value Chain



Source: Authors

We also used multi-nation Input-Output (I/O) data in 2016 (EORA Global Value Chain Database) provided by University of Sydney, Australia to analysis the coffee global value chain. Figure 20 shows the calculation of Vietnam coffee value chain. The Vietnam's coffee export value was \$4,2 billion in 2016. After exporting, coffee beans went into the industry as inputs and Final demand as consumption items. The value added of Vietnam's coffee beans for the industry is more than \$6 billions and \$12 billions for the final demand. This result provides a piece of evidence for missing the marketing stages in Vietnam's coffee value chain.

Figure 24. Coffee Global Value Chain of Vietnam, 2016



Source: Authors' calculation

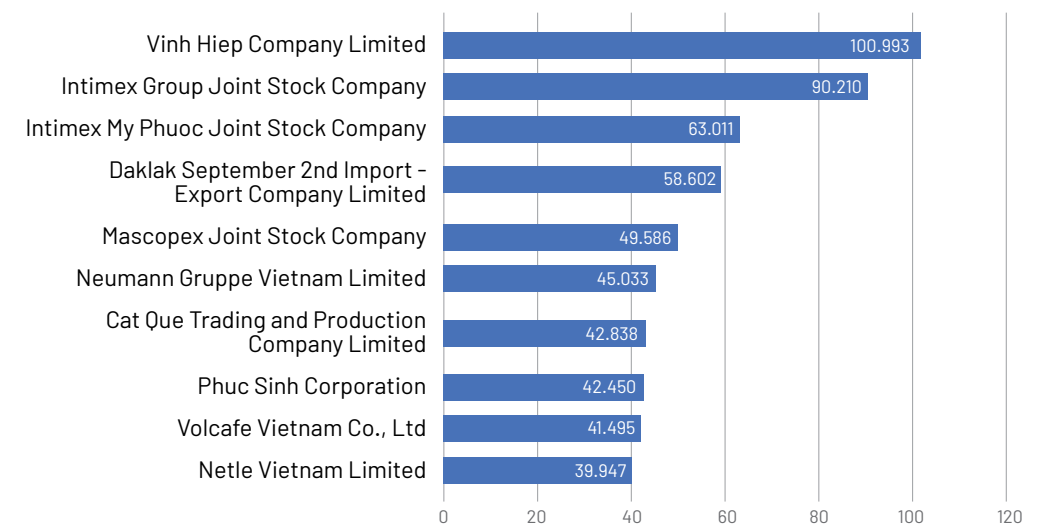
5.4.3 Governance

Among the players in the coffee chain, roasters are the key actors (30%), especially as the roasters are able to generate not only the highest profit margin but to capture the most value along the value chain.

According to statistics of the Vietnam Trade Promotion Agency in 2015, nearly 92% of the total coffee export volume is only preliminarily processed coffee, only more than 8% is roasted and coffee products. Roasting requires scientific techniques which are obstacles of Vietnam players. One of the highlights of this link is the transition from raw coffee beans to high quality coffee beans.

In the supply chain of the coffee industry, instant coffee production must also go through roasting. The 4 largest processing corporations in Vietnam in the period 2010-2016: Nestle Group, Neumann Gruppe Company, Massimo Zanetti Beverage Group Vietnam and Intimex Corporation have made strong investments in the construction of factories with high technology, high productivity for processing and roasting coffee.

Figure 25. Top 10 Vietnamese coffee exporters, 2021



Source: Vietnam Credits

The state's policy for coffee production



The Vietnam government play an important role in regulating coffee production. As a significant exporting product, Vietnam government enacted policies for supporting the coffee production.

- The State Bank of Vietnam has reserved a credit package of VND 12,000 billion to support 5 provinces in the Central Highlands to serve the coffee replanting program in 2018.
- Exempting and reducing of agricultural land use tax.
- Exempting irrigation fees for households and individuals who have land and water surface used for agricultural production.
- Reducing VAT on key inputs for agricultural production such as fertilizers, pesticides, growth promoters, animal feed.
- Exempting import tax for production materials and supplies imported for agricultural, forestry and fishery farming, salt making, production of artificial seeds, new plant varieties and livestock breeds.
- Support to reduce post-harvest losses: State budget support interest rates on commercial loans for long-term, medium-term and short-term loans in VND to buy machinery and equipment in order to reduce losses in agriculture.



Vietnam government also had many special policies for corporates and farmers in coffee production such as:

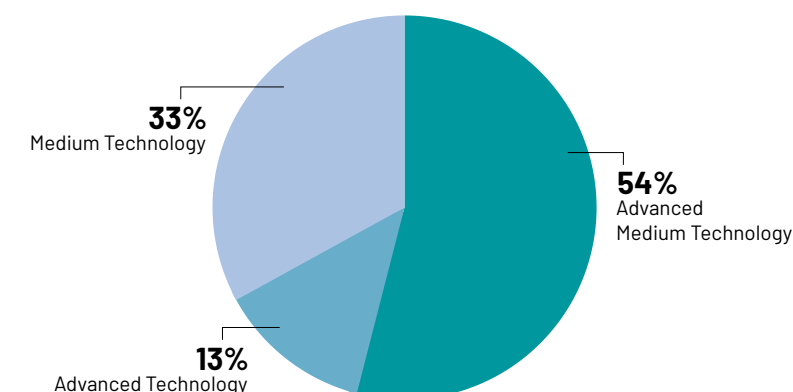
- To be exempted from land use levy or land rent when being allocated or leased land by the State for the implementation of projects to build processing factories, warehouses, houses for workers, public-service houses for the public. large field project.
- Priority is given to participating in the implementation of agricultural product export contracts or the Government's program of temporary storage of agricultural products.
- Partial support for the implementation of the planning, field improvement, completion of the traffic system, in-field irrigation and electricity system for agricultural production in the large-field project.
- Support up to 50% of funding for organizing training and technical guidance for farmers producing agricultural products under contract, including costs for materials, meals, accommodation, travel, and organization of classes

5.4.4 Upgrading

Figure 22 reflects the technological level of coffee processing in Vietnam. For the advanced technology group, it accounted for 12.7 percent. Advanced medium technology accounted for an average of 54 percent, mainly state-owned enterprises and limited

liability companies. Thus, it can be seen that the coffee processing technology in Vietnam is mostly still using advanced intermediate technology and intermediate technology.

Figure 26. The level of technology used in coffee processing in Vietnam in 2019



Source: Vietnambiz, Coffee Market Report Quarter I, 2019 (retrieved from Thang Thi Hong Nhung et.al (2019))

In Vietnam, several businesses are investing in the deep processing industry such as Vinacafe, Trung Nguyen and Nestcafe. Roasted coffee products have several brands such as Dac Ha (Kon Tum), Thu Ha (Gia Lai), Vinacafe and Trung Nguyen. However, the processing technology is still low due to the large investment capital and the low financial condition of Vietnamese companies. Machinery and equipment in the factory are mostly produced domestically. Most factories only process green coffee, and use very little technology to process high quality coffee and export coffee (Nhung et.al, 2019, p 48).

As such, Vietnam's participation in collection and processing in the global coffee value chain is still very limited. The deep processing method to increase the added value of the product has not been widely applied, the processing capacity of instant coffee and roasted coffee is still low.

Based on the analyses of the competitive dynamics of the global sector, Vietnam's position within the coffee GVC, and a review of existing workforce development needs and structures, the following upgrading trajectories are recommended in the short and medium term:

1. Develop a market development strategy, rational adjustment of product structure towards high value added markets.
2. Stabilize the coffee growing area according to the planning; practice sustainable farming practices
3. Focus on improving the quality and diversification of processed products; Building and affirming Vietnamese coffee brand in the international arena
4. Building a modern coffee consumption system, adapting to domestic and international

trading process

5. Innovating forms of production organization, creating links and bonding benefits between farmers, processing businesses and service facilities

5.4.5 Local Institutional Context

Most of Vietnam's employment in the coffee GVC is concentrated in the cultivation stage of the chain, given the high labour intensity in that stage. In Vietnam, we estimated more than 500,000 household are engaged in the coffee production based on Vietnam Household Living standard survey (VLHSS) in 2020. In Vietnam, farmers collect Robusta beans in October and Arabica beans in April so employers in coffee production are seasonal. However, depending on the GVC segments, fluctuations in the global coffee price and weather patterns, which results in producers periodically entering and exiting the industry.

Table 26. Employment in Vietnam by Coffee GVC Segment in 2021

Segment	Full-time employment	Seasonal employment
Production	-	600,000 – 800,000
Coffee washing station	-	300
Dry Mills	100,000	-
Roasting	100	-

Source: Authors

Our interviews indicated that women are involved in both the maintenance of trees and the picking of cherries during harvest, while male often involved in roasting coffee. We also find the income inequality by gender that women often earn lower income than male. Table 2627 shows the average income (VND/hour) of workers in coffee production by gender.

Table 27. Average income of workers by gender in Vietnam (VND/hour)

Type of Job	Male	Female
Harvest	300,000	180,000 – 230,000
Roasting	500,000 – 700,000	400,000 – 500,000

Source: Authors interview

Although Vietnam has strength in coffee production, the value added of Vietnam's coffee industry is very low compared to its position. Coffee farmers – subjects who create fundamental value for the coffee industry, have an unstable life. Facing this situation, it is necessary to increase the added value in the very low-level stages, such as: research and development, roasting, distribution, and marketing (Nhung et.al, 2019, p 451).

Meanwhile, the Rainforest Alliance (RA) and JDE Common Grounds Initiative (2020)

compiled the Origin Issue Assessment (OIA). The OIA is a desk-based 'early warning system' identifying potential issues related to coffee production. It focuses on the probability of occurrence, not necessarily on the severity of impacts. The OIA covers the overall coffee sector, making no distinction between, e.g. (i) smallholders and estates, (ii) sun-dried and washed-coffee, (iii) sun- and shade-grown coffee. The data presented in the Table X below shows several issues compiled by RA and JDE using OIA.

Table 28. Origin Issue Assessment on Vietnam's coffee

Issue	Evidence	Prevailing expert opinion
Youth inclusion	"33% of rural youth workers in Vietnam get their main source of employment from agriculture, although it often involves precarious and low-paid work (OECD, 2017). Multiple sources suggest that projects around youth inclusion in agriculture are ongoing unlike the media (2019) which state that the sector lacks young, educated, skilled and entrepreneurial people. The Vietnam Farmers' Union is now implementing technical training for young farmers and provides access to low-interest loans. High-tech farming innovations are also pushed forward by Microsoft and Vietnet Information Technology through programs such as "Youth Spark Digital Inclusion"."	"Medium-low risk: "When looking at the country's coffee producing regions, it is likely that participation of young farmers is promoted"; "Coffee farming is relatively good business in Vietnam, increasingly recognized by the youth and promoted through vocational schools and trainings" (Expert survey, 2020)."
Gender equality	"Plenty of evidence suggests that women inclusion and gender equality are high on the agenda of e.g. CCAFS, CGIAR and IFC for development and agriculture projects in the coffee sector. Although this might be true for projects, women representation in the workforce remains limited, with an inequality index of 'medium' according to Social Hotspot Database."	"Medium-low risk: "Women partially have equal rights, responsibilities and opportunities"; "In Vietnam, the gender balance is improving although there is still room for improvement regarding female representation in lead positions or in tribal communities" (Expert survey, 2020)."

Child labor	"Coffee is listed on the US Department of Labor's (2018) List of Goods Produced by Child Labor. Though, it is stressed that it's listed in part due to Vietnam's commitment to investigate and combat this issue. The risk of child labor in the agricultural sector remains very high according to Social Hotspot Database with a high percentage (60-80%) of total child labor in agriculture (US SD, 2019). IFC denoted that child labor has been a historic issue in Vietnam, though not reported recently. The incidence of child labor is seen especially during peak harvesting season and within ethnic minority groups (JDE regional insights, 2020)."	"Medium-low risk: "Child labor occurs to a certain extent in the country's coffee producing regions"; "Children sometimes help their families with light work on the field a few weeks per year, during harvest season. This could interfere with their schooling specifically when combined with seasonal migration" (Expert survey, 2020)."
Collective bargaining	"Vietnam has seen its ratings on respect for workers' rights worsen to a level 5 (rank 0 to 5+) in ITUC's Global Rights Index, listing 'no guarantee of rights' and a rise in attacks on workers' rights in law and practice. The Freedom House (2020) ranks Vietnam 1/12 for associational and organizational rights. According to the IFC (2017) there are no known coffee unions in Vietnam. Alternatively, ICO (2019) report that 71 coffee cooperatives have been set up in the Central Highlands and other regions. Unofficial trade unions and forms of collectives are widespread including youth and women's organizations (JDE regional insights, 2020)."	"Medium-high risk: "When looking at the country's coffee producing regions, it is unlikely that workers are fully aware of their rights and duties and that their employers adhere to those rights and duties including the right of collective bargaining"; "Seasonal laborers are integral to the coffee industry, these workers are probably not aware of their rights" (Expert survey, 2020)."
Minimum wage	"Numerous sources including the World Bank, ILO, Fair Wear, Wage Indicator and Media report on inconsistencies and non-compliance in minimum wage payments to workers among men and women in Vietnam. Social Hotspot Database rebukes this and scores Vietnam as 'low risk' in comparing wages in the agriculture	"Medium-low risk: "Most workers are paid the minimum wage or more"; "The minimum wage in Vietnam remains low" (Expert survey, 2020)."

	sector to the country minimum wage. No details concerning minimum wage paid to workers in the coffee industry are found."	
Occupational Health & Safety	"The US SD Country report on Human Rights (2019) for Vietnam states that on-the-job injuries due to poor health and safety conditions and inadequate employee training remains a problem. Farmers' awareness on occupational health and application of personal protection when being in close contact with pesticide has been improved though still is limited (Arafin, 2017)."	"Medium-low risk: "When looking at the country's coffee producing regions, it is unlikely that workers enjoy a safe working environment, where adequate steps are taken to prevent work related injuries"; "Availability and use of protective equipment is limited in Vietnam's coffee sector, where application of agrochemicals is widespread" (Expert survey, 2020)."
Farm & Household economics	"According to a country report by USDA Foreign Agriculture Service, falling coffee prices sometimes push farmers to switch to other cash crops such as black pepper, avocado or passion fruit. Additionally, the majority of coffee farmers still in debt with banks due to previous loans (Media, 2017). Research in the Central Highland's Dak Lak Province suggests that low-quality inputs result in large expenses on bad harvests for smallholder coffee producers (Anh et al., 2019). Unskilled and fragmented labor add to the struggle to meet international requirements for growing coffee, with 4C seen as the baseline production requirement."	"Medium-low risk: "Some coffee farmers are not sufficiently aware of the farm and household economics"; "But, farmers are generally aware of cost/benefit relations and keep basic records of farm business" (Expert survey, 2020)."
Trading relationship	"According to USAID (2017) data sheets, the coffee sector's competitiveness leads to the vast majority of smallholder coffee farmers being in tight value chains with close and stable links to	

	<p>the market. Value chain actors increasingly work together according to the World Bank (2017) and schemes exist by e.g. ICO (2019) to improve small-scale farmers' access to finance. Nguyen & Sarker (2018) offer contrasting evidence from Dak Lak province in that the lives of Vietnamese farmers' have not been improved because of high risks in the production environment and market conditions including risks in price volatility."</p>	<p>"Medium-low risk: "When looking at the country's coffee producing regions, it is likely that coffee sourcing companies facilitate farmers to access key production inputs, such as plantlets, fertilizer and agrochemicals, and to services, such as credit and market information" (Expert survey, 2020)."</p>
--	---	--

Source: Rainforest Alliance, 2020.

The issues of coffee production in Vietnam

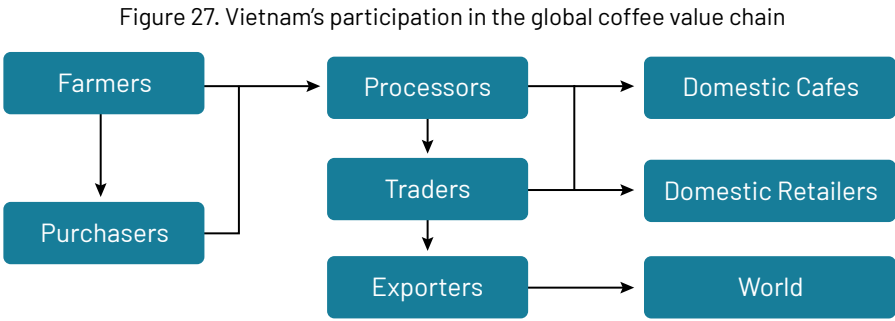
Even a large coffee export country, Vietnam has a difficult in coffee cropping recent years. The global climate change effects directly to the weather in Central Highland, where the largest coffee growing place in Vietnam. It made many coffee trees died because of drought, the others had not bloomed or seeds and fail to grow. Therefore, many Vietnamese farmers cut down coffee trees and replace them with other long-term trees like cocoa.

The water quality in highland is polluting and affect to the coffee washing stations. Some stations had been not accepted to certify the SPS certificates in 2018 and indirectly reduce Vietnam's coffee export turnover.

Since 2019, the costs of coffee production have been increasing rapidly because of the supply chain disruption by COVID-19. Vietnamese farmers are still depending on imported input like seeds, fertilizer, sprays even so the world coffee price has increased since 2020, they had been lost because their cost were higher than revenue.

5.4.6 Industry Stakeholder

Although large companies have often the advantage of purchasing power, distribution, processing, and marketing, research conducted by Nhung et.al (2019) shows that small businesses can compete on specialty products or meet the needs of each market. Vietnam's participation in the global coffee value chain is shown in figure below.



Source: Thang Thi Hong Nhung et.al (2019)

According to Nhung et.al(2019), in Vietnam, the main collection and processing of coffee is the collection and processing of green coffee.

Case Box 8

Processing activities are carried out in households, private collection facilities, and companies

"Processing at home: households after harvesting fresh coffee will dry it. This method results in low and uneven product quality. This method is easy to implement but low cost. In Dak Lak province, more than 90% of households use the drying method or selling fresh fruit. In Vietnam, machinery and equipment for processing in small processing facilities and within households are lacking and incomplete, so most of the coffee harvested will be dried in the yard. However, due to insufficient drying yard area, the coffee beans become too thick or accumulate, which causes insecurity in the drying and initial processing of coffee within 24 hours after harvest. In addition, the labour level for processing is low, mainly based on experience so that the quality of the final coffee is not guaranteed.

Processing at private collectors: The role of private collectors is to mediate the transport of goods from coffee farmers to the coffee processing and export business. Some private collectors are also involved in processing, but only in the form of simple dry processing such as dirt cleaning, dry scrubbing, and polishing. Processing in the company: The processing company mainly follows the dry processing method. Post-harvest processing of export coffee beans is still simple, especially for additional drying, sorting, blending and polishing beans. In particular, the number of green coffee beans is small, only about 6-7% of the coffee exported.”

Source: Nhung et.al, 2019, p 447

In the long term, Vietnam needs to restructure the participants in the coffee value chain towards the establishment of a financially viable coffee business. These enterprises will play the driving role of the whole coffee industry and focus on performing such tasks as specialization, export and marketing, seed research, and processing of specialty coffee products of Vietnam. The state, businesses, and coffee farmers need to work together to overcome the constraints and promote the better performance of Vietnam’s coffee value chain.

[1] For complete report about OIA’s result, see: <https://www.jacobsdouweegberts.com/siteassets/cr/common-grounds—om/origin-issue-assessment—vietnam.pdf>.

Photo by: Creativeart

Chapter 6

Conclusions and Recommendations

Governments need to implement a number of measures to improve smallholders and other marginal actors’ bargaining position on the value chain and ensure that they gain benefits from participating in the GVC.

6.1. Conclusions

Using agriculture and fishery sectors as proxies for GVCs participation, Vietnam has better comparative advantages than Indonesia, Thailand and the Philippines.

Vietnam's input-output values for agriculture and fishery sectors are statistically significant for their domestic economy and for global contribution to the value chain of all four countries. Vietnam has more sectors that act as key role in their economy because of the added values. In addition to playing an interactive role in advancing value chains, this key role provided simultaneous domestic economy improvement, especially in the primary sector. Compared to Vietnam, the output of the agricultural and fishery sector is lower per capita in Indonesia, the Philippines, and Thailand. In these three countries, the output is dominated by the provision of final demand, thus providing less value-added in the intermediate industry.

The GVCs of four commodities in Indonesia, Thailand, Vietnam and the Philippines are buyer-driven chains where upgrading occur mainly at large top firms and those at the bottom did not obtain much benefits/upgrading.

The value chains are dominated by few big players in each industry/commodity who have access to upgrading technology and sizeable capital to add values to the produce. In the GVC, inclusiveness occurs when all actors especially those at the downstream level get equal benefits from the production process. The study found that the four commodities' value chain are not inclusive and distribution of benefits is unfair, with only meagre increase of value at the upstream. In the case of oil palm, upgrading occurred but the dependence of smallholders or plasma-farmers to agribusiness is still too high. In rice, upgrading did not occur because policy interventions are more on controlling rice prices, seed quality, rice planting cycles. In fishery, governments have made efforts to upgrading by providing business assistance but it was not equally distributed. Many fishermen still work traditionally with limited production. Overall, upgrading takes place at the intermediate level where wholesalers and retailers have more capacity and resources to do so (e.g. access to capital and technology). In most cases, big players determine the prices and the quality standards of the commodities. As a result, albeit participating in the GVCs, actors such as smallholding farmers, fishermen, labourers, MSMEs and women in general have narrow spaces for bargaining or influencing the GVC processes meaningfully.



Gap of capacities and distances between big players at the top of the value chain and those at the bottom end created spaces for intermediaries to fill the gap.

For instance, farmers and fishermen often did not understand how to calculate harvest or catches because of their low educational attainment and financial illiteracy. This created opportunity for exploitation by middle level wholesalers and retailers while those at the bottom of the chain had very weak bargaining position. In some worst cases, it had caused indebtedness for these marginal actors. In rice commodity for instance, as Asian population increases, demand for rice increases, but farmers did not benefit from it. Rice import and export processes are conducted by international trading companies and they also act as financial intermediaries between buyers and sellers. These trading companies also play the roles as milling station and paddy traders. As a result, farmers as the main producers did not get the added value from their produce. Similarly, in fisheries, fisherman was exploited by middle-level wholesalers and retailers. Fishermen did not get the added value from what they produced and they also lack access to public facilities and government assistance.

Asymmetrical production relations, including labour relations between the state, corporate and marginal groups.

These are in regards to land ownerships, access to global market and taxes, among others. For instance, in palm oil sector in Indonesia, big corporates and state-owned plantations continued the unfair one-sided practices of setting prices and holding wages (hence, debts) in non-transparent ways. Policies (national and sub-national ones) sometimes even perpetuating these bad practices. Smallholding farmers must pay taxes and rents (even for their own land or their communal land) to large corporate and state-owned companies who 'owned' the land legally. Farmers can mainly access global market through corporate by becoming plasma farmers (part of corporate production chain). While plasma farmers have more security due to institutional governance, independent farmers are unfairly marginalized and experience multidimensional poverty. Palm oil workers do not have decent working conditions as they are paid less than a living wage, lack measures to keep their health and safety, restrictions on their freedom of association, no clear working contracts, and sometimes forced to work as forced labor. In some cases, child labor is still in practice. Workers in coffee industry in Vietnam also faces the problem of indecent working conditions.

Women play a prominent role in all commodities but they are but lack of recognition and received less benefit from the value chain. Women have a quantitatively significant role in all commodities. However, the absence of formal recognition for women as one of the main players, results in exploitation and discrimination thus creating gaps for women in participating and accessing economic opportunities. During the COVID-19 pandemic and the ensuing economic crisis, failure to recognize the role of women in the agriculture and fisheries sector does not only prevent women from accessing or qualifying for social protection benefits offered by the government (e.g. access to insurance, access to finance) , but also hinders women’s important contribution to food security, livelihoods, and recovery from the global crisis that these four commodities make.

State regulations and industry governance have yet to provide equal benefits to those participating in GVCs. For fisheries commodity, this study has shown that current regulations in countries studied have provided benefit to medium and top upstream actors. The rules regarding the fish trade have not been in the proper corridor to provide a fair and sustainable deal, especially for small fishers and women participation. Fishers, governments, and intermediaries have obstacles in innovations. Different institutional contexts of markets are linked to different forms of coordination and control of global value chains. Although the four countries have extraordinary potential output in fisheries, the comparative advantages are still uneven. In terms of backward and forward linkage counting, Vietnam excels in most commodities, especially fisheries. This means that the value-added impact of these commodities can substantially increase the country’s overall economy.

6.2. Recommendations



Following are the recommendations from this research:

Governments need to implement a number of measures to improve smallholders and other marginal actors’ bargaining position on the value chain and ensure that they gain benefits from participating in the GVC. As the concentration of marginal actors is in the upstream level of the value chain in all commodities, governments must focus on improving the marginal actors’ bargaining position in dealing with other more powerful and resourceful actor such as intermediaries and agribusiness companies at the middle and downstream levels. This can be done by strengthening local producer cooperatives to be able to bargain fairly and providing farmers with more informed knowledge about price setting and updates. Furthermore, support to improving the quantity and quality of their produce is also important, through provision of production inputs and meeting their financial needs for production and maintaining quality of produce.



Business sector must ensure compliance to policies and regulations and respect their relationships with and rights of smallholder producers at the upstream level. In some of the cases studied, business did not respect contracts and cooperation with farmers as stipulated by the country’s government, for instance in plasma-inti farmers-business production relations in palm oil sector in Indonesia, where many companies did not pay farmers fairly for their land lease or raw products or did not pay their workers on minimum wage or did not provide adequate safety measures for farmers and workers who work with and/or for them. In rice sector in the Philippines and Thailand, farmers often found that their paddy were not bought as promised by intermediaries or agribusiness companies with the reasons commodity price fluctuation.

Governments should improve access of marginal actors to participate in GVCs but must concurrently protect them from the negative impact of free market with better institutional governance. Governments must increase the commitment to have fairer and inclusive global value chain, including creating a climate of fair business competition by reducing privileges to big capitals, improve monitoring of compliance, improve tax administration, wage policies and decent work, quality of public services, and access to funding in particular for the smallest business actors in the value chain.

Civil society organizations (CSOs) can take a role in monitoring global value chain to ensure its fairness and inclusiveness to marginal actors. CSOs can encourage the government to make safeguarding between farmers or fishermen, the government, and the private sector. Safeguarding can regulate mechanisms that are fair and inclusive for all parties in each value chain of each commodity. CSOs should also advocate for improving working conditions and recognitions for the role of female workers, smallholders and small-scale fisheries workers whose roles are often not recognised and work in poor working conditions. Environmental, Social and Governance are also important elements that CSOs need to monitor, to ensure the sustainability and inclusiveness of various actors including SMEs to participate in GVC.

Government and business sector must mainstream gender sensitive policies for gender equality and in upgrading in global value chains.

This can be done by increasing and securing equal access to benefit women and men, and creating an inclusive and gender-sensitive environment by reducing job segregation based on gender. It can also be done by identifying and recognising the roles and contributions of women and men in GVC and eradicating exploitation and unpaid work for women in agriculture sector and promote social protection for all. Increasing access to training for women, eliminating gender disparities at all levels of education is one of the prerequisites for women to become efficient economic agents and benefit from GVC and upgrading. Training programs need to be scheduled and placed in such a way that women can attend, accommodating their reproductive responsibilities. Furthermore, access to capital and financial resources is needed to ensure that women can levelling up in the value chain and able to improve the quality of their production and participation.

ASEAN countries' governments need to build a suitable business ecosystem that enables all actors to play in equal footing.

This can start with ensuring transparent policies, improving infrastructure and productivity of domestic companies. Negotiations between countries must be conducted under ASEAN to improve transparency, monitoring, harmonization, recognition mechanisms, and enhance technological and innovative capabilities while promoting responsible and sustainable investment. Participation in global value chains will be optimal if both producers and exporters are able to meet international product standards. Attention is needed to downstream value-added products through increasing availability of machines and access technology needed to accelerate value-added downstream products. Currently, the increase in value is still weak in countries that export a lot of commodities/raw materials. If upgrading or transfer of knowledge is carried out, it can increase equity and justice in the supply chain of a commodity.

References

- Arcalas, Jasper Y. 2021. Rice imports drop to 1.26 MMT in H1-data. <https://businessmirror.com.ph/2021/07/20/rice-imports-drop-to-1-26-mmt-in-h1-data/>.
- ASEAN. (2021). ASEAN discusses COVID-19 impact, Global Value Chains transformation, regional response. <https://asean.org/asean-discusses-covid-19-impact-global-value-chains-transformation-regional-response/>
- Asian Development Bank. (2021). https://www.wto.org/english/res_e/booksp_e/00_gvc_dev_report_2021_e.pdf
- Azadegan, A., & Wagner, S. M. (2011). Industrial upgrading, exploitative innovations and explorative innovations. *International Journal of Production Economics*, 130, 54–65.
- Ferrantino, M. (2021). World Bank Group. Retrieved from Open Learning Campus: <https://olc.worldbank.org/content/global-value-chains-basics>
- Bloch, H. (2020). Price Theory, Historically Considered: Smith, Ricardo, Marshall and Beyond. *History of Economics Review* 75 (1), 50–73.
- BPHN. (2020). Laporan Akhir Analisis dan Evaluasi Hukum Terkait Tata Kelola Perkebunan. Badan Pembinaan Hukum Nasional - Kemenkumham RI. https://bphn.go.id/data/documents/5._buku_pokja_perkebunan.pdf
- BPS. 2020. Direktori Perusahaan Perkebunan Kelapa Sawit 2020. Direktorat Statistik Tanaman Pangan, Hortikultura, dan Perkebunan.
- Briones, R. 2020. Did The Opening Up of Rice Importation in the Philippines Worsen Income Poverty and Inequality? Discussion Papers No. 2020–43
- Briones, Roehlanao M. 2020. Did the Opening Up of Rice Importation in the Philippines Worsen Income Poverty and Inequality?. <https://pidswebs.pids.gov.ph/CDN/PUBLICATIONS/pidsdps2043.pdf>. Philippine Institute for Development Studies: Discussion Paper.
- Bryman, A. (2012). *Social research methods*. Oxford University Press.
- Chandra, Adelina. (2020). To grip or to slip: Smallholder inclusion in sustainable palm oil certifications in Riau, Indonesia | LUP student papers. (2020, June). Lund University Publications. <https://lup.lub.lu.se/student-papers/search/publication/9012152>
- Cong, Tran Thang and Dinh Thi Bao Linh. 2015. *Rice Policy Review in Vietnam*. <https://ap.fftc.org.tw/article/839#:~:text=According%20to%20this%20decree%2C%20farmers,land%20in%20the%20first%20year.>



- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (Fourth Edition, International Student Edition). SAGE.
- Department of Agriculture. 2013. *Rice Post Harvest Technology Guide*. <http://cagayandeoro.da.gov.ph/wp-content/uploads/2013/04/Rice-Post-Harvest-Technology-Guide.pdf>.
- Department of Agriculture. 2020. *Rice supply adequate for 2020*. <https://www.da.gov.ph/rice-supply-adequate-for-2020/>.
- Department of Agriculture. 2019. <https://dirp4.pids.gov.ph/ris/dps/pidsdps1209>.
- Department of Agriculture. 2013. *PHL farm mechanization is 1.23 hp/ha*. <https://www.officialgazette.gov.ph/2013/05/21/phl-farm-mechanization-is-1-23-hpha/>.
- Djojohadikusumo, Sumitro. (1991). *Perkembangan pemikiran ekonomi: Buku I – Dasar teori dalam ekonomi umum*. Yayasan Obor Indonesia.
- FAO. (2020). *The State of World Fisheries and Aquaculture Sustainability in Action*. Rome, Italy: Food and Agriculture Organization of the United Nations. Retrieved from doi.org/10.4060/ca9229en
- FAOSTAT. 2021. *Statistical Yearbook 2021*. <https://www.fao.org/3/cb4477en/online/cb4477en.html#chapter-2>.
- FAOSTAT. 2020. *Statistical Yearbook 2020*. <https://www.fao.org/3/cb1329en/CB1329EN.pdf>.
- Firmana, V., & Tjahjawardita, A. (2016). Analisis Peranan Aktivitas Sektor-Sektor Ekonomi terhadap Perekonomian Jawa Barat: Aplikasi Modal Input-Output. *Unpad*, 1-29.
- Gereffi, Gary and M Korzeniewicz. (1994). *Commodity Chains and Global Capitalism*: Praeger Publishers.
- Gereffi, G., and K. (2011). *Fernandez-Stark. Global Value Chain Analysis: A Primer*, Center on Globalization, Governance & Competitiveness, Durham, NC, 2011 (http://www.cgcc.duke.edu/pdfs/2011-05-31_GVC_analysis_a_primer.pdf)
- Gereffi, G., & Fernandez-Stark, K. (2016). *Global Value Chain Analysis: A Primer*, 2nd Edition. <https://www.researchgate.net/publication/305719326>
- Gereffi, G., & Lee, J. (2012). *Why the world suddenly cares about global supply chains*. <http://www.globalvaluechains.org>
- Grace, Lisa S. Bersales. 2015. *Special Report – Highlights of the 2012 Census of Agriculture (2012 CA)*. <https://psa.gov.ph/content/special-report-highlights-2012-census-agriculture-2012-ca>.
- Gragasin, Michael A. Jayvee P. Illustrismo. Romualdo C. Martinez. 2018. *Development of Village-Level Rice Mill With Impeller Huller*. Technical Bulletin. <https://www.philmech.gov.ph/assets/publication/Technical%20Bulletin/Technical%20Bulletin%20No.%2014.pdf>. Philippine Center for Postharvest Development and Mechanization. Vol. 8 No.1.
- Hidayat, N. K. (2017). *At the bottom of the value chain: sustainability certification and the livelihoods of palm oil smallholders in Indonesia*. Datawyse/Universitaire Pers Maastricht. <https://doi.org/10.26481/dis.20170928nkh>
- Hồ Cao Việt. (2011). *Ngành hàng lúa gạo Việt Nam: Tầm nhìn chiến lược trước cơ hội và thách thức*. http://www.academia.edu/11538492/Rice_marketing_and_value_chain_in_MRD
- Hồ Cao Việt. (2014). *Các nhân tố tác động đến hiệu quả sản xuất lúa từ việc tham gia Cánh đồng mẫu lớn. Được thuyết trình tại Tọa đàm: Ảnh hưởng của cấu trúc ngành lúa gạo đến lợi ích của người nông dân sản xuất nhỏ ở Việt Nam, Thành phố Hồ Chí Minh*.
- Ikrami, Hadyu. (2017). *Indonesia's reform of Its Fisheries Law and Policy & Cooperation with ASEAN in Combating IUU Fishing*. Asia-Pacific Journal of Ocean Law and Policy, Koninklijke Brill NV, Leiden; 318-330.
- Intal, P.S., and M. Garcia. 2005. "Rice and Philippine Politics." Discussion Paper Series No. 2005-13. Makati City: Philippine Institute of Development Studies.
- IPSARD. (2012). *An ninh lương thực tại Việt Nam: Thực trạng, chính sách và triển vọng. Viện Chính sách và Chiến lược phát triển nông nghiệp nông thôn*. <http://danviet.vn/kinhte/linh-hoat-dieu-chinh-chinh-sach-lua-gao-139137.html>
- ISGMARD. (2011). *Beyond the "Rice Bowl": Building on Past Gains to Enhance the Quality, Sustainability, and Equity of Growth in the Mekong Delta* (Collaborative Research Program Policy Note No. 2). International Support Group – Ministry of Agriculture and Rural Development.
- Jacques-chai, C. (2004). *Challenging the Market Access Agenda: A Case Study on Rice from Thailand*.
- Jong-Ha Bae. (2014). *The Global Rice Export Overview and Market Forecast*. Vietnam Can Tho.
- Kang, H., Kennedy, P., & Hilbun, B. (2009). *Structure and Conduct of the World Rice Market*.
- Kerkvliet, Benedict J. 1991. *Everyday Politics in the Philippines: Class and Status Relations in a Central Luzon Village*. New Day Publishers Quezon City.
- KKP. 2021. *Peringkat Indonesia Sebagai Eksportir Produk Perikanan Dunia Meningkat di Masa Pandemi*. HUMAS DITJEN PDSPKP.

- Kemenperin. (2021). Tantangan dan Prospek Hilirisasi Sawit Nasional Analisis Pembangunan Industri. Edisi VI – 2021.
- Kementerian Pertanian. (2019). Statistik Perkebunan Indonesia 2018–2020. Direktorat Jenderal Perkebunan, Kementerian Pertanian.
- Kemenko Kemaritiman dan Investasi. 2020. Rencana Strategis 2020 – 2024 Deputi Bidang Sumber Daya Maritim. Kemenko Kemaritiman dan Investasi.
- Lacap, C.A., and Magat, L. 2019. “The Effects of Climate Change on Rice Yield of Pampanga” paper presented to the 14th National Convention on Statistic (NCS), Quezon City, Philippine
- Mataia, Alice B., Jesusa C. Beltran, Rowena G. Manalili, et al. (2020). Rice Value Chain Analysis in the Philippines: Value Addition, Constraints, and Upgrading Strategies, Asian Journal of Agriculture and Development. The Study used primary data from interviews, several years earlier. 19 42. <https://doi.org/10.37801/ajad2020.17.2.2>
- McClumpha, A. (1988). The trading of green coffee. *London and New York: Elsevier Applied Science*, volume 6.
- Miller, C and Jones, L. 2010. “Agricultural Value Chain Finance Tools and Lessons” Food and Agriculture Organization (FAO) Publication Mohindru, S. C., & Phromchanya, P. (2012). Rice Exporters Eye Cartel to Boost Prices. The Wall Street Journal.
- Montemayor, Raul. 2020. Winners and losers from the rice tariffication law. <https://newsinfo.inquirer.net/1332019/winners-and-losers-from-the-rice-tariffication-law>.
- Murphy, M., & Dowding, T. J. (n.d.). *The Coffee Bean: A Value Chain and Sustainability Initiatives Analysis*.
- Mudambi, R. (2008). Location, control and innovation in knowledge-intensive industries. *Journal of Economic Geography*, 8(5), 699–725.
- Neilson, J. (2008). Global Private Regulation and Value-Chain Restructuring in Indonesian Smallholder Coffee Systems. *World Development*, 36(9), 1607–1622. <https://doi.org/10.1016/j.worlddev.2007.09.005>
- Neuman, W. L. (2006). *Social Research Methods: Qualitative and Quantitative Approaches* 6th Edition, Pearson International Edition, USA.
- Nhung, Thang Thi Hong, Anh, Nguyen Thi Luong, Nga, Cao Phuong. (2019). Vietnam’s participation in the global coffee value chain. *International Journal of Economics, Commerce and Management*, 2019(VII), 440–456. <https://ijecm.co.uk/wp-content/uploads/2019/12/71230.pdf>
- Nugroho, Y. D. (2021). Analisis Dampak Keterkaitan dan Pengganda sebagai Identifikasi Lever Sector (Pendekatan Tabel Input-Output 2020 Estimasi). *Seminar Nasional Official Statistics*, 2021(1), 429–438. <https://doi.org/10.34123/semnasoffstat.v2021i1.901>
- OECD World. 2020. Exporters of Palm Oil (2020). Accessed from: <https://oec.world/en/profile/hs92/palm-oil>
- Ordinario, Cai. 2019. Steep drop in local palay prices ‘surprises’ Neda. <https://businessmirror.com.ph/2019/09/03/steep-drop-in-local-palay-prices-surprises-neda/>.
- Othman, Z. (2012). Information and communication technology innovation as a tool for promoting sustainable agriculture: a case study of paddy farming in West Malaysia. Faculty of Science University of Malaya: Kuala Lumpur.
- Oxfam. (2013). Who has Benefited from High Rice Prices in Vietnam.
- Pacheco, P., Gnych, S., Dermawan, A., Komarudin, H., & Okarda, O. (2017). The palm oil global value chain: Implications for economic growth and social and environmental sustainability. In *The palm oil global value chain: Implications for economic growth and social and environmental sustainability*. Center for International Forestry Research (CIFOR). <https://doi.org/10.17528/cifor/006405>
- Patton, M. Q. (1990). *Qualitative evaluation and research methods*. SAGE Publications, inc.
- Philippine Statistic Authority. 2021. Palay Production in the Philippines 2018–2020. <https://psa.gov.ph/content/palay-production-philippines>.
- Philippine Statistic Authority. 2016. Highlights on Household Population, Number of Households, and Average Household Size of the Philippines (2015 Census of Population). <https://psa.gov.ph/content/highlights-household-population-number-households-and-average-household-size-philippines>.
- Poapongsakorn, Nipon. 2010. “The political economy of thailand’s rice price and export policies in 2007–08.” In *The Rice Crisis-Markets, Policies and Food Security.*, edited by Davod Dawe. London, Wahington, DC: Earthscan. 191–218.
- Poapongsakorn, Nipon and Kamphol Puntakua. 2014. “Assessing the Thai Paddy Pledging Policy: Its Performance and Social Costs.” With Kamphol Puntakua. *World Food Policy*. Fall 2014, vol.1, No.2.
- Poapongsakorn, Nipon. 2019. *Overview of Rice Policy 2000–2018 in Thailand: A Political Economy Analysis*. <https://ap.fttc.org.tw/article/1426>.

- Pohl, Chantal Nielsen. 2003. Vietnam's Rice Policy: Recent Reforms and Future Opportunities. https://dirp4.pids.gov.ph/websitcms/CDN/PUBLICATIONS/pidspn1516_FINAL.pdf.
- Ponte, S. (2002). *The "Latte Revolution"? Regulation, Markets and Consumption in the Global Coffee Chain*. www.elsevier.com/locate/worlddev
- PRAKARSA. 2021. Pemenuhan Hak Buruh Sawit: Salah Satu Pilar Perkebunan Berkelanjutan. PRAKARSA.
- PRAKARSA. 2021. Pelanggaran Hak Buruh Perkebunan Sawit: Studi Kasus Di Kalimantan Barat Dan Sulawesi Tengah. PRAKARSA.
- Putranti, Ika Riswanti. (2016). Implementation of Trade and Regulation on Fisheries to Prevent Fish Laundry in Indonesia. Semarang, Indonesia: University of Diponegoro.
- Rainforest Alliance. 2020. Origin Issue Assessment Vietnam-Coffee. <https://www.jacobsdouweweegberts.com/siteassets/cr/common-grounds--om/origin-issue-assessment--vietnam.pdf>
- Reardon, T., Chen, K., Minten, B., & Adriano, L. (2012). The Quiet Revolution in Staple Food Value Chains - Enter the Dragon, the Elephant, and the Tiger. The Philippines: Asian Development Bank and International Food Policy Research Institute.
- Sawit Watch. (2021). Siaran Pers Koalisi Buruh Sawit untuk Hari Buruh Internasional 2021: Tetapkan Kebijakan Perlindungan Buruh Perkebunan Sawit, <https://sawitwatch.or.id/2021/04/30/siaran-pers-koalisi-buruh-sawit-untuk-hari-buruh-internasional-2021-tetapkan-kebijakan-perlindungan-buruh-perkebunan-sawit/>
- SEAFDEC. (2020). Fishery Statistical Bulletin for Southeast Asia 2017. Southeast Asian Fisheries development Centre, Bangkok, Thailand; 143 p.
- Stauffer, R. B., & Kerkvliet, B. J. (1991). Everyday politics in the Philippines: Class and status relations in a Central Luzon village. *Pacific Affairs*, 64(1), 130. <https://doi.org/10.2307/2760396>
- Thai Rice Exproters Association. (2015). Số liệu Xuất khẩu gạo của Thái Lan. <http://www.thairiceexporters.or.th/export%20by%20country%202014.html>
- Timmer, C. P. (2010). Food Security in Asia and the changing role of rice. Occasional paper. Trade Map. (2015). Trade statistics for international business development. ITC.
- USDA. (2021). Grain: World Market and Trade. United States Department of Agriculture, Foreign Agricultural Service.
- USDA. (2021a). Vietnam: Grain and Feed Annual 2021. USDA Foreign Agriculture Service.
- USDA. (2021b). Rice: World Markets and Trade. Office of Global Analysis, Foreign Agricultural Service, USDA. Trục tuyến tại <http://apps.fas.usda.gov/psdonline/circulars/grain-rice.pdf>
- Vicol, M., Neilson, J., Hartatri, D. F. S., & Cooper, P. (2018). Upgrading for whom? Relationship coffee, value chain interventions and rural development in Indonesia. *World Development*, 110, 26–37. <https://doi.org/10.1016/j.worlddev.2018.05.020>
- Võ Thị Thành Lộc, & Nguyễn Phú Sơn. (2011). Phân tích chuỗi giá trị lúa gạo vùng đồng bằng sông Cửu Long. *Tạp Chí Khoa Học Của Trường Đại Học Cần Thơ*, 19a, 96-108.
- Wailes, E. J., & Chavez, E. C. (2012). ASEAN and Global Rice Situation and Outlook. World Bank. (2015). World Bank Commodity Price Data (The Pink Sheet). Trục tuyến tại <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/0,,contentMDK:21574907~menuPK:7859231~pagePK:64165401~piPK:64165026~theSitePK:476883,00.html>
- WRI. 2020. 3 Alasan Kenapa Perempuan Nelayan Memainkan Peran Penting Untuk Pemulihan Ekonomi Yang Inklusif. WRI: Jakarta (accessed from: <https://wri-indonesia.org/id/blog/3-alasan-kenapa-perempuan-nelayan-memainkan-peran-penting-untuk-pemulihan-ekonomi-yang-inklusif>



List of Appendix

Appendix 1. Indonesia's Industrial Contribution, Input, and Output Structure, 2018

Code	Commodity Proxies	Products/ Industries/Sectors	Total Output (million USD)	Contribution to Economic (%)	Output Structure		Input Structure	
					Intermediate Demand (%)	Final Demand (%)	Intermediate Input (%)	GVA (%)
IDN_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	142.726,1	7,48	60,06	39,94	25,19	74,81
IDN_03	Fishery	Fishing and aquaculture	30.116,1	1,58	26,68	73,32	9,70	90,30
IDN_10T12	All	Food products, beverages, and tobacco	160.201,6	8,39	23,27	76,73	64,61	35,39
IDN_19	Palm Oil	Coke and refined petroleum products	92.056,9	4,82	67,43	32,57	76,74	23,26
IDN_20	Palm Oil	Chemical and chemical products	39.817,2	2,09	61,67	38,33	65,41	34,59
IDN_45T47	All	Wholesale and retail trade; repair of motor vehicles	196.028,3	10,27	45,92	54,08	29,77	70,23
IDN_55T56	All	Accommodation and food service activities	63.174,1	3,31	13,91	86,09	53,17	46,83
Total seven industries			724.120,3	37,9	42,70	57,30	46,37	53,63
Total Output (45 industries)			1.908.664,6					

Source: OECD's ICIO, 2018 (processed)

Appendix 2. Indonesia's Value Added Structure and the Relationship with Other Sectors and Countries, 2018

Code	Commodity Proxies	Products/ Industries/ Sectors	Value Added Structure		Related to 44 sectors and three countries		
			GVA Structure (million USD)	Contribution (%)	Be used for other sectors and countries	Using other industries and countries	
IDN_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	106.776,8	10,49	172	145	
IDN_03	Fishery	Fishing and aquaculture	27.193,4	2,67	101	141	
IDN_10T12	All	Food products, beverages, and tobacco	56.693,9	5,57	166	157	
IDN_19	Palm Oil	Coke and refined petroleum products	21.415,5	2,10	176	154	
IDN_20	Palm Oil	Chemical and chemical products	13.772,4	1,35	176	156	
IDN_45T47	All	Wholesale and retail trade; repair of motor vehicles	137.679,8	13,52	176	149	
IDN_55T56	All	Accommodation and food service activities	29.582,3	2,91	44 (domestic only)	149	

Source: OECD's ICIO, 2018 (processed)



Appendix 3. Indonesian Commodity Exports to the Philippines, Thailand, Vietnam, and Rest of the World, 2018 (million USD)

Code	Commodity Proxy	Industry/ Sector	Export to the Philippines			Export to Thailand			Export to Vietnam			Total Export to 3 countries			Export to Rest of the World	
			Int. demand	HFC	%	Int. demand	HFC	%	Int. demand	HFC	%	Int. demand	HFC	%	Total	%
IDN_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	45,81	24,08	1,02	93,94	53,71	2,15	119,69	24,89	2,11	259,44	102,69	5,28	6,495,18	94,72
IDN_03	Fishery	Fishing and aquaculture	0,35	1,00	0,22	0,92	0,65	0,25	0,27	0,29	0,09	1,54	1,95	0,56	615,22	99,44
IDN_10T12	All	Food products, beverages, and tobacco	279,87	376,56	2,28	127,51	165,30	1,02	376,98	187,73	1,96	784,36	729,59	5,26	27,267,06	94,74
IDN_19	Palm Oil	Coke and refined petroleum products	15,62	7,50	1,13	16,20	4,06	0,99	70,75	3,67	3,63	102,57	15,24	5,74	1,935,09	94,26
IDN_20	Palm Oil	Chemical and chemical products	410,32	149,96	4,67	583,29	39,98	5,19	565,89	16,03	4,85	1,559,49	205,97	14,71	10,233,54	85,29
IDN_45T47	All	Wholesale and retail trade; repair of motor vehicles	199,72	181,76	2,12	362,27	85,86	2,49	271,62	7,96	1,55	833,62	275,58	6,16	16,885,10	93,84
IDN_55T56	All	Accommodation and food service activities	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	3,916,40	100,00

Source: OECD's ICIO, 2018 (processed)

Appendix 4. Value and Index Total Backward and Forward Linkages Sectoral in Indonesia, 2018

Code	Commodity Proxy	Industries/ Sectors	Backward Linkage	Forward Linkage	Backward Linkage Index	Forward Linkage Index	Note
IDN_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	1,44	1,76	0,71	0,87	Not Key Sector
IDN_03	Fishery	Fishing and aquaculture	1,12	1,05	0,55	0,52	Not Key Sector
IDN_10T12	All	Food products, beverages, and tobacco	2,01	2,84	0,99	1,41	Not Key Sector
IDN_19	Palm Oil	Coke and refined petroleum products	2,22	2,56	1,09	1,27	Key Sector
IDN_20	Palm Oil	Chemical and chemical products	2,12	1,64	1,04	0,81	Not Key Sector
IDN_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,54	3,05	0,75	1,51	Not Key Sector
IDN_55T56	All	Accommodation and food service activities	1,90	1,69	0,93	0,84	Not Key Sector

Source: OECD's ICIO, 2018 (processed)



Appendix 5. the Philippines' Industrial Contribution, Input, and Output Structure, 2018

Code	Commodity Proxies	Products/ Industries/ Sectors	Total Output (million USD)	Contribution to Economic (%)	Output Structure		Input Structure	
					Intermediate Demand (%)	Final Demand (%)	Intermediate Input (%)	GVA (%)
PHL_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	52.432,0	8,36	58,40	41,60	30,26	69,74
PHL_03	Fishery	Fishing and aquaculture	8.725,8	1,39	26,60	73,40	33,90	66,10
PHL_10T12	All	Food products, beverages, and tobacco	84.552,3	13,48	41,90	58,10	63,02	36,98
PHL_19	Palm Oil	Coke and refined petroleum products	15.321,2	2,44	60,86	39,14	71,55	28,45
PHL_20	Palm Oil	Chemical and chemical products	8.475,2	1,35	63,89	36,11	65,55	34,45
PHL_45T47	All	Wholesale and retail trade; repair of motor vehicles	86.987,2	13,87	52,48	47,52	45,23	54,77
PHL_55T56	All	Accommodation and food service activities	26.072,6	4,16	17,87	82,13	63,59	36,41
Total seven industries			282.566,3	45,1	46,00	54,00	53,30	46,70
Total Output (45 industries)			627.048,6					

Source: OECD's ICIO, 2018 (processed)

Appendix 6. the Philippines' Value Added Structure and the Relationship with Other Sectors and Countries, 2018

Code	Commodity Proxies	Products/ Industries/ Sectors	Value Added Structure		Related to 44 sectors and three countries	
			GVA Structure (million USD)	Contribution (%)	Be used for other sectors and countries	Using other industries and countries
PHL_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	36.568,0	11,53	156	157
PHL_03	Fishery	Fishing and aquaculture	5.767,4	1,82	81	148
PHL_10T12	All	Food products, beverages, and tobacco	31.264,3	9,86	165	157
PHL_19	Palm Oil	Coke and refined petroleum products	4.358,6	1,37	176	155
PHL_20	Palm Oil	Chemical and chemical products	2.919,3	0,92	176	157
PHL_45T47	All	Wholesale and retail trade; repair of motor vehicles	47.643,4	15,03	176	156
PHL_55T56	All	Accommodation and food service activities	9.492,5	2,99	44 (domestic only)	153

Source: OECD's ICIO, 2018 (processed)



Appendix 7. the Philippines Commodity Exports to Indonesia, Thailand, Vietnam, and Rest of the World, 2018 (million USD)

Code	Commodity Proxy	Industry/ Sector	Export to Philippine			Export to Thailand			Export to Vietnam			Total Export to 3 countries			Export to Rest of the World	
			Int. demand	HFC	%	Int. demand	HFC	%	Int. demand	HFC	%	Int. demand	HFC	%	Total	%
PHL_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	2,23	1,06	0,09	5,03	0,27	0,15	5,42	1,37	0,19	12,68	2,69	0,43	3,531,12	99,57
PHL_03	Fishery	Fishing and aquaculture	0,00	0,00	0,00	0,01	0,01	0,01	0,02	0,01	0,01	0,03	0,02	0,02	247,75	99,98
PHL_10T12	All	Food products, beverages, and tobacco	12,57	3,09	0,28	37,66	72,12	1,93	72,81	38,34	1,96	123,05	113,55	4,17	5,439,30	95,83
PHL_19	Palm Oil	Coke and refined petroleum products	40,83	19,31	4,71	7,22	1,93	0,72	11,88	0,60	0,98	59,92	21,85	6,41	1,194,43	93,59
PHL_20	Palm Oil	Chemical and chemical products	76,38	2,27	6,61	34,91	2,28	3,12	34,14	1,15	2,97	145,43	5,70	12,70	1,038,88	87,30
PHL_45T47	All	Wholesale and retail trade; repair of motor vehicles	42,52	28,74	0,83	266,80	35,26	3,52	43,32	11,92	0,64	352,63	75,92	5,00	8,144,85	95,00
PHL_55T56	All	Accommodation and food service activities	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	4,293,50	100,00

Source: OECD's ICIO, 2018 (processed)

Appendix 8. Value and Index Total Backward and Forward Linkages Sectoral in the Philippines, 2018

Code	Commodity Proxy	Industries/ Sectors	Backward Linkage	Forward Linkage	Backward Linkage Index	Forward Linkage Index	Note
PHL_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	1,50	1,82	0,74	0,90	Not Key Sector
PHL_03	Fishery	Fishing and aquaculture	1,58	1,18	0,77	0,58	Not Key Sector
PHL_10T12	All	Food products, beverages, and tobacco	1,85	3,48	0,91	1,72	Not Key Sector
PHL_19	Palm Oil	Coke and refined petroleum products	2,12	1,73	1,04	0,86	Not Key Sector
PHL_20	Palm Oil	Chemical and chemical products	2,12	1,36	1,04	0,67	Not Key Sector
PHL_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,85	3,56	0,90	1,76	Not Key Sector
PHL_55T56	All	Accommodation and food service activities	1,93	2,04	0,95	1,01	Not Key Sector

Source: OECD's ICIO, 2018 (processed)



Appendix 9. Thailand's Industrial Contribution, Input, and Output Structure, 2018

Code	Commodity Proxies	Products/ Industries/ Sectors	Total Output (million USD)	Contribution to Economic (%)	Output Structure		Input Structure	
					Intermediate Demand (%)	Final Demand (%)	Intermediate Input (%)	GVA (%)
THA_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	60.073,4	4,11	60,33	39,67	35,90	64,10
THA_03	Fishery	Fishing and aquaculture	7.731,0	0,53	57,74	42,26	42,56	57,44
THA_10T12	All	Food products, beverages, and tobacco	88.886,8	6,08	31,03	68,97	73,57	26,43
THA_19	Palm Oil	Coke and refined petroleum products	38.354,1	2,62	61,03	38,97	82,74	17,26
THA_20	Palm Oil	Chemical and chemical products	32.576,3	2,23	57,36	42,64	66,02	33,98
THA_45T47	All	Wholesale and retail trade; repair of motor vehicles	122.598,1	8,39	52,99	47,01	21,98	78,02
THA_55T56	All	Accommodation and food service activities	46.051,7	3,15	14,88	85,12	61,56	38,44
Total seven industries			396.271,4	27,1	47,91	52,09	54,90	45,10
Total Output (45 industries)			1.461.520,8					

Source: OECD's ICIO, 2018 (processed)

Appendix 10Thailand's Value Added Structure and the Relationship with Other Sectors and Countries, 2018

Code	Commodity Proxies	Products/ Industries/ Sectors	Value Added Structure		Related to 44 sectors and three countries	
			GVA Structure (million USD)	Contribution (%)	Be used for other sectors and countries	Using other industries and countries
THA_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	38.504,8	7,90	171	146
THA_03	Fishery	Fishing and aquaculture	4.440,8	0,91	93	138
THA_10T12	All	Food products, beverages, and tobacco	23.496,2	4,82	167	154
THA_19	Palm Oil	Coke and refined petroleum products	6.619,7	1,36	176	129
THA_20	Palm Oil	Chemical and chemical products	11.069,0	2,27	176	145
THA_45T47	All	Wholesale and retail trade; repair of motor vehicles	95.655,9	19,63	176	137
THA_55T56	All	Accommodation and food service activities	17.701,4	3,63	44 (domestic only)	146

Source: OECD's ICIO, 2018 (processed)





Appendix 11. Thailand Commodity Exports to Indonesia, the Philippines, Vietnam, and Rest of the World, 2018 (million USD)

Code	Commodity Proxy	Industry/ Sector	Export to Indonesia				Export to the Philippines		Export to Vietnam				Total Export to 3 countries			Export to Rest of the World
			Int. demand	HFC	%	Int. demand	HFC	%	Int. demand	HFC	%	Int. demand	HFC	%	Total	
THA_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	29,18	12,83	0,89	45,81	9,80	1,18	203,03	4,60	4,41	278,02	27,24	6,48	4,407,44	93,52
THA_03	Fishery	Fishing and aquaculture	0,01	0,04	0,05	0,35	0,02	0,33	0,02	0,11	0,12	0,38	0,18	0,49	112,64	99,51
THA_10T12	All	Food products, beverages, and tobacco	705,49	1,496,6	7,54	279,87	530,52	2,77	364,28	200,42	1,93	1,349,6	2,227,5	12,24	25,644,13	87,76
THA_19	Palm Oil	Coke and refined petroleum products	62,31	28,85	0,94	15,62	46,25	0,64	2,348,59	174,66	26,06	2,426,5	249,76	27,64	7,007,80	72,36
THA_20	Palm Oil	Chemical and chemical products	1,275,47	346,83	8,59	410,32	160,41	3,02	1,496,28	42,64	8,15	3,182,1	549,88	19,76	15,158,15	80,24
THA_45T47	All	Wholesale and retail trade; repair of motor vehicles	650,08	469,41	3,50	199,72	234,17	1,35	1,344,59	160,81	4,70	2,194,4	864,38	9,55	28,969,03	90,45
THA_55T56	All	Accommodation and food service activities	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	13,966,70	100,00

Source: OECD's ICIO, 2018 (processed)

Appendix 12. Value and Index Total Backward and Forward Linkages Sectoral in Thailand, 2018

Code	Commodity Proxy	Industries/ Sectors	Backward Linkage	Forward Linkage	Backward Linkage Index	Forward Linkage Index	Note
THA_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	1,68	1,82	0,83	0,90	Not Key Sector
THA_03	Fishery	Fishing and aquaculture	1,88	1,18	0,92	0,58	Not Key Sector
THA_10T12	All	Food products, beverages, and tobacco	2,31	3,17	1,13	1,57	Key Sector
THA_19	Palm Oil	Coke and refined petroleum products	2,44	2,57	1,20	1,27	Key Sector
THA_20	Palm Oil	Chemical and chemical products	2,16	1,73	1,06	0,86	Not Key Sector
THA_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,42	2,36	0,69	1,17	Not Key Sector
THA_55T56	All	Accommodation and food service activities	2,12	2,18	1,04	1,08	Key Sector

Source: OECD's ICIO, 2018 (processed)





Appendix 13. Vietnam's Industrial Contribution, Input, and Output Structure, 2018

Code	Commodity Proxies	Products/ Industries/ Sectors	Total Output (million USD)	Contribution to Economic (%)	Output Structure		Input Structure	
					Intermediate Demand (%)	Final Demand (%)	Intermediate Input (%)	GVA (%)
VNM_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	78.793,6	9,91	69,98	30,02	62,18	37,82
VNM_03	Fishery	Fishing and aquaculture	24.442,6	3,07	65,93	34,07	74,79	25,21
VNM_10T12	All	Food products, beverages, and tobacco	97.080,1	12,21	50,14	49,86	88,11	11,89
VNM_19	Palm Oil	Coke and refined petroleum products	14.296,7	1,80	94,44	5,56	87,02	12,98
VNM_20	Palm Oil	Chemical and chemical products	19.185,9	2,41	86,24	13,76	82,30	17,70
VNM_45T47	All	Wholesale and retail trade; repair of motor vehicles	44.372,5	5,58	64,35	35,65	45,57	54,43
VNM_55T56	All	Accommodation and food service activities	19.411,3	2,44	25,67	74,33	63,15	36,85
Total seven industries			297.582,7	37,4	65,25	34,75	71,87	28,13
Total Output (45 industries)			795.335,2					

Source: OECD's ICIO, 2018 (processed)

Appendix 14. Vietnam's Value Added Structure and the Relationship with Other Sectors and Countries, 2018

Code	Commodity Proxies	Products/ Industries/ Sectors	Value Added Structure		Related to 44 sectors and three countries	
			GVA Structure (million USD)	Contribution (%)	Be used for other sectors and countries	Using other industries and countries
VNM_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	29.800,2	12,61	176	147
VNM_03	Fishery	Fishing and aquaculture	6.162,3	2,61	173	147
VNM_10T12	All	Food products, beverages, and tobacco	11.542,9	4,88	176	146
VNM_19	Palm Oil	Coke and refined petroleum products	1.855,7	0,79	176	140
VNM_20	Palm Oil	Chemical and chemical products	3.396,3	1,44	176	148
VNM_45T47	All	Wholesale and retail trade; repair of motor vehicles	24.152,8	10,22	176	146
VNM_55T56	All	Accommodation and food service activities	7.153,1	3,03	176	150

Source: OECD's ICIO, 2018 (processed)





Appendix 15. Vietnam Commodity Exports to Indonesia, the Philippines, Vietnam, and Rest of the World, 2018 (million USD)

Code	Commodity Proxy	Industry/Sector	Export to Indonesia			Export to the Philippines			Export to Vietnam			Total Export to 3 countries			Export to Rest of the World	
			Int. demand	HFC	%	Int. demand	HFC	%	Int. demand	HFC	%	Int. demand	HFC	%	Total	%
VNM_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	124,20	64,29	1,62	113,78	6,18	1,03	142,53	88,18	1,98	380,51	158,65	4,63	11,107,14	95,37
VNM_03	Fishery	Fishing and aquaculture	0,01	0,01	0,00	0,04	0,10	0,01	1,74	3,10	0,26	1,79	3,21	0,26	1,885,50	99,74
VNM_10T12	All	Food products, beverages, and tobacco	173,05	380,47	2,48	399,61	464,98	3,88	285,12	375,77	2,96	857,78	1,221,2	9,33	20,214,20	90,67
VNM_19	Palm Oil	Coke and refined petroleum products	1,53	0,79	0,66	17,44	9,35	7,62	0,31	0,08	0,11	19,29	10,22	8,39	322,29	91,61
VNM_20	Palm Oil	Chemical and chemical products	158,79	44,25	4,37	80,68	29,39	2,37	139,83	1,04	3,03	379,31	74,69	9,78	4,187,91	90,22
VNM_45T47	All	Wholesale and retail trade; repair of motor vehicles	120,44	5,69	1,03	117,19	46,79	1,34	187,36	47,42	1,92	424,99	99,90	4,30	11,682,21	95,70
VNM_55T56	All	Accommodation and food service activities	0,01	0,01	0,00	0,03	0,04	0,00	0,04	0,03	0,00	0,09	0,08	0,00	3,919,13	100,00

Source: OECD's ICIO, 2018 (processed)

Appendix 16. Value and Index Total Backward and Forward Linkages Sectoral in Vietnam, 2018

Code	Commodity Proxy	Industries/Sectors	Backward Linkage	Forward Linkage	Backward Linkage Index	Forward Linkage Index	Note
VNM_01T02	Rice, Palm Oil, Coffee	Agriculture, hunting, forestry	2,42	3,06	1,19	1,52	Key Sector
VNM_03	Fishery	Fishing and aquaculture	3,12	2,13	1,53	1,06	Key Sector
VNM_10T12	All	Food products, beverages, and tobacco	3,38	5,69	1,66	2,82	Key Sector
VNM_19	Palm Oil	Coke and refined petroleum products	3,02	1,59	1,48	0,79	Not Key Sector
VNM_20	Palm Oil	Chemical and chemical products	2,92	2,01	1,43	0,99	Not Key Sector
VNM_45T47	All	Wholesale and retail trade; repair of motor vehicles	1,97	3,08	0,97	1,53	Not Key Sector
VNM_55T56	All	Accommodation and food service activities	2,50	1,66	1,22	0,82	Not Key Sector

Source: OECD's ICIO, 2018 (processed)





P R A K A R S A

Welfare Initiative for Better Societies


The PRAKARSA is a research and capacity-building institution established to create a democratic, just, and prosperous society through ideas development, policy and institutional reforms, and evidence-based problem-solving innovations. The PRAKARSA focuses on fiscal policy, social policy, and sustainable development issues.


We conducts research activities, policy analysis, and training on a wide range of topics related to welfare issues. In executing its various activities, The PRAKARSA consistently adopts collaborative and engagement approaches to collaborate with varied parties: governments, parliaments, civil society organizations, universities, think tanks, international organizations, private sectors, development donor agencies, and mass media.





We believe that this multi-stakeholder approach will strengthen our works and initiatives in the knowledge production and dissemination as well as the evidence-based policymaking process. We also believe that networking will facilitate and reinforce one another. Therefore, we have received support from various donors and participated in multifarious initiatives with The PRAKARSA partners.

www.theprakarsa.org

Komplek Rawa Bambu 1
Jl. A No. 8E Kel. Pasar Minggu,
Kec. Pasar Minggu, Jakarta Selatan

 +62 21 7811 798

 perkumpulan@theprakarsa.org

    The PRAKARSA

  PRAKARSA Podcast