THE CHALLENGES OF IMPLEMENTING ROUNDTABLE ON SUSTAINABLE PALM OIL (RSPO) CERTIFICATION IN SMALLHOLDER PALM OIL FARMERS

SUNALIN AHI

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on
30 March 2024

.....
Miss Sunalin Ahi
Candidate

.....
Assoc.Prof. Nattavud Pimpa,
Ph.D.
Advisor

.....
Assoc. Prof. Randall Shannon,
Ph.D.
Chairperson

.....
Assoc. Prof. Vichita Ractham,
Ph.D.
Dean
College of Management
Mahidol University

.....
Assoc. Prof. Khanyapuss Punjaisri,
Ph.D.
Committee member

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SUNALIN AHI 6549029

M.M. (MANAGING FOR SUSTAINABILITY)

THESIS ADVISORY COMMITTEE: ASSOC. PROF. NATTAVUD PIMPA, Ph.D, ASSOC. PROF. RANDALL SHANNON, Ph.D, ASSOC. PROF. KHANYAPUSS PUNJAISRI, Ph.D

ABSTRACT

Palm oil production is a significant economic driver in Southeast Asia, but it also raises concerns about environmental and social impacts. The RSPO was established to promote sustainable palm oil production, but its adoption among smallholders remains low in Thailand. In light of the context, this research investigates the barriers hindering the adoption of Roundtable on Sustainable Palm Oil (RSPO) practices among Thai smallholders in the palm oil sector. It aims to identify these challenges and propose viable solutions based on the RSPO criteria, integrated with the triple bottom line framework, to foster sustainable practices among these smallholders. The purpose of this paper is to identify the specific barriers faced by Thai smallholders in adopting RSPO standards and to recommend solutions to increase the adoption rate of RSPO practices in Thailand.

This research employs a literature review to examine existing knowledge on the palm oil industry, RSPO, and barriers faced by smallholders. Additionally, case studies and interviews with stakeholders may be conducted to gain deeper insights.

The significance of this research is to contribute valuable insights to various stakeholders, including policymakers, industry players, and NGOs, by highlighting the challenges faced by smallholders in adopting sustainable practices and providing recommendations for overcoming these barriers and promoting RSPO adoption. Ultimately, contributing to a more sustainable palm oil industry that aligns with environmental, social, and economic considerations.

KEY WORDS: Roundtable on Sustainable Palm Oil (RSPO)/ Palm oil/ Smallholders/ Sustainability/ Barriers

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CHAPTER I
INTRODUCTION

1.1 Introduction

In a variety of industries, including food, cosmetics, cleaning supplies, and fuels, palm oil is now widely used. Smallholders suffer the harmful effects of its production while major enterprises profit from it. Indigenous populations have been uprooted as a result of palm oil use, along with deforestation and biodiversity loss. However, the increased demand for sustainability has forced businesses to dedicate priority to responsible conduct. As a result, the palm oil sector, which was once notorious for having a negative influence on the environment, has made great strides toward sustainability.

Major palm oil producers can now use more sustainable practices as a consequence of the Roundtable on Sustainable Palm Oil's (RSPO) assistance. The Roundtable on Sustainable Palm Oil (RSPO) was established in 2004 in response to the negative effects oil palm crop development was having on the environment (Rodthong et al., 2020). Voluntary guidelines were developed to expedite the adoption of more environmentally friendly supply chain practices. This will also guarantee their positive effects on the environment. Sustainable palm oil can only become the norm if farmers, processors, distributors, and retailers are all on board and well-versed on the topic.

According to the RSPO standard, a smallholder farmer is one who grows oil palm, sometimes in conjunction with subsistence production of other crops, where family provides the majority of labor and the farm provides the primary source of income, and where the planted area of oil palm is usually less than 50 hectares in size (Roundtable on Sustainable Palm Oil (RSPO), 2023).

Although the production of palm oil provides numerous benefits for Southeast Asian countries, it is not without serious environmental and socioeconomic consequences. Environmental problems include deforestation, biodiversity loss, animals and ecosystems, soil erosion, the effects of climate change, pesticide usage, and

pollution generated by manufacturing, transportation, and processing. When it comes to innovations in oil palm cultivation and management, socioeconomic considerations include indigenous peoples' livelihoods, social disputes over access and ownership, and the marginalization of small holders.

According to the Palm Oil Industry Association, there has been an increase in the world's RSPO (Roundtable on Sustainable Palm Oil) oil from 23% in the year 2020 to 26% in the year 2021, while the remaining proportion accounts for conventional palm oil. This positive trend indicates a move towards sustainability and shows no signs of decline. As a matter of fact, Indonesia holds the top position in palm oil production, contributing 57%, followed by Malaysia in second place with 23% production. The third position for being the world's largest producer goes to Thailand (SDO, 2023).

Thailand holds the distinction of being the world's third-largest palm oil producer (Bank of Ayudhya Public Company Limited, n.d.). The country's oil palm plantations and processing facilities are primarily concentrated in the southern regions, particularly Krabi, Surat Thani, and Chumphon provinces, which account for 60% of the nation's total oil palm plantations (Bank of Ayudhya Public Company Limited, n.d.). Given that it has similar soil and climatic conditions to Malaysia and Indonesia, Thailand has the potential to increase its existing production of palm oil. The expansion of oil palm cultivation in these regions between 2009 and 2018 was part of the government's strategy to develop renewable and alternative energy sources (Bank of Ayudhya Public Company Limited, n.d.). The Thai government is promoting the country's expanding palm oil production along with other alternative energy sources in order to become more self-sufficient, as it not only improves food security but also provides a solution to the nation's rising energy needs and excessive reliance on fuel imports.

To align with the growing sustainability trend, the Thailand Sustainable Palm Oil Alliance (TSPOA) was collaboratively established in 2022 by the RSPO and the Thailand Environment Institute (TEI). According to Nash (2022), the TSPOA serves as a platform for stakeholders in the palm oil supply chain to collaborate and promote sustainable palm oil practices in Thailand. Additionally, there are various organizations dedicated to promoting regional sustainable palm oil production that are winning accolades on a global scale. This is in accordance with the Sustainable Development

Goals (SDGs) of the United Nations and the sustainability performance that aims at the realms of economy, society, and the environment. Moreover, the big players of the palm oil industry in Thailand have taken various initiatives to promote and support the adoption of RSPO. Some of the initiatives taken are training the farmers on criterion of RSPO, requirements etc. However, the rate of adoption among smallholders of the practices RSPO recommends remains low.

Current RSPO adoption in Thailand

According to the Palm Oil Refinery Association, the proportion of conventional palm oil stood at 98% in 2020, with a mere 2% representing sustainable palm oil. In the subsequent year, 2021, there was a modest increase of 1% in sustainable palm oil, bringing the proportion to 3%. This positive development signifies an encouraging trend in the palm oil industry, indicating a gradual uptake of sustainable practices. The rise in sustainable palm oil from 2% to 3% demonstrates progress in promoting environmentally and socially responsible palm oil production and consumption. However, it is essential to acknowledge that the overall share of sustainable palm oil remains relatively low at 3%, in contrast to the dominant 97% share of conventional palm oil. This observation prompts an inquiry into the factors impeding Thai smallholders from embracing RSPO (Roundtable on Sustainable Palm Oil) practices.

To address this research gap, this study aims to identify the primary barriers faced by Thai smallholders in adopting the RSPO guidelines. Moreover, the study will propose viable solutions based on the RSPO criteria, integrated with the triple bottom line framework, to foster sustainable practices among Thai smallholders in the palm oil sector.

The Aim of The Paper

By conducting this research, it is anticipated to shed light on the specific challenges hindering the wider adoption of sustainable practices among Thai smallholders. The findings will contribute valuable insights to the industry, policymakers, and other stakeholders, enabling them to develop targeted strategies and initiatives to overcome barriers and accelerate the transition towards more sustainable palm oil production. Ultimately, the study seeks to facilitate a more inclusive and sustainable palm oil

industry that aligns with environmental conservation, social responsibility, and economic viability.

1.2 Research objectives

The objectives of this study are:

1.To identify barriers faced by the Thai smallholders in carrying out Roundtable Sustainable Palm Oil.

2.To provide a recommendation based on the identified barriers to increase the adoption rate of RSPO practices in Thailand.

1.3 Research questions

What are the specific barriers faced by the Thai smallholders in adopting Roundtable Sustainable Palm Oils?

How can the rate of adopting RSPO be increased in Thailand?

1.4 Research framework

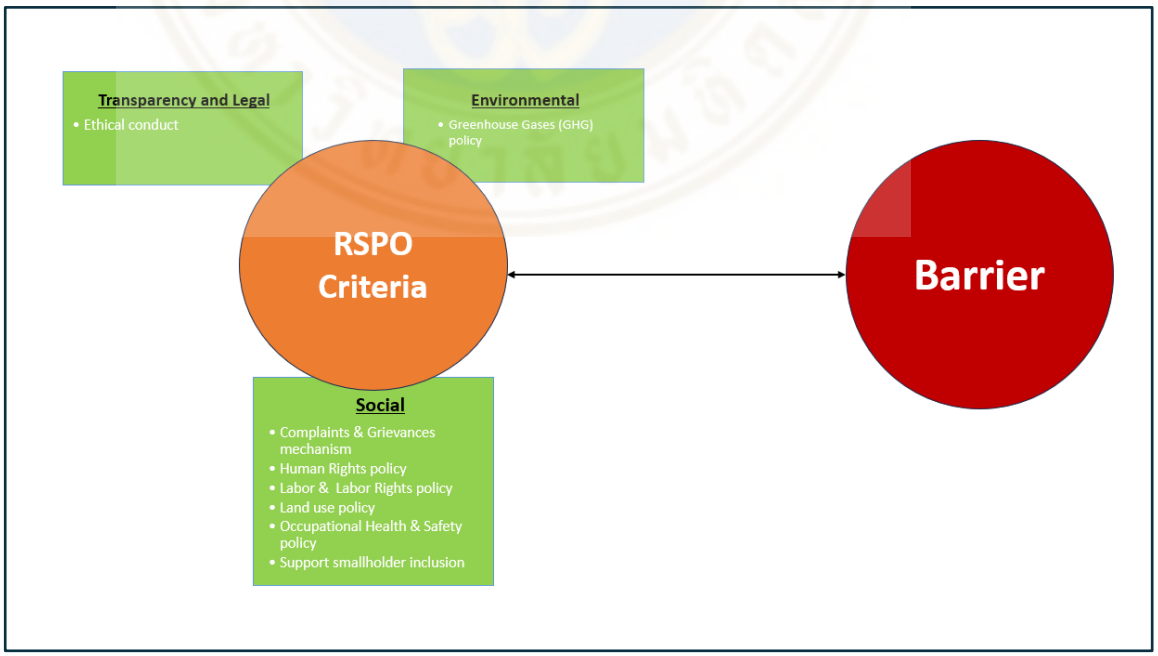

Figure 1: Research framework

In this research, the primary focus will be on a crucial aspect of the Roundtable on Sustainable Palm Oil (RSPO), which involves identifying the barriers encountered by Thai smallholders when attempting to adopt the RSPO standards. The RSPO, recognizing the importance of sustainable palm oil production, has developed a comprehensive set of standards and guidelines. These standards are specifically crafted to ensure that palm oil is produced in an environmentally and socially responsible manner.

The RSPO criteria encompass various aspects of sustainable palm oil production, including compliance with applicable laws and regulations, commitment to long-term economic viability, utilization of appropriate best practices, environmental responsibility and conservation of natural resources, responsible consideration of employees and communities, responsible development of new plantations, promotion of best practices among smallholders, commitment to continuous improvement, transparency, and compliance with RSPO principles by independent smallholders.

Through the RSPO certification process, palm oil producers are assessed based on their adherence to these criteria. The evaluation serves as a means to verify whether producers are implementing sustainable practices in their operations. By establishing and maintaining these standards, the RSPO aims to promote the sustainable production of palm oil, mitigating negative environmental impacts and fostering social responsibility.

The research specifically focuses on investigating the challenges faced by Thai smallholders in adopting the RSPO standards. Smallholders play a significant role in the palm oil industry, and understanding the barriers they encounter can help identify strategies and interventions to facilitate their transition to sustainable practices. By addressing these barriers, it becomes possible to enhance the participation of smallholders in sustainable palm oil production, contributing to the overall goals of the RSPO.

By conducting this research, valuable insights can be gained into the specific challenges faced by Thai smallholders, shedding light on the factors that hinder their adoption of RSPO standards. This information can serve as a foundation for devising targeted interventions, policies, and support mechanisms that address these barriers

effectively. Ultimately, the research aims to contribute to the advancement of sustainable palm oil production by facilitating the engagement of smallholders in Thailand and promoting their alignment with the RSPO criteria.

1.5 Expected Research Benefits and Contributions

This research endeavours to enhance comprehension of the multifaceted factors impeding Thai smallholders from embracing the RSPO standards. The identification of barriers faced by farmers in embracing the Roundtable on Sustainable Palm Oil (RSPO) offers manifold benefits to farmers, industry, the country, and academic research. Firstly, it enables farmers to gain a comprehensive understanding of the specific challenges involved in adopting sustainable palm oil practices, empowering them to devise effective solutions and make informed decisions. Secondly, the recognition of barriers facilitates farmers in channelling their efforts towards targeted capacity-building initiatives, encompassing bespoke training programs, improved resource access, and technical assistance. Such support aids farmers in surmounting obstacles and embracing sustainable practices. Thirdly, this process stimulates the development of strategies geared towards reducing production costs and enhancing productivity. Consequently, the economic feasibility of adopting sustainable palm oil practices is bolstered, potentially leading to increased profits for farmers.

For industry, the identification of barriers serves as a crucial instrument in comprehending the challenges faced by farmers during the adoption of sustainable practices. This understanding forms the basis for the development of strategies aimed at promoting sustainable sourcing, fortifying supply chain resilience, and meeting the escalating demand for responsibly produced palm oil. Furthermore, overcoming barriers opens avenues for improved market access for palm oil producers. By embracing enhanced sustainability practices, producers can meet certification requirements and gain entry into markets that prioritize sustainable sourcing, thereby bolstering market competitiveness and attracting a larger customer base. Simultaneously, addressing barriers serves as a testament to the industry's unwavering commitment to sustainability, augmenting its reputation, fostering consumer trust, and fortifying stakeholder relationships.

At the country level, surmounting barriers to the adoption of sustainable palm oil practices contributes to the conservation of biodiversity, protection of ecosystems, and reduction of deforestation. Such efforts align with the environmental objectives of numerous countries, encompassing the mitigation of climate change and the preservation of natural resources. Moreover, the identification of barriers assists policymakers in comprehending the challenges faced by farmers and enables them to formulate appropriate policies and regulations that promote sustainable palm oil production. This, in turn, facilitates countries in meeting their sustainability targets and fulfilling international commitments. The overcoming of barriers also translates into improved social conditions for farmers, entailing enhanced labor practices, equitable wages, and better livelihoods. Consequently, this contributes to the social development and well-being of rural communities.

From an academic perspective, the identification of barriers to RSPO adoption serves to deepen the understanding of the intricate dynamics inherent in sustainable palm oil production. This process enables the development of novel theories, frameworks, and models aimed at elucidating and addressing the challenges faced by farmers. Moreover, academic research offers evidence-based recommendations to policymakers, industry stakeholders, and farmer associations, furnishing them with guidance on overcoming barriers to RSPO adoption. Such contributions inform the formulation of effective policies, programs, and interventions, ultimately fostering progress in the field.

In conclusion, the identification of barriers encountered by farmers in adopting RSPO presents opportunities for practical solutions, improved sustainability practices, and advancements in academic research. These endeavors benefit farmers, industry, countries, and the realm of academic research as a whole.

CHAPTER II
LITERATURE REVIEW

This chapter provides a comprehensive literature overview of the palm oil industry, encompassing its global production, consumption, and key players. It delves into the specific case of Thailand, highlighting its role as a significant producer and the regional concentration of plantations in the southern provinces. Additionally, the document explores the various stages of the palm oil supply chain, encompassing cultivation, processing, distribution, and consumption. A central focus is placed on the Roundtable on Sustainable Palm Oil (RSPO) and its efforts to promote responsible practices within the industry. The chapter outlines the RSPO's vision, theory of change, and structure, emphasizing its commitment to achieving sustainable palm oil production through collaboration with various stakeholders.

Furthermore, the chapter details the four distinct supply chain models offered by the RSPO: Identity Preserved, Segregated, Mass Balance, and Book and Claim. Each model is explained, outlining its unique advantages, requirements, and suitability for different scenarios.

2.1 Landscape of Palm Oil in the Global Market

Palm oil has been a significant economic driver in Southeast Asian countries like Indonesia, Malaysia, and Thailand for a long time. It is the most cost-effective vegetable oil to produce because it has much higher yields compared to other oil crops such as soy, rapeseed, sunflower, coconut, and olive (Murphy et al., 2021). As shown in table 1, in 2021, global palm oil production reached 72.9 million tons, while consumption was slightly higher at 73.5 million tons. These figures account for 36.3% and 36.5% of total global vegetable oil production and consumption, respectively (Bank of Ayudhya Public Company Limited, n.d.-b). The Southeast Asian region, particularly Indonesia and Malaysia, is the main palm oil-producing area globally. Both countries

significantly influence global prices as they are the primary producers and exporters. Data from the World Bank (2023) confirms that Indonesia producing 43.5 million tons and Malaysia contributing 17.9 million tons annually). Together, they make up 83.9% of the world's palm oil output and account for 89.2% of international palm oil exports.

India is the largest import market, receiving 17.7% of global imports in 2021, followed by China (14.3%), the European Union (13.0%), and Pakistan (7.2%) (Bank of Ayudhya Public Company Limited, n.d.-b). According to the data collected by the bank of Ayudhya Public Company Limited, from 2015 to 2019, global demand for crude palm oil (CPO) for both consumption and energy production grew at an average rate of 4.8% per year, while production increased at a rate of 2.8% annually. By the end of 2021, there were accumulated stocks of crude palm oil amounting to 12.9 million tons.

Mn. Tonnes

	2016/17	2017/18	2018/19	2019/20	2020/21
Production	**65.3**	**70.5**	**74.2**	**73.0**	**72.9**
Imports	**46.1**	**46.6**	**50.2**	**47.2**	**47.6**
Domestic Consumption	**61.0**	**66.0**	**71.1**	**71.6**	**73.5**
- Food Use	43.7	45.7	47.7	47.7	49.2
- Industrial	16.7	19.7	22.7	23.2	23.5
- Feed Waste	0.7	0.7	0.7	0.7	0.8
Exports	**49.1**	**48.8**	**51.9**	**48.5**	**47.9**
Ending Stock	**10.1**	**12.4**	**13.8**	**13.9**	**12.9**

Source: U.S. Department of Agriculture and Krungsri Research

Table 1: World Crude Palm Oil Balance

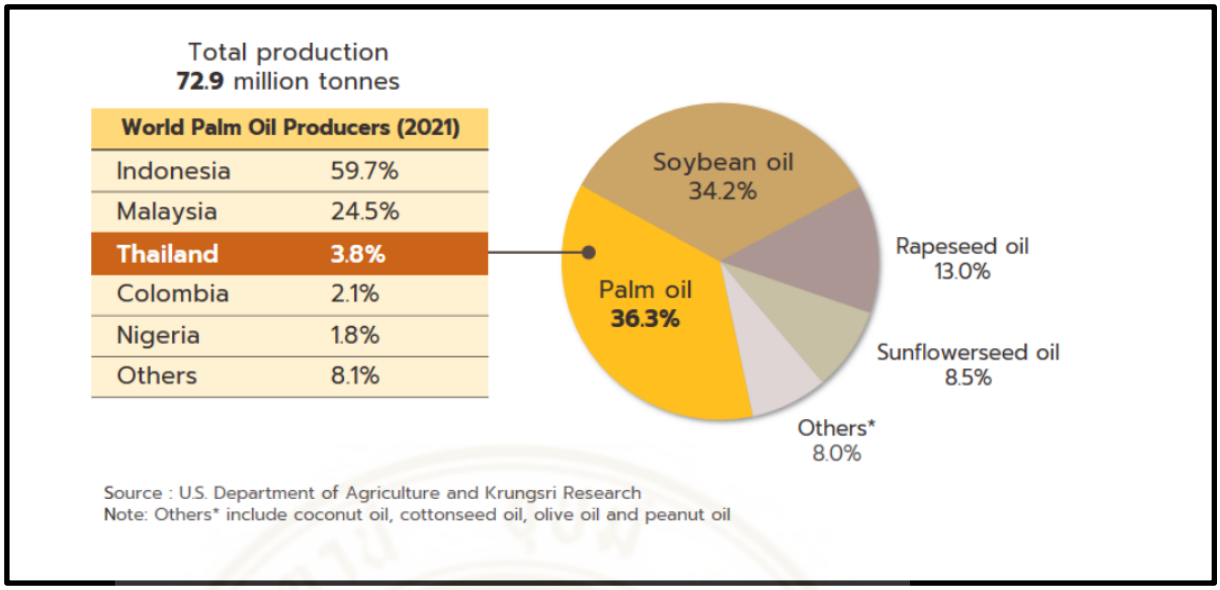

Figure 2: World Vegetable Oil Production

As shown in figure 1, Thailand ranks third in global palm oil production, although its contribution is only 3.8% of total global output (Chingnawan, 2022). Thailand's palm oil business is geographically concentrated, with 86.1% of cultivated land found in the country's south, primarily in the provinces of Surat Thani, Krabi, and Chumphon. The part of the reason being that southern region of Thailand offers favorable climatic and soil conditions suitable for cultivating palm oil. The warm and humid climate, combined with well-drained soils, create an optimal environment for palm oil trees to flourish and yield abundant crops. These conditions are especially ideal for growing oil palms, which serves as the main source of palm oil. Moreover, The southern region of Thailand benefits from well-developed infrastructure and transportation networks, facilitating the efficient movement of palm oil and its by-products from plantations to processing facilities, and ultimately to domestic and international markets. The presence of established infrastructure and easy accessibility has further contributed to the concentration of palm oil cultivation in the south.

Additionally, the southern region of Thailand also offers ample land availability for palm oil cultivation. Provinces like Surat Thani, Krabi, and Chumphon have relatively large land areas, providing opportunities for expansion and the establishment of palm oil plantations. The availability of suitable land has attracted

investments and played a role in concentrating the palm oil industry in this region. It is important to acknowledge that while palm oil cultivation is primarily concentrated in the south of Thailand, there are also palm oil plantations in other parts of the country, although their contribution to overall production is relatively smaller.

The remaining plantations are located in Thailand's central, northeastern, and northern areas. Oil palm planting increased between 2009 and 2018 as a result of the government's attempts to create renewable and alternative energy sources under the Alternative Energy Development Plan (AEDP). As a consequence, Thailand's total cultivated acreage for oil palm increased by 3.5% from 2020 to 5.1 million rai in 2021. According to the Office of Agricultural Economics and the Department of Internal Trade, the country produced 16.8 million tons of palm oil in the same year, which was processed into 3.0 million tons of crude palm oil, representing an 11.8% growth (Yaseen, 2023).

Moreover, in 2021, around 75% of Thailand's crude palm oil production was used in the local market. 52% of crude palm oil is used to make refined palm oil, which is utilized in the food sector to make snacks, instant noodles, condensed milk, creamer, margarine, shortening, ice cream, food supplements, vitamins, and chemicals. Furthermore, it is utilized in the manufacture of oleochemical goods such as soap, cosmetics, shampoo, and lubricants (Bank of Ayudhya Public Company Limited, n.d.-b).

The remaining 48% of domestic palm oil production is used to make biodiesel, specifically B100, which is combined with mineral diesel and used as a transportation fuel. Authorities alter the quantity of B100 in the diesel blend to match the seasonal output of crude palm oil. To handle the surplus supply of crude palm oil, the blend was increased from B7 to B10 in 2019. However, it was then cut to B7 in 2021 and then to B5 in 2022, reflecting the rise in local crude palm oil prices and stock depletion (Bank of Ayudhya Public Company Limited, n.d.-b).

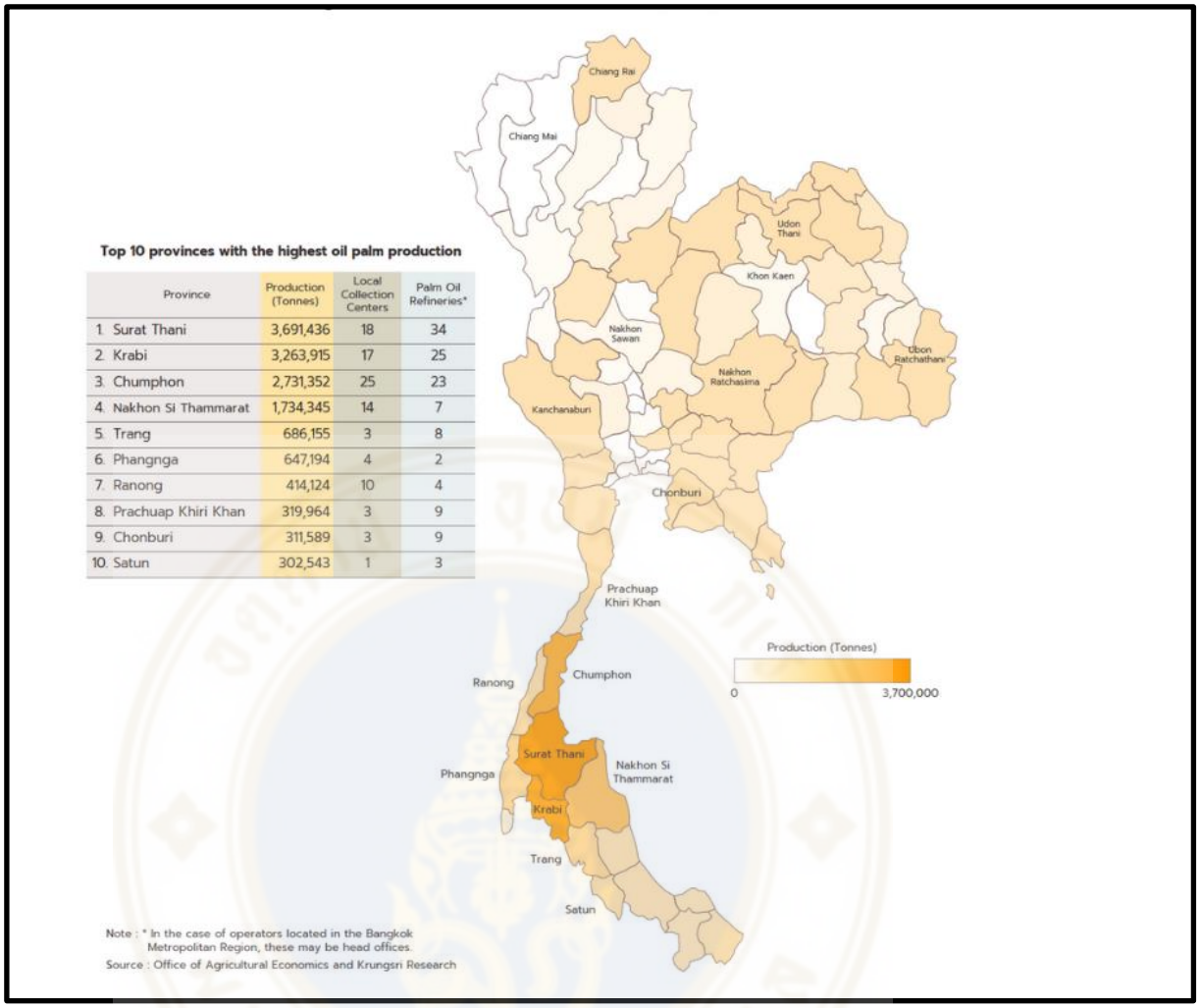

Figure 3: Thailand's Oil Palm production (2020)

2.2 Palm oil production in Thailand

Thailand has emerged as a significant player in palm oil production in recent years. While its production levels are lower compared to Indonesia and Malaysia, which are the world's largest producers, palm oil still holds economic importance for Thailand. The production volume of palm oil in Thailand has experienced fluctuations in recent years, with approximately 2.4 million metric tons produced during the 2020/2021 marketing year, according to data from the United States Department of Agriculture (USDA). Moreover, Figure 2 represents the 10 ten provinces in Thailand with the highest oil palm production.

Palm oil cultivation in Thailand is primarily concentrated in the southern regions, particularly in provinces such as Surat Thani, Krabi, and Chumphon (*Zero Waste Management to Increase Efficiency in Palm Oil Production and Processing for Food Security in Thailand*, 2016). These areas provide favorable conditions, including suitable climate and soil, for growing palm oil. Additionally, Thailand's palm oil industry involves a significant number of smallholder farmers who operate smaller-scale plantations, playing a crucial role in the country's palm oil production.

Similar to other palm oil-producing nations, Thailand faces concerns related to deforestation, environmental impact, and labor issues within the industry. Efforts such as the Roundtable on Sustainable Palm Oil (RSPO) have been implemented to promote sustainable practices and responsible palm oil production.

In terms of consumption and exports, Thailand utilizes a portion of its palm oil domestically for cooking oil, food processing, and biodiesel production (Mukherjee & Sovacool, 2014). According to Mukherjee and Sovacool (2014), the country also exports palm oil to neighboring countries in the region. It is important to note that specific data and trends regarding palm oil production in Thailand may vary over time. To obtain the most accurate and up-to-date information, it is advisable to consult official reports, government statistics, and industry publications that provide insights into palm oil production in Thailand.

2.3 Supply Chain of Palm

The palm oil supply chain encompasses multiple interconnected stages and stakeholders, spanning from palm tree cultivation to the final consumption of palm oil products. The supply chain begins with palm oil plantations, which can be owned by smallholders, large-scale commercial farms, or agribusiness companies. Palm fruits are harvested when they reach maturity. The bunches are relatively small at the beginning, but as the palm ages, they get larger and heavier. The output of fresh fruit bunches increases significantly throughout the first decade of maturity, peaking when the palm is around ten years old. This high level is then maintained for roughly eight years before yield gradually declines. Finally, the choice is made to replant the field, restarting the cycle from the beginning.

After harvesting, the palm fruits are transported to processing mills. These facilities employ sterilization, threshing, and pressing techniques to extract crude palm oil (CPO) and palm kernel oil (PKO). CPO is the primary product, while PKO is derived from the palm kernel. After that, the crude palm oil undergoes refining processes aimed at removing impurities and enhancing its quality. These refining procedures include degumming, neutralization, bleaching, and deodorization. The refined palm oil is then prepared for distribution and further processing.

After undergoing refining processes to enhance their quality and remove impurities, theRefined palm oil (RPO) is distributed to various participants within the supply chain, such as wholesalers, distributors, and traders. These entities play a vital role in transporting palm oil to refineries, manufacturers, and retailers. Trading companies serve as important intermediaries, facilitating connections between producers and buyers across different regions and countries.

Moreover, Palm oil finds extensive applications as a versatile ingredient in various industries, including food, personal care, pharmaceuticals, and biofuels. Manufacturers utilize palm oil as a raw material in the production of a wide range of products, including cooking oil, margarine, snacks, cosmetics, soaps, and detergents whereas Refined Palm kernel Oil is extensively used in food processing as an ingredient in the production of confectionery, bakery products, and margarine.The final stage of the palm oil supply chain involves the sale of palm oil-derived products to retailers and consumers. These products are commonly found in supermarkets, grocery stores, restaurants, and other retail outlets. Consumers purchase and utilize palm oil products as part of their daily lives.

As shown in figure 3, throughout the palm oil supply chain, a diverse range of stakeholders participate, including farmers, plantation owners, processors, traders, manufacturers, retailers, and consumers. Certification schemes like the Roundtable on Sustainable Palm Oil (RSPO) play a crucial role in promoting sustainable practices and traceability across the supply chain by ensuring adherence to environmental, social, and economic criteria. Nevertheless, It is essential to acknowledge that the palm oil supply chain can be intricate and extend across multiple countries and regions. Thus, transparency, traceability, and responsible sourcing practices are fundamental

considerations for fostering sustainability and ethical practices within the palm oil industry.

Figure 4: Supply Chain of Palm Oil.

2.4 The Roundtable on Sustainable Palm Oil (RSPO)

The Roundtable on Sustainable Palm Oil (RSPO) was established in 2004 by environmental organizations like WWF in response to the negative impacts caused by the high global demand for palm oil (Roundtable on Sustainable Palm Oil (RSPO), 2023b). Palm oil is the main driver of deforestation in tropical rainforests in Indonesia and Malaysia. RSPO, a non-profit organization and certification scheme, consists of members such as NGOs, institutions, purchasers, and manufacturers. Together, they have developed a certification standard to ensure that palm oil production adheres to

environmental and social principles and criteria (Roundtable on Sustainable Palm Oil (RSPO), 2023b).

The adoption of RSPO standards, even by small-scale producers (smaller plantations), has made significant progress globally, accounting for 19% of total production in 2020 (Ogahara et al., 2022). Certification has gained widespread acceptance in Indonesia and Malaysia, the largest palm oil markets, establishing RSPO as a relatively reliable and global standard. However, there is still much work to be done to establish a new sustainable norm for the industry.

The RSPO Independent Smallholder Standard was created in response to stakeholders' growing recognition of the need to include smallholders in the RSPO system. It takes into account the diverse challenges and situations faced by smallholders worldwide, along with their varying needs and concerns.

RSPO has always acknowledged the importance of smallholders and the necessity of their inclusion. The RSPO Smallholder Strategy, endorsed by the RSPO Board of Governors in June 2017, aims to simplify the certification system and standard (Principles, Criteria, and Indicators) to better suit smallholders' needs and contexts. In 2018, the RSPO Theory of Change (ToC) set the goal of including more smallholders in the system, enabling them to produce sustainable palm oil while achieving a sustainable livelihood (Roundtable on Sustainable Palm Oil (RSPO), 2023).

The RSPO Independent Smallholder Standard (RSPO ISH Standard) addresses the needs and challenges of independent smallholders through straightforward requirements and cost-effective tools that consider diversity, capacity, and incentives. As part of the simplification process, the RSPO ISH Standard places greater responsibility on group managers compared to the previous group certification system.

Furthermore, there is an increasing demand for sustainable palm oil among purchasers. However, more manufacturers and purchasers need to be convinced to join RSPO membership and, most importantly, meet the membership criteria.

2.5 The RSPO Vision and Theory of Change

The RSPO Vision and Theory of Change The RSPO Theory of Change (ToC) serves as a guiding path illustrating how RSPO intends to realize its vision of

establishing sustainable palm oil as the standard practice. In collaboration with its members, partners, and other stakeholders, RSPO will execute key strategies and initiatives aimed at catalyzing a transformation within the palm oil industry. These strategies aim to yield immediate results, such as increased adoption of RSPO standards, enhanced transparency and inclusivity within the RSPO system, greater acceptance of sustainable palm oil in the market, and an improved supportive environment. Over time, these initial outcomes are expected to culminate in broader impacts that will enhance the well-being of oil palm farmers, foster a more prosperous palm oil sector, and contribute to the conservation of our planet and its resources. When fully realized, this Theory of Change will bring about significant change where it matters most – on the ground, enabling coexistence among oil palm cultivation, the environment, and local communities. It also establishes a framework for monitoring, evaluating, and reporting on the effects of implementing RSPO Principles and Criteria.

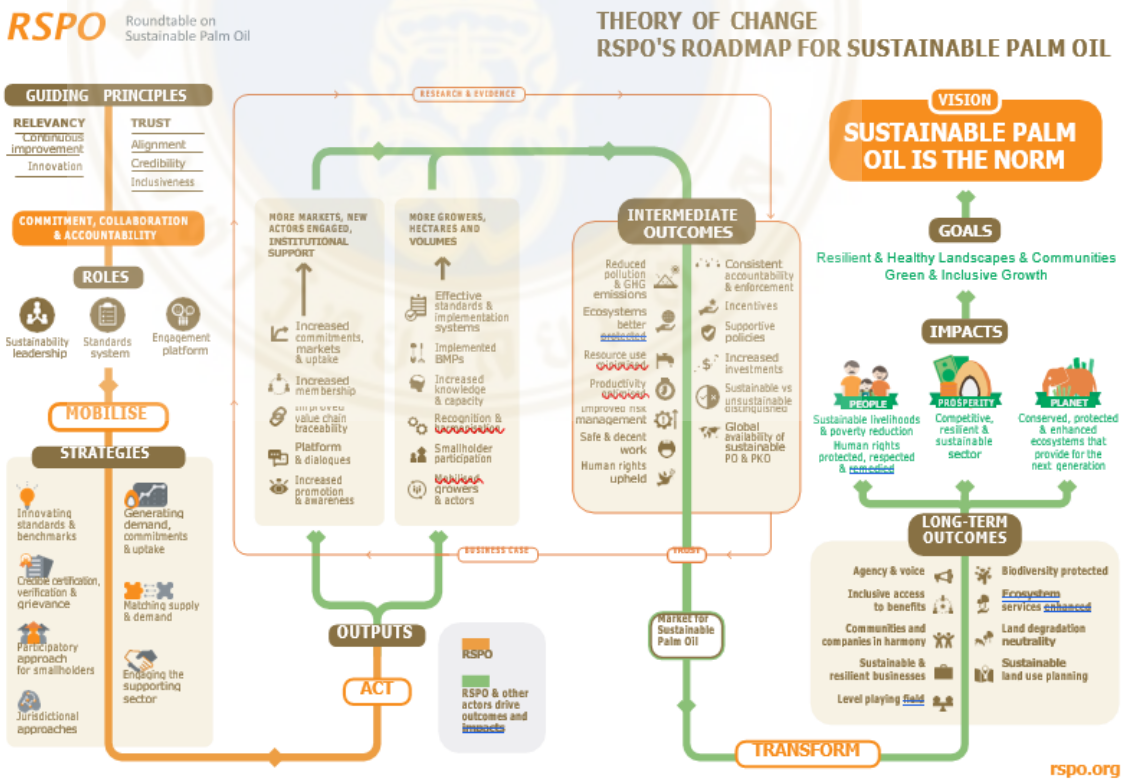

Figure 5: Theory of change RSPO's roadmap for sustainable oil.

The RSPO's structure is organized into three crucial areas: prosperity, people, and planet. Each of these areas encompasses various guiding principles. Under prosperity, which primarily emphasizes building a competitive, resilient, and sustainable sector, there are three key principles: behaving ethically and transparently, operating within legal boundaries while respecting rights, and optimizing productivity, efficiency, positive impacts, and resilience. Concerning people, the focus is on sustainable livelihoods and poverty reduction, involving principles such as respecting community and human rights and delivering benefits, as well as supporting the inclusion of smallholders. Finally, the planet aspect is dedicated to protecting, conserving, and enhancing ecosystems and the environment.

2.6 The RSPO (Roundtable on Sustainable Palm Oil) Certification

The RSPO (Roundtable on Sustainable Palm Oil) offers a comprehensive suite of certification and membership options tailored to cater to the diverse range of stakeholders within the palm oil industry. These options have been strategically developed to both incentivize and recognize sustainable practices. The key types of certifications and memberships provided by RSPO are outlined as follows:

RSPO Certified Sustainable Palm Oil (CSPO) is a fundamental certification bestowed upon palm oil producers who demonstrate full compliance with RSPO's rigorous sustainability criteria. This certification serves as a testament to the fact that the palm oil in question has been produced in accordance with RSPO's stringent environmental and social standards.

RSPO Principles & Criteria (P&C) Certification constitutes another pivotal certification category, granted to palm oil producers successfully exemplifying adherence to RSPO's Principles and Criteria. Through this certification, the company's operations are duly validated as meeting the requisite benchmarks for sustainability.

For companies aspiring to surpass the basic obligations, RSPO Next offers an elevated tier of certification. RSPO Next sets elevated standards for sustainability performance and commitments, encompassing a wider spectrum of environmental and

social criteria. This certification underscores a commitment to pushing beyond the industry norms in promoting sustainability.

RSPO Credits represent a market-driven mechanism wherein tradable certificates are issued to acknowledge the environmental and social advantages derived from the production and utilization of certified sustainable palm oil. Companies have the opportunity to acquire these credits as a means of offsetting their usage of non-certified palm oil, thus publicly demonstrating their active support for sustainable practices.

Complementing the certification options, RSPO offers diverse membership categories. RSPO Associate Membership caters to organizations that align with RSPO's objectives and seek to actively contribute to its endeavors, even if they are not directly involved in palm oil production or processing activities.

RSPO Ordinary Membership is specifically designed for organizations operating within the palm oil supply chain, including growers, processors, traders, and retailers. Ordinary Members possess the valuable right to vote and actively participate in the decision-making processes that shape the strategic direction of RSPO.

RSPO Affiliate Membership extends an invitation to organizations with a vested interest in sustainable palm oil, irrespective of their direct involvement in the supply chain. NGOs, research institutions, and other relevant stakeholders find a fitting platform within this membership category.

The availability of these diverse RSPO certifications and memberships underscores the organization's commitment to fostering and acknowledging sustainable practices across the palm oil industry. By offering a range of choices, RSPO aims to actively engage and mobilize various stakeholders in a concerted effort to advance responsible palm oil production practices.

2.7 The four Distinctive Supply Chain Model

The Roundtable on Sustainable Palm Oil (RSPO) provides four distinct supply chain models for sourcing palm oil or its derivatives that have been certified as sustainable. These models are Identity Preserved, Segregated, Mass Balance, and RSPO Credits/Book and Claim.

Each supply chain model offers unique advantages, has specific requirements, and allows for pre-approved consumer claims. These models serve different yet equally significant roles in realizing the RSPO's vision of making sustainable palm oil the standard in the market. It is crucial for organizations committed to sustainable sourcing to initiate their efforts by adopting one of these models.

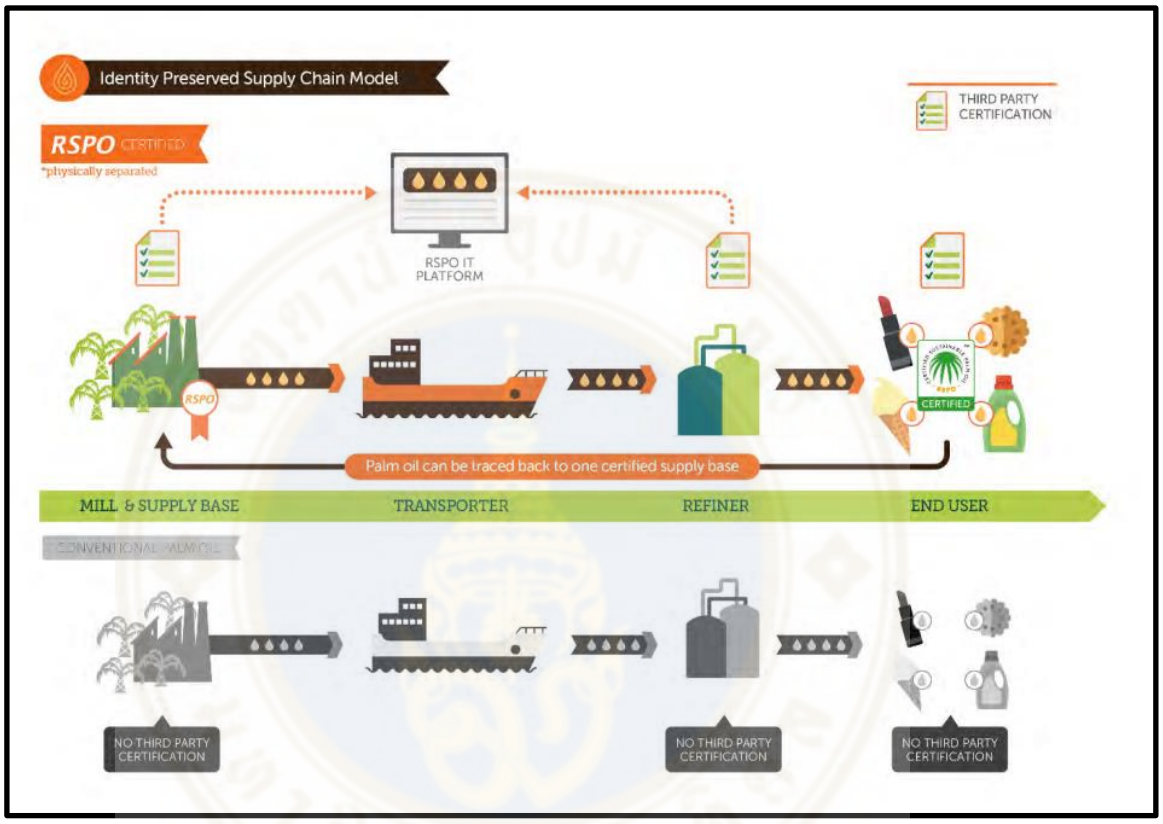

Figure 6: Illustrates identity preserved Supply chain model.

The Identity Preserved supply chain model offered by the RSPO is a robust system that ensures the traceability and integrity of sustainable palm oil throughout the entire supply chain. As shown in figure4, the model requires that palm oil and its derivatives to be traced back to a specific certified source, enabling a transparent and accountable process (Goggin & Murphy, 2018).

Under the Identity Preserved model, every stage of the supply chain is carefully monitored and documented, from the palm oil plantation to the final product. Goggin and Murphy (2018) in their research mentioned, this traceability allows for a

comprehensive understanding of the origin and journey of the palm oil, ensuring that it comes from a verified sustainable source.

By maintaining the identity of the palm oil from the certified source, organizations can provide a guarantee to consumers and stakeholders that the palm oil they are using or purchasing is indeed sourced sustainably. This assurance builds trust and credibility in the market, as consumers increasingly demand sustainable and responsibly sourced products.

The strict adherence to traceability in the Identity Preserved model safeguards against the mixing or contamination of palm oil from different sources. It prevents the dilution of sustainability claims and ensures that the certified palm oil retains its integrity from the specific certified source to the end consumer.

This level of traceability and integrity allows organizations to accurately communicate and promote the sustainability credentials of their palm oil products. It empowers consumers to make informed choices by providing them with clear information about the origin and sustainable practices associated with the palm oil they purchase.

Overall, the Identity Preserved supply chain model offered by the RSPO plays a crucial role in maintaining the credibility and accountability of sustainable palm oil production. By establishing a transparent and traceable supply chain, it supports the RSPO's mission of promoting sustainable practices and enables organizations to meet the growing demand for responsibly sourced palm oil.

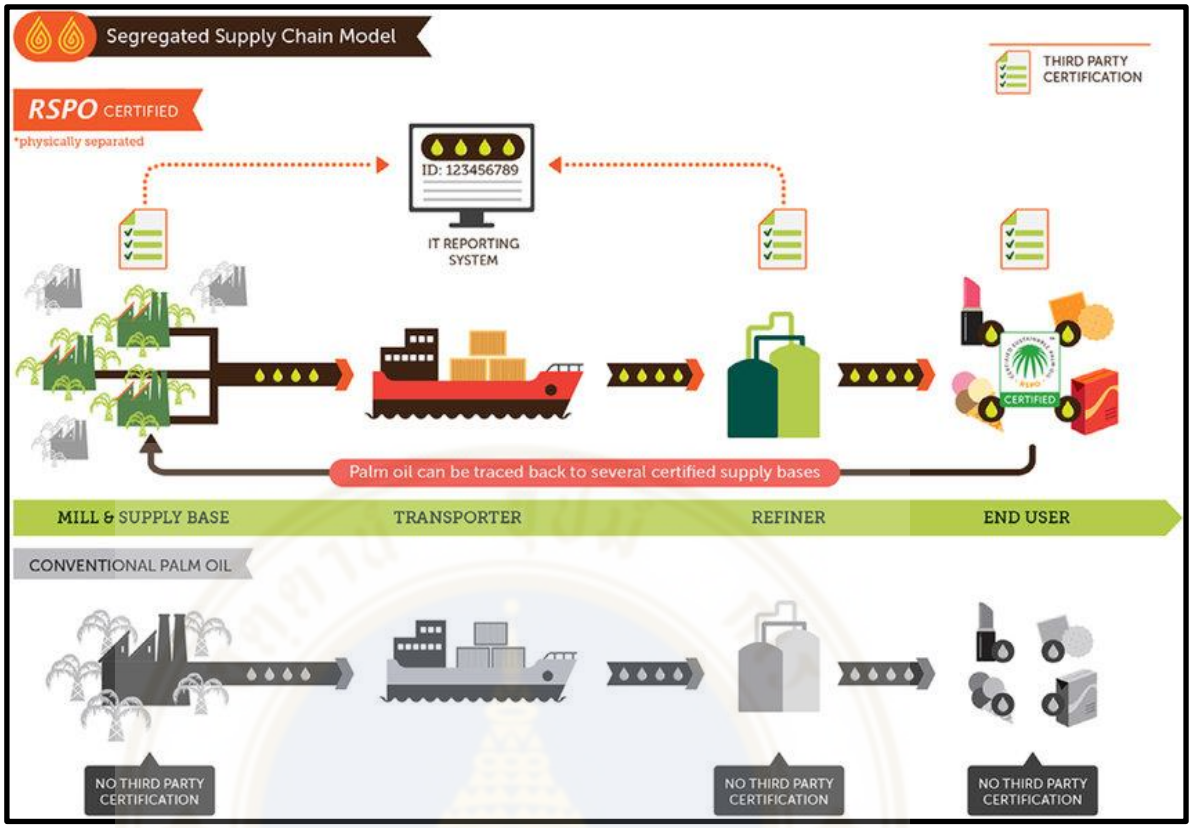

Figure 7: Shows the segregated supply chain model.

The Segregated supply chain model offered by the RSPO is a pivotal strategy for achieving a clear demarcation between sustainable palm oil and conventional palm oil throughout the entire supply chain. This model is purposefully designed to facilitate an unambiguous identification and handling of sustainable palm oil, thereby guaranteeing its segregation from non-certified palm oil.

The Segregated model operates under stringent protocols and practices that diligently uphold the physical separation of sustainable palm oil from conventional palm oil at each stage of the supply chain. This segregation commences from the initial point of production and meticulously persists through processing, refining, transportation, and culminates in the final products.

The physical separation of sustainable palm oil from non-certified palm oil, as enabled by the Segregated model, bestows confidence upon stakeholders, including discerning consumers, that they are indeed receiving palm oil sourced exclusively from verified sustainable origins. Such clarity in identification fosters enhanced transparency

and accountability, ensuring the accuracy and credibility of sustainability claims associated with the palm oil.

By minimizing the risks of contamination or commingling of sustainable and non-certified palm oil, the Segregated supply chain model meticulously safeguards the integrity and purity of sustainable palm oil throughout the entire supply chain. This dedicated segregation further facilitates precise reporting and auditing procedures, providing a reliable basis for the verification of the volume of sustainable palm oil produced and traded.

Through the adoption of the Segregated model, companies are empowered to effectively communicate their unwavering commitment to sustainable sourcing, assuring consumers that the palm oil in their products originates exclusively from responsible and certified sources. This model enables organizations to proactively address the mounting demand for palm oil sourced sustainably, while actively contributing to the broader objective of transforming the palm oil industry into an environmentally responsible and sustainable sector.

In conclusion, the Segregated supply chain model assumes a paramount role in ensuring a distinct identification and meticulous handling of sustainable palm oil, effectively segregating it from conventional palm oil across the entire supply chain. By adhering to this model, organizations can maintain the credibility of their sustainability claims, instill transparency and confidence among consumers, and meaningfully advance the practice of sustainable palm oil production within the industry.

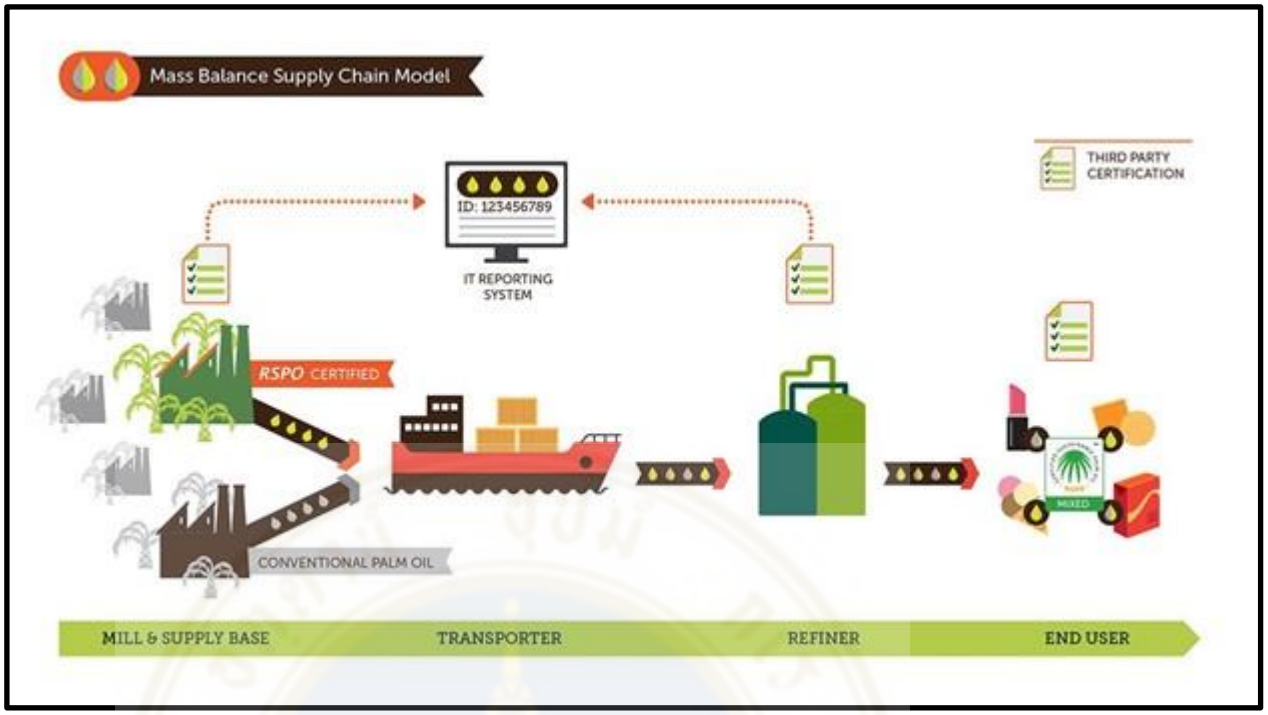

Figure 8: Demonstrates the mass balance supply chain model.

The Mass Balance (MB) supply chain model provided by the RSPO plays a pivotal role as an administrative mechanism for monitoring the trade of RSPO certified oil palm products throughout the entirety of the supply chain. It serves as a catalyst for driving the mainstream trade of RSPO certified oil palm products. It is important to note that the Mass Balance model operates exclusively at the site level, signifying that mass balance claims cannot be transferred between different sites.

By adopting the Mass Balance supply chain model, participants within the supply chain have a valuable opportunity to showcase their unwavering commitment to RSPO certified oil palm production and actively promote the trading of RSPO certified oil palm products. Through this model, companies can effectively demonstrate their support for sustainable practices and contribute to the wider adoption of RSPO certification within the industry.

The Mass Balance system provides flexibility by permitting the mixing of RSPO certified and non-certified oil palm products at any stage of the supply chain, contingent upon the meticulous control of overall quantities. This flexibility allows

companies to seamlessly integrate certified and non-certified palm oil while concurrently maintaining control and accountability at the site level.

Under the Mass Balance supply chain model, certified oil palm products that are delivered to end users can be reliably traced back to a list of RSPO certified mills. This robust traceability mechanism ensures that the palm oil products can be unequivocally linked to specific mills that have diligently met the RSPO's stringent sustainability criteria. This transparency and traceability instill confidence in end users, assuring them that the oil palm products they utilize or purchase originate from mills that adhere to robust sustainable practices.

By wholeheartedly embracing the Mass Balance model, companies actively contribute to the mainstream trade of RSPO certified oil palm products, thereby fostering increased market demand for sustainable palm oil. The model enables a balanced approach, where the mixing of certified and non-certified oil palm products is carefully regulated, facilitating companies' transition towards heightened sustainability while simultaneously maintaining the efficiency of the supply chain.

The Mass Balance supply chain model, within the RSPO framework, serves as an essential administrative mechanism for effectively monitoring the trade of RSPO certified oil palm products across the supply chain. By adopting this model, participants can effectively demonstrate their steadfast commitment to RSPO certification and proactively promote the trade of certified oil palm products. The inherent flexibility of the Mass Balance system allows for controlled blending of certified and non-certified palm oil, all while ensuring traceability to RSPO certified mills. By embracing the Mass Balance model, companies actively contribute to the mainstream adoption of sustainable palm oil practices and meet the ever-increasing demand for responsibly sourced palm oil.

By offering these different supply chain models, the RSPO accommodates the diverse needs and capabilities of organizations in their journey towards sustainable palm oil sourcing. Adopting one of these models allows companies to take immediate action and demonstrate their commitment to responsible sourcing. By doing so, they contribute to the realization of a sustainable palm oil market and support the RSPO's overarching mission.

CHAPTER III
RESEARCH METHODOLOGY

This study explores the barriers faced by smallholders in the palm cultivation industry in Thailand using a qualitative approach and secondary data sources. This section delves into the research methodology, encompassing the study design, selection of participants, data collection methods, data analysis techniques, ethical considerations, and any limitations inherent to the research.

3.1 Research design

This study is designed with a qualitative approach, utilizing secondary data sources as the primary method of data collection. There are two compelling reasons to opt for a qualitative approach in this study: nature of the research and convenience. The main objective of this research is to explore and analyze the barriers faced by smallholders in the palm cultivation industry. To achieve this, a meticulous examination of a sequential collection of information related to one's experiences and perceptions are conducted, then reviewed by managers and professionals within the relevant field.

3.2 Date collection method

The data collection method employed in this study utilizes secondary data source. Secondary data is obtained from reputable sources, including journals like the International Business Journal from the years 2021 to 2023 and the Journal of Cleaner Production. These journals publish research on sustainable production and consumption, including studies specifically related to sustainable palm oil production, environmental impacts, and certification systems.

To filter the secondary data, specific keywords and concepts related to sustainable practices, the Roundtable on Sustainable Palm Oil (RSPO), and palm oil are

used. This ensures that the collected data focuses on topics related to sustainable palm oil practices and certification.

In addition to journals, websites such as the Department of International Trade (DIT) and the World Agricultural Supply and Demand Estimates (WASDE) are utilized. These websites provide data on the global and local demand and supply of palm oil, along with information on remaining stock levels in the country and the extent of plantation areas.

By incorporating both secondary data sources, such as reputable journals and websites, this study aims to gather comprehensive and up-to-date information on sustainable palm oil production, environmental impacts, and economic factors associated with the growth of palm cultivation. Moreover, These sources provide a wealth of existing knowledge and insights on the research topic, allowing for a comprehensive exploration that encompasses diverse perspectives and expert opinions. By including a wide range of secondary data, the study can benefit from a broader context and historical background, enhancing the understanding of the subject matter.

To further enrich the research, data is obtained directly from prominent palm oil companies operating in Thailand, which are recognized as key players in the market. By accessing data from these industry leaders, the study gains valuable insights into their practices, policies, and perspectives related to palm oil production. This data collection method enables a deeper exploration of specific experiences, perceptions, and attitudes within the industry.

Moreover, the study also incorporates data sourced from a group of smallholders from Pitak Palm oil who are directly involved with the Roundtable on Sustainable Palm Oil (RSPO), as well as organizations participating in the RSPO's supply chain. By engaging with these stakeholders, the research captures second-hand information and experiences related to sustainable palm oil practices. The perspectives of the farmers and organizations involved in the RSPO's supply chain provide valuable insights into the on-the-ground realities, challenges faced, and their attitudes towards sustainability initiatives.

3.3 Key Informant

In the study focused on exploring the obstacles encountered by smallholders in the palm cultivation industry, the secondary research relies on the involvement of various individuals with expertise in the field. These participants consist of researchers, experts, or professionals who have previously undertaken activities such as surveys, interviews, or data collection directly from smallholders. Their valuable contributions, stemming from their in-depth knowledge and experience, form an essential part of the secondary research process.

Additionally, the author of this study supplements the existing data by incorporating personal observations and insights gained from their work experience within a prominent palm oil industry in Thailand. This includes detailed notes derived from firsthand observations of farmers, as well as the utilization of data acquired during their professional engagement in the industry. By incorporating these sources of information, the author enhances the breadth and depth of the secondary research, allowing for a more comprehensive understanding of the barriers faced by smallholders in the palm cultivation sector.

3.4 Data analysis

This study is designed with a qualitative approach, utilizing secondary sources as the primary method of data collection. The instrument employed in this secondary research is a meticulous examination of a sequential collection of information from existing sources such as books, journals, reports, websites, or databases. Instead, this research relies on techniques like literature reviews, content analysis, or systematic reviews to extract and analyze relevant data from these sources.

The focus is on reviewing and synthesizing the findings, interpretations, and conclusions presented in previously conducted studies or publications. The instrument, in this case, is essentially the researcher's analytical skills and critical thinking abilities used to extract, evaluate, and interpret the data gathered from secondary sources.

In the given context, one suitable data analysis technique for the qualitative study on the barriers faced by smallholders in the palm cultivation industry is thematic analysis. Thematic analysis involves identifying recurring patterns, themes, or concepts

in the data. To apply thematic analysis in this study, the researcher conducts a meticulous examination of the sequential collection of information from secondary sources, such as books, journals, reports, and websites. They carefully review and analyze the data, focusing on identifying the key barriers faced by smallholders in the palm cultivation industry.

The process starts by reading through the selected sources to gain a comprehensive understanding of the data. As the material is re review the material, they would start identifying meaningful categories and subcategories related to barriers faced by smallholders. This process may involve highlighting relevant quotes or passages, noting commonalities or differences in perspectives, and identifying key concepts or themes related to the barriers.

Lastly, the researcher interprets the findings within each theme, providing a rich and nuanced understanding of the barriers faced by smallholders in the palm cultivation industry. The results of the thematic analysis are presented in a coherent and structured manner, highlighting the main themes, sub-themes, and supporting evidence from the secondary sources. By applying thematic analysis to the collected secondary data, this study uncovers and analyzes the barriers faced by smallholders in the palm cultivation industry, offering valuable insights for managers, professionals, and policymakers working in this field.

3.5 Ethical Considerations

As this research is extensively based on secondary research, the concern of giving proper credit and avoiding plagiarism should be prioritized. Moreover, the palm oil industry has always been subjected to transparency of data shared hence ensuring the reliability and accuracy of data should be concerned, Moreover, refraining from data manipulation and biases should be avoided. Adhering to these ethical guidelines is essential for upholding the integrity of research and showing respect for individuals and their data.

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3.6 Limitations

It is important to acknowledge a potential limitation of this research, namely that the collected data is predominantly focused on the southern region of the country. In the southern region of Thailand, approximately 86.4% of oil palm plantations and the facilities where they are processed are situated. Among these, the provinces of Krabi, Surat Thani, and Chumphon account for 60% of the nation's total oil palm plantations. The remaining 13.6% of oil palm plantations can be found in the central, northern, and northeastern parts of Thailand. Consequently, there is a potential lack of representation for smaller regions engaged in palm cultivation. Therefore, the research findings may not provide a comprehensive understanding of the barriers faced by smallholders across the entire country. This limitation should be considered when interpreting the results.

Despite this limitation, the exploratory nature of this study holds significant value. By gaining preliminary insights into the challenges confronted by smallholders, it lays the foundation for further research and a more comprehensive understanding of the topic. Moreover, conducting this research in a cost-effective manner allows for the identification of key concepts, theories, and knowledge gaps before undertaking more extensive and comprehensive investigations in the future.

CHAPTER IV
FINDINGS AND DISCUSSIONS

This chapter presents the findings and discussions from the conducted research, aiming to highlight the current requirements of the RSPO certification process.

Part one of this chapter focuses on the key takeaways from the document analysis. This analysis aimed to gain a deeper understanding of the actions and procedures involved in implementing RSPO certification. By examining relevant documents, the research sought to clarify the steps and protocols necessary for achieving RSPO compliance.

Part two of the chapter shifts its focus to the experiences of smallholder groups with the RSPO process. Through interviews with farmers' assistance groups, the research explored the lived experiences of those directly involved in implementing RSPO on the ground. This section aims to identify factors that hinder the successful implementation of RSPO certification, providing valuable insights from the perspectives of those most affected by the process.

By combining the findings from document analysis and interviews with farmers' assistance groups, this chapter offers a comprehensive understanding of the current requirements and challenges associated with RSPO implementation.

4.1 RSPO Criteria

The RSPO criteria revolve around three main vital areas: Prosperity, People, and Planet. Each of these areas has different impact goals with different objectives.

4.1.1 PROSPERITY (Impact Goal: Competitive, resilient, and sustainable sector)

A palm oil sector that is sustainable, competitive, and able to bounce back from challenges ensures the supply chain's long-term health and benefits for both private companies and the communities where oil palm is cultivated. Well-designed planning and management systems take into account economic viability, environmental and social compliance, and risk management. They also establish procedures and systems to ensure adherence to the RSPO P&C and promote ongoing improvements toward sustainable palm oil practices. The principles included are:

Principle 1: Behave ethically and transparently.

The main goal of the company is to encourage ethical conduct in all its dealings and interactions. This entails conducting business in a way that is not only lawful but also takes into account the moral and societal consequences of its actions. By following ethical practices, the company seeks to establish trust and openness with all its stakeholders, such as customers, suppliers, workers, and the communities in which it operates. This cultivates strong and positive relationships, which are vital for long-term success and viability.

To accomplish this goal, the company must fulfill specific requirements as part of its certification procedure. One vital aspect is furnishing relevant stakeholders with comprehensive details about various facets of its operations, especially those concerning environmental, social, and legal matters falling under the RSPO (Roundtable on Sustainable Palm Oil) Criteria. This information should be communicated in an easily understandable and accessible manner for all stakeholders, regardless of their language or background. By doing so, the company empowers stakeholders to actively engage in decision-making, making sure their opinions are acknowledged and taken into consideration.

One approach to demonstrate compliance with this obligation is by making management documents, specified in the RSPO P&C (Principles and Criteria), publicly accessible. These documents might encompass reports, policies, and guidelines outlining the company's approach to sustainability and responsible practices. By openly sharing this information, the company displays its dedication to transparency and responsibility.

Maintaining records of information requests and responses is another pivotal element. This guarantees that the company can promptly monitor and address its

stakeholders' requirements. It also aids in establishing a record of interaction and showcases the company's responsiveness to stakeholder concerns.

Moreover, the company must have well-documented procedures for consultation and communication in place. These procedures should delineate how stakeholders can interact with the company, express their viewpoints, and provide input. By having a structured method for consultation and communication, the company assures effective engagement with all relevant stakeholders and integration of their perspectives.

As a part of the certification prerequisites, the company must maintain an up-to-date list of contacts and details of stakeholders along with their designated representatives. This assists in establishing clear communication channels and ensures that pertinent stakeholders are kept informed about the company's activities and decisions that might impact them.

Beyond stakeholder engagement, the company must also infuse ethical behavior throughout its operations. This involves having a clearly defined ethical conduct policy that applies to all aspects of the business, including hiring processes and contractual agreements. By adhering to this policy, the company guarantees that its actions are in alignment with its ethical principles and values.

To ensure adherence to the ethical policy and overall ethical business practices, the company should establish a monitoring system. This system enables the company to regularly evaluate its operations and transactions, pinpoint areas for enhancement, and address any deviations from the ethical guidelines.

Meeting these criteria and indicators laid out in the RSPO certification aims to bolster risk management within the company. By promoting ethical behavior, cultivating trust, and engaging with stakeholders, the company can proactively tackle potential risks and challenges, all while positioning itself as a responsible and sustainable entity in the market.

Principle 2: Operate legally and respect rights.

The business places a fundamental emphasis on upholding legal conformity, which serves as the cornerstone of its operations, regardless of its operational location. This entails the company's full commitment to adhering to pertinent laws and regulations at local, national, and international levels. These legal prerequisites are

pivotal in guaranteeing that the business operates within the confines of the law and avoids any potential legal quandaries.

To exhibit its unwavering dedication to legal adherence, the certified unit must establish a meticulously documented system. This system is devised to monitor any alterations to the law and ensures that the business remains well-informed about evolving legal obligations. Furthermore, the company must perform due diligence on all entities it engages with, encompassing third-party contractors, recruitment agencies, service providers, and labor contractors. Through thorough assessment of the legal backgrounds and practices of these parties, the company can mitigate risks tied to non-compliance and illicit actions.

Clearly delineating and consistently observing legal or authorized limits is indispensable for sustainable and conscientious operations. By abiding by these boundaries, the company guarantees that it respects the rights of others and abstains from activities that might cause harm or breach legal mandates. This holds particular significance in industries interacting with natural resources and land, as adherence to legal boundaries aids in preserving ecosystems and forestalling encroachments on protected areas.

The responsibility for legal conformity extends beyond the business itself. All contractors delivering operational services and labor, as well as FFB (Fresh Fruit Bunches) suppliers, are also mandated to conform to legal requisites. This entails maintaining a comprehensive roster of contracted parties and ensuring that all agreements, especially those pertaining to FFB supply, encompass specific clauses necessitating compliance with relevant laws. Furthermore, these agreements should explicitly proscribe the use of child, forced, or trafficked labor, championing equitable and ethical labor practices. In cases where young workers are employed, the contracts should incorporate protective provisions to ensure their rights and well-being are upheld.

By satisfying these criteria and indicators, the business not only enhances its risk management strategies but also upholds fundamental human rights, safety protocols, and decent labor conditions. This commitment to ethical practices reflects the company's devotion to being a responsible corporate entity, contributing to a favorable and sustainable work environment.

Moreover, assuring the legality of all FFB supplies from external origins is pivotal for upholding supply chain integrity and sustainability. For FFB sourced directly by the mill, the company must verify crucial details such as the geographic source of the FFB and the land ownership status or rights/claims held by the grower or smallholder. Additionally, valid planting, operational, or trading licenses should be provided where relevant, or the FFB supplier should be affiliated with an authorized cooperative for FFB trading. These measures affirm that the company procures raw materials responsibly, minimizing the risk of engagement with suppliers involved in unlawful or ecologically detrimental activities.

To conclude, adherence to these comprehensive criteria and indicators not only ensures legal conformity but also nurtures a culture of principled business conduct, safeguarding human rights, environmental sustainability, and equitable labor practices. Through proactive implementation of these measures, the business can establish itself as a socially and environmentally responsible entity within its industry.

Principle 3: Optimize productivity, efficiency, positive impacts and resilience.

To ensure the continuous enhancement of business operations, the initial step in establishing a successful and sustainable enterprise involves devising and executing plans, protocols, and systems that foster ongoing refinement. This entails consistently identifying methods to enhance the business's performance, efficiency, and effectiveness. For this purpose, the business must institute a management plan focused on securing the company's economic and financial sustainability in the long term. This plan should delineate strategies for growth and triumph, spanning a minimum span of three years. In the case of collaborations with Scheme Smallholders, joint efforts should be made to create a business proposal aligned with their requirements and objectives. Furthermore, a five-year annual replanting scheme should be established to ensure systematic and periodic replanting, sustaining productive output. Regular managerial evaluations should be carried out to remain aligned with the scale and nature of operations.

Additionally, consistent assessment and refinement of performance are pivotal for enduring success. By consistently evaluating its economic, social, and environmental performance, the company can pinpoint areas necessitating improvement

and take suitable measures to elevate its operations. The crux of achieving continuous betterment lies in crafting action plans that specifically target the identified growth areas. These plans should meticulously consider the societal and environmental impacts of the business, seizing opportunities for positive transformation. Once devised, it's imperative to execute these action plans and closely monitor their progress over time. As part of this monitoring process, annual reports should be submitted to the RSPO Secretariat, employing a standard template furnished by the Roundtable on Sustainable Palm Oil (RSPO). This practice ensures transparency regarding the company's advancements and underscores its unwavering commitment to constant enhancement.

Furthermore, enacting and overseeing operating protocols is imperative for ensuring consistent and seamless business functioning. For this, clearly articulated and documented Standard Operating Procedures (SOPs) should be in place, outlining the procedures for various tasks and activities. Once instituted, it's vital to ensure the consistent application of these protocols throughout the organization. To achieve this, the business should implement mechanisms to verify adherence to the SOPs. Maintaining records of this monitoring process and any consequent actions taken based on findings is critical for accountability and improvement.

Prioritizing social and environmental impact before commencing new plantings or operations is paramount. Hence, a comprehensive Social and Environmental Impact Assessment (SEIA) should be conducted. This assessment aids the company in comprehending the potential societal and environmental consequences of its endeavors. Engagement of all stakeholders, including local communities and Scheme Smallholders, is vital to make informed decisions and ensure responsible and sustainable undertakings. To perpetuate responsible practices, a social and environmental management and monitoring plan should be updated regularly. This blueprint outlines the measures taken by the business to manage its impact and uphold continuous enhancement. Here again, involving stakeholders in the plan's development, implementation, and review is pivotal for transparency and efficacy.

A robust Human Resources Management system plays a pivotal role in the business's triumph, as it hinges largely on its human capital. It's, therefore, vital to establish an effective system for managing human resources. This encompasses articulating clear employment protocols for various aspects such as recruitment,

selection, hiring, promotion, retirement, and termination. These protocols should be readily accessible to employees and their representatives, ensuring transparency and fairness. Consistent adherence to these procedures, along with maintaining records, showcases accountability and compliance.

Furthermore, the welfare of employees and all involved in the business's activities takes precedence. To ensure a safe working milieu, a well-documented occupational health and safety (H&S) plan should be devised. This plan should be effectively communicated to all personnel. A crucial aspect involves conducting risk assessments for all operations. By identifying potential health and safety hazards, the company can formulate mitigation strategies and protocols to mitigate these risks. Periodically monitoring the efficacy of the H&S plan is essential for upholding a secure and healthy workspace.

Investing in pertinent training for all personnel is vital to foster a skilled and adept workforce. This encompasses employees, workers, Scheme Smallholders, and outgrowers. Training programs should consider the specific needs of different genders and cover relevant facets of the RSPO P&C. Training content should be accessible and comprehensible, tailored to the participants' backgrounds in terms of language and format. Regular assessments should be conducted to gauge the training's effectiveness. Specialized and pertinent training should be provided for personnel pivotal in implementing the Supply Chain Certification Standard (SCCS).

By adopting these strategies and practices, the business can perpetually refine its operations, embrace sustainability, and maintain a positive influence on society and the environment. These measures not only benefit the business itself but also demonstrate ethical and responsible business practices to stakeholders and the broader community.

4.1.2. People (Impact goal: Sustainable livelihoods and poverty reduction)

Human rights are upheld, honored, and addressed appropriately. The palm oil industry plays a role in alleviating poverty, and the production of palm oil provides a foundation for sustainable livelihoods. Human rights are acknowledged and upheld. Individuals are actively involved in decision-making processes that impact them,

ensuring equitable access and advantages. All individuals involved in palm oil production have an equal chance to realize their abilities within both their professional and communal contexts, fostering a sense of respect and parity. This occurs within a healthy and conducive workspace and living environment.

Principle 4: Respect community and human rights and deliver benefits.

The RSPO guidelines for sustainable palm oil manufacturing center on three primary domains: Economic well-being, Individuals, and Environment. These guidelines have the objective of establishing a sustainable, competitive, and adaptable palm oil industry that brings advantages not solely to businesses but also to the localities where palm oil is cultivated. To realize this goal, it's vital to have efficient planning and management mechanisms in place. These mechanisms should consider economic feasibility, adherence to environmental and social standards, and the management of potential risks. Through ongoing enhancement of methods, the palm oil sector can progress towards enduring sustainability and conscientious production.

An integral factor of the RSPO criteria pertains to the adherence to human rights principles, with a focused emphasis on safeguarding Human Rights Defenders (HRDs). A meticulously documented policy framework is imperative to ensure the security of HRDs and preempt any potential reprisals. This policy mandate necessitates dissemination across all echelons of the organizational structure, spanning supply chains and local communities. It is categorically proscribed for any form of intimidation or harassment, even with involvement from contracted security entities, to transpire within the certified unit. The primary objective is the establishment of an environment that is both secure and supportive, fostering a culture of universal rights preservation.

Simultaneously, the effective handling of grievances and disputes constitutes a pivotal stipulation within the RSPO guidelines. To this end, a mutually endorsed and exhaustively documented framework must be enacted to address grievances, with the concurrence of all pertinent stakeholders. The overarching objective is the equitable, expeditious, and judicious resolution of conflicts, while assuring the anonymity of complainants, HRDs, community spokespersons, and whistleblowers upon their request. Compliance with the RSPO's principles regarding the dignity of HRDs underscores the certified entity's unwavering commitment to the equitable and transparent resolution of disputes. The protocols delineated should be

unequivocal and accessible, catering to diverse literacy levels among stakeholders. Maintaining a consistent flow of information regarding the progression of grievance redressal is of paramount importance, culminating in the dissemination of outcomes to pertinent stakeholders.

Regarding land utilization, the RSPO standards underline that the expansion of oil palm plantations must not encroach upon the lawful, traditional, or practical rights of other land users without obtaining their Free, Prior, and Informed Consent (FPIC). To verify compliance, documentation indicating lawful ownership or leasing, as well as authorized utilization of customary land, should be accessible. These documents should result from a consultation procedure carried out in earnest with all impacted groups, with special attention given to vulnerable, minority, and gender-related groups. Local communities should be well-versed about the measures undertaken to engage them in decision-making. The certified entity must honor the choices of communities in either granting or withholding their approval for operations, whenever these decisions were established. Inclusive mapping involving affected parties aids in delineating the scope of recognized legal, customary, or practical rights, thereby ensuring openness in land allocation procedures.

When establishing fresh palm oil plantations, it is of vital importance to secure Free, Prior, and Informed Consent (FPIC) from local communities who possess verifiable legal, customary, or practical rights to the land. This FPIC procedure should be exhaustive and uphold the rights of communities over their territories, lands, and resources. All pertinent information and documents should be accessible to local communities, and they should have access to impartial guidance throughout the consultation and negotiation phases. The entity seeking certification must ensure that affected local communities comprehend their entitlement to decline operations slated for their lands, and they should retain the option to withhold consent during distinct stages of the planning procedure. Any agreements forged should be devoid of duress, wholly voluntary, and concluded prior to the commencement of new undertakings. Factoring in the local sustenance and water security is pivotal within the FPIC process, and involving local communities in assessments and land-use planning through participatory approaches is indispensable to adequately address their requisites.

In terms of recompense for the forfeiture of legal, customary, or user rights, the RSPO guidelines underscore the significance of a well-documented and equitable method. This course of action ought to engage indigenous groups, nearby communities, and additional stakeholders in voicing their perspectives via their representative bodies. Agreements should be reached on protocols for pinpointing the deserving recipients of compensation, and the dispensation of compensation should be impartial and uniform, with due regard for gender-related factors. The procedure should be inclusive, and remedial measures should be implemented grounded on assessments to guarantee the appropriateness of the compensation.

The RSPO standards also highlight the importance of ensuring equal opportunities for both men and women to hold land titles for small holdings. The results of negotiated agreements, compensation, and payments should be meticulously recorded, and proof of the involvement of affected parties should be made publicly accessible.

Lastly, the RSPO guidelines stress the significance of validating the right to use the land and preventing any legitimate disputes concerning land rights within local communities. Evidence of legal acquisition of land titles and substantiation of agreed-upon compensation for those with legal, customary, or user rights should be accessible and provided to involved parties in case of disputes. Processes for resolving conflicts should be instituted and accepted by all parties in instances of land disagreements. The certified entity should address any unresolved conflicts in recently acquired plantations using appropriate conflict resolution mechanisms. If evidence indicates land acquisition through dispossession or forced abandonment of customary or user rights before current operations and there are still parties with proven rights to the land, these claims should be addressed in accordance with pertinent requisites. In scenarios involving land conflicts or disputes, participatory mapping that incorporates affected parties, including neighboring communities, should be carried out to determine the scope of contested regions and aid in devising impartial resolutions.

Collectively, the RSPO criteria underscore the responsible and sustainable production of palm oil, safeguarding human rights, engaging communities, and ensuring just compensation for land utilization. By adhering to these standards, palm oil

producers can showcase their dedication to social and environmental conscientiousness and contribute to a more sustainable future for the industry.

Principle 5: Support Smallholder Inclusion

Incorporate smallholders into RSPO supply chains and enhance their quality of life through just and transparent collaborations. One of the requirements involves establishing transparent and equitable partnerships with smallholders within RSPO supply chains to enhance their living conditions. The certified entity must treat all smallholders (both Independent and under the Scheme) and local businesses fairly and transparently. They should make the prices paid for Fresh Fruit Bunches (FFB) available to smallholders, including historical prices, and ensure regular communication about FFB pricing. The unit should mutually agree on equitable pricing, potentially including premiums, with smallholders in the supply network, and these agreements should be documented. All stakeholders, including women and representative organizations assisting smallholders, should participate in decision-making processes and fully comprehend the terms of contracts. These contracts should cover financial aspects, loans/credits, and any reductions in FFB prices for replanting or other relevant support mechanisms. Contracts need to be equitable, lawful, and transparent, and should outline payment schedules, with receipts detailing price, weight, deductions, and the sum paid.

The second requirement centers on advancing the well-being of smallholders and integrating them into sustainable palm oil value chains. The certified entity should engage with interested smallholders (irrespective of type) and other partners in their supply network to assess support needs and interest in RSPO certification.

Furthermore, the certified entity must create and implement programs to enhance livelihoods. These programs should encompass skill enhancement to boost productivity, quality, organizational and managerial proficiencies, and specific components of RSPO certification (such as the RSPO Standard for Independent Smallholder) as needed. If relevant, the entity should aid smallholders in ensuring the legality of FFB production. Evidence should exist that the certified entity trains Scheme Smallholders in pesticide handling. Regular evaluations of the smallholder support program's progress should be conducted and publicly disclosed.

Principle 6: Respect workers’ rights and conditions

Principle number six concentrates on upholding the rights and ensuring the welfare of workers within the workplace. The initial requirement focuses on eradicating all forms of bias. To accomplish this, a policy advocating impartiality and equal prospects should be made accessible to the public. This policy must preclude discrimination rooted in factors such as ethnicity, religion, gender, and age. It should further guarantee equitable treatment of workers, encompassing local communities, women, and migrant workers, devoid of any prejudice. Furthermore, there should be verifiable evidence of unbiased recruitment practices and the absence of discrimination against pregnant women. The establishment of a gender committee should be in place to address concerns relating to the well-being of women, alongside assurance of equitable pay for comparable duties.

The subsequent stipulation centers on preserving just remuneration and suitable working conditions for both staff and contracted labor. This entails adhering to labor regulations and formulating explicit employment agreements delineating compensation, work hours, leave, and supplementary benefits. The entity pursuing certification must provide appropriate lodging, sanitation amenities, and medical attention for workers. Initiatives should be enacted to enhance food access, with permanent employment being favored for core responsibilities and temporary engagements confined to fitting situations.

The certified entity must uphold the right of workers to join labor unions and partake in collective bargaining. In circumstances where legal constraints limit these rights, viable avenues for independent association and negotiation should be endorsed. This ensures the participation of workers in their work milieu.

With respect to child labor, the certified entity should have a formal protocol prohibiting the engagement of minors. It should also ensure adherence to minimum age prerequisites and establish a secure setting for young workers. Any incidents of workplace harassment or maltreatment must be precluded through policies and a mechanism for grievances.

Forced or trafficked labor must be categorically forbidden. The certified entity should have specific policies catering to temporary or migrant laborers to protect their rights.

Lastly, the certified entity bears the responsibility for maintaining a secure and healthy work atmosphere. This encompasses designating personnel for health and safety concerns, hosting regular discussions with workers to address apprehensions, implementing procedures for accidents, supplying first aid training and equipment, and delivering medical attention and insurance coverage. Instances of occupational injuries should be documented to monitor safety standards.

4.1.3. Planet (Impact goal: Conserved, protected, and enhanced ecosystems that provide for the next generation)

Ecosystems and the benefits they provide are safeguarded, rehabilitated, and made robust, facilitated by sustainable patterns of consumption and production, along with the sustainable administration of natural resources (aligned with SDG 15 – the sustainable management of forests, combatting desertification, arresting and reversing land deterioration, and halting biodiversity decline). Climate change is tackled through ongoing reductions in greenhouse gas emissions; the management of air and water contamination is supervised. Our capacity for food and fiber production is becoming more resilient. Both water and air quality are enhanced, while carbon is extracted from the atmosphere to rejuvenate the soil for present and future generations. Inputs decrease yet yields remain stable or even witness enhancement.

Principle 7 : Conserved, protected and enhanced ecosystems that provide for the next generation

The principle's requirements encompass the efficient management of pests, diseases, weeds, and introduced invasive species using appropriate Integrated Pest Management (IPM) methodologies. Regarding the indicators, the implementation and monitoring of IPM plans are crucial for ensuring effective pest control. Species identified in the Global Invasive Species Database and CABI.org should not be employed in managed areas, except in cases where plans to prevent and monitor their propagation are executed. The utilization of fire for pest control is confined to exceptional circumstances, such as when no other viable alternatives are available, and necessitates prior approval from governmental authorities.

The second set of standards relates to the prudent utilization of pesticides, prioritizing the health and well-being of workers, families, communities, and the

environment. The indicators require substantiation for the reasoning behind all pesticide applications. Emphasis should be placed on selective products and application methods tailored for the specific target pest, weed, or disease. Comprehensive records of pesticide use, encompassing particulars like active ingredients, LD50 levels, treated area, active ingredient quantity per hectare, and the frequency of applications, should be provided. Whenever possible, the use of pesticides should be minimized according to a plan, ideally eliminated in alignment with IPM plans. This is aimed at diminishing pollution, optimizing resource utilization, and elevating productivity.

Pesticides should solely be handled, used, or applied by individuals who have undergone appropriate training and adhere strictly to the instructions on the product label. All precautions specified for the products must be diligently followed and comprehended by workers. Those responsible for pesticide application should continually update their knowledge relevant to their tasks. Adequate storage practices, following established standards, should be observed for all pesticide containers, with responsible disposal being imperative once the containers are no longer needed. Aerial application of pesticides is prohibited unless authorized by the government under exceptional conditions. Pertinent information should be communicated to affected local communities at least 48 hours before any aerial spraying takes place. Clear yearly health checkups for pesticide operators, along with recorded actions taken to manage associated health concerns, must be apparent. Individuals below the age of 18, pregnant or nursing women, and those with medical restrictions should not participate in tasks involving pesticides. Viable alternative work opportunities should be provided to them.

The following standards encompass the responsible management of waste through reduction, recycling, reuse, and proper disposal in an environmentally and socially conscious manner. This is indicated by the presence of a documented waste management plan that outlines strategies for waste reduction, recycling, reuse, and safe disposal based on toxicity and hazardous properties. The correct disposal of waste materials, in accordance with procedures well understood by both workers and managers, is demonstrated. The certified entity refrains from using open flames for waste disposal.

Another requirement pertains to maintaining or, where feasible, enhancing soil fertility to guarantee optimal and consistent yields. This is indicated by the

adherence to sound agricultural practices outlined in Standard Operating Procedures (SOPs) to manage soil fertility for yield optimization and minimal environmental impact. Regular sampling of soil and plant tissue is conducted to monitor and manage fluctuations in soil fertility and plant well-being. A strategy for nutrient recycling is in place, encompassing the recycling of Empty Fruit Bunches (EFB), Palm Oil Mill Effluent (POME), palm residues, and the judicious application of inorganic fertilizers. Records of fertilizer inputs are meticulously maintained. The intended result encompasses reduced pollution, optimized resource utilization, and heightened productivity. The ultimate consequence is the preservation of ecosystems, decreased pollution, and optimized productivity.

Another requirement involves implementing practices that effectively mitigate and manage soil erosion and degradation. The markers for this are the availability of maps that identify marginal and delicate soils, encompassing steep landscapes. The extensive replanting of oil palms on steep terrains is prohibited, as is the initiation of new oil palm plantations in such areas. The standards dictate that soil evaluations and topographical data must inform the planning of new planting sites, with the results integrated into the corresponding plans and activities. To ensure the long-term suitability of land for oil palm cultivation, soil maps or surveys identifying marginal and fragile soils, including steep terrains, must be factored into plans and operations. Extensive planting on such vulnerable soils is either avoided or carried out in accordance with a soil management plan adhering to best practices. Soil surveys and topographic data guide the design of drainage and irrigation systems, roads, and other essential infrastructure. The envisaged outcome includes the protection of ecosystems, minimized resource consumption, and reduced pollution.

The subsequent requirement involves refraining from new planting on peat, regardless of depth, after November 15, 2018, and ensuring responsible peatland management. Key indicators encompass abstaining from new peat planting, irrespective of depth, after November 15, 2018, within both existing and new development areas. Peat areas within managed zones are cataloged, documented, and reported to the RSPO Secretariat, effective from November 15, 2018. An established water and ground cover management program is in operation. For plantations established on peat, drainability assessments are conducted following the RSPO Drainability Assessment Procedure or

other RSPO-recognized methods, a minimum of five years prior to replanting. The assessment outcome determines the timeline for future replanting and the phase-out of oil palm cultivation, at least 40 years or two cycles before reaching the natural gravity drain ability limit for peat. As oil palm cultivation is phased out, it is replaced with crops suitable for a higher water table (pluviculture) or the restoration of natural vegetation.

Another requirement involves preserving the quality and availability of both surface and groundwater. The corresponding indicator is the establishment and implementation of a water management plan aimed at enhancing efficient water use and ensuring the continuous availability of water sources, while also preventing adverse impacts on other users within the catchment area. The plan addresses the following aspects:

a) Ensuring the unit of certification does not impose constraints on access to clean water or contribute to polluting water used by local communities.

b) Guaranteeing workers' access to sufficient clean water.

c) Safeguarding water courses and wetlands, including the preservation and restoration of suitable riparian and buffer zones.

In addition, the plan requires that mill effluent adheres to national regulations in terms of treatment. The quality of mill effluent discharge, particularly in relation to Biochemical Oxygen Demand (BOD), is subject to regular monitoring. Monitoring and recording also extend to the usage of mill water per tonne of Fresh Fruit Bunches (FFB). The intended result is the preservation of ecosystems, reduction in pollution, and minimized resource utilization.

The requirement involves optimizing the efficiency of fossil fuel utilization and the incorporation of renewable energy. The corresponding indicator is the presence, monitoring, and reporting of a strategy to enhance fossil fuel efficiency and maximize the utilization of renewable energy. The intended result is the preservation of ecosystems, diminished pollution, and minimized resource consumption. Furthermore, the criteria encompass the formulation, execution, and monitoring of strategies to curtail pollution and emissions, including greenhouse gases (GHG), with a focus on designing new developments to minimize GHG emissions. The corresponding indicator involves the identification and assessment of GHG emissions within the certified unit. Action plans to mitigate or decrease these emissions are put into operation, monitored via the

Palm GHG calculator, and publicly disclosed. Since 2014, the carbon stock of potential development areas and significant emission sources are estimated, with corresponding plans for reduction and implementation following the RSPO GHG Assessment Procedure for New Development. Similar plans are devised and executed to decrease other notable pollutants, and the desired result is the reduction of pollution. The other criteria Fire is not used for preparing land and is prevented in the managed area. The indicator being. Land for new planting or replanting is not prepared by burning. The unit of certification establishes fire prevention and control measures for the areas directly managed by the unit of certification. The unit of certification engages with adjacent stakeholders on fire prevention and control measures. The outcome is to protect the ecosystems and reduce pollution.

The next criterion focuses on preventing land clearing that leads to deforestation or harm to areas essential for protecting or enhancing High Conservation Values (HCVs) and High Carbon Stock (HCS) forests. HCVs and HCS forests within the managed area are identified and safeguarded or improved. The following indicators guide this criterion:

No land clearing, regardless of depth, has occurred on peatlands after November 15, 2018, in both existing and new development zones.

Areas of peat within managed regions are documented and reported to the RSPO Secretariat, starting from November 15, 2018.

A documented water and ground cover management program is established.

Drainage assessments are carried out for plantations on peat using recognized methods like the RSPO Drain ability Assessment Procedure, at least five years before replanting. The assessment results determine the replanting timeframe and the phase-out of oil palm cultivation, ensuring compliance with natural gravity drain ability limits for peat.

When oil palm cultivation is phased out, it's replaced with crops suitable for higher water tables (pluviculture) or rehabilitated with natural vegetation. The aim is to achieve ecological protection and sustainable land use.

4.2 Challenges of Adopting RSPO

In the palm oil industry of Thailand, smallholder farmers are grappling with a multitude of challenges that threaten their economic viability and ability to engage in sustainable practices. These issues, deeply rooted in financial, educational, and systemic barriers, call for a comprehensive understanding through lenses such as stakeholder theory and agency theory, providing a framework for identifying responsibilities and actions among various actors in the industry.

Under the stakeholder theory, the need to consider the interests of all parties involved in the palm oil sector becomes evident. Smallholders, as crucial stakeholders, face economic pressures that make the adoption of environmentally sound practices, like RSPO certification, financially unattractive. Their struggle is exacerbated by a lack of awareness and understanding of the long-term benefits of sustainable practices, partly due to educational barriers and complex certification processes that they find challenging to navigate. Moreover, the initial and ongoing costs associated with these certifications, paired with limited access to financial resources and modern agricultural technologies, constrain them from enhancing their productivity and meeting stringent sustainability criteria.

Agency theory, which examines the relationship between principals (such as certification bodies or consumers) and agents (the farmers), sheds light on the dilemmas arising from conflicting interests and asymmetric information. Farmers, acting as agents, might prioritize immediate economic needs, employing conventional farming methods contrary to the principals' preference for sustainable practices. This discrepancy is further complicated by cultural and social factors, where traditional practices and beliefs create resistance, and existing governance structures might not adequately support the farmers' transition to sustainable methods.

Inconsistent government policies and limited support intensify this disconnect, as they add layers of insecurity and unpredictability, discouraging engagement with sustainable initiatives. Furthermore, the market dynamics, including insufficient demand for certified products and challenges in accessing fair pricing, undermine the economic incentives for smallholders to switch to and maintain more sustainable practices.

Collectively, these challenges underscore the necessity for multilateral cooperation and the creation of support systems tailored to smallholders' needs. Transparent communication and guidance, educational programs, financial subsidies, simplified certification processes, and market mechanisms that favor sustainably produced palm oil are critical interventions. By aligning the objectives and incentives between different stakeholders through the principles of stakeholder and agency theories, a more sustainable and inclusive palm oil industry can be fostered in Thailand.

CHAPTER V – RECOMMENDATIONS AND CONCLUSION

Based on the challenges outlined in the palm oil industry in Thailand for smallholder farmers, the following recommendations can be made:

1. Educational Programs and Awareness Campaigns:

Develop and implement targeted educational programs to raise awareness among smallholder farmers about the long-term benefits of sustainable practices and the importance of certifications like RSPO. Create awareness campaigns that emphasize the economic advantages and market opportunities associated with sustainable palm oil production.

2. Simplified Certification Processes:

Collaborate with certification bodies and relevant stakeholders to streamline the certification processes, making it more accessible and understandable for smallholder farmers. Provide assistance and guidance to farmers during the certification process to reduce barriers related to complexity.

3. Financial Support and Subsidies:

Establish financial support mechanisms, such as subsidies or low-interest loans, to help smallholder farmers cover the initial and ongoing costs associated with adopting sustainable practices and obtaining certifications. Facilitate access to modern agricultural technologies through financial support, improving productivity and meeting sustainability criteria.

4. Multilateral Cooperation:

Encourage collaboration between government agencies, NGOs, certification bodies, and the private sector to create a supportive ecosystem for smallholders. Foster partnerships that facilitate knowledge transfer, resource-sharing, and coordinated efforts to address the multifaceted challenges faced by smallholder farmers.

5. Transparent Market Mechanisms:

Advocate for market mechanisms that recognize and reward sustainably produced palm oil, creating increased demand for certified products. Work with

stakeholders to establish fair pricing structures that provide economic incentives for smallholders to transition and maintain sustainable practices.

6. Government Policy Reform:

Advocate for consistent and supportive government policies that create a conducive environment for sustainable palm oil production. Address inconsistencies in existing policies and work towards developing a comprehensive regulatory framework that supports smallholder farmers in their transition to sustainable methods.

7. Cultural Sensitivity and Community Engagement:

Recognize and respect cultural and social factors influencing farming practices. Engage with local communities to understand traditional beliefs and practices, fostering a collaborative approach that integrates sustainable methods while respecting cultural diversity.

By implementing these recommendations, a more holistic and inclusive approach can be adopted, aligning the interests and incentives of different stakeholders, and fostering a sustainable palm oil industry in Thailand.

In conclusion, the global palm oil industry stands at a critical crisis, where the imperative of sustainability clashes with the enduring challenges faced by smallholders in Thailand. The introduction of the Roundtable on Sustainable Palm Oil (RSPO) has undeniably provided a glimmer of hope, offering a pathway for the industry to declare itself sustainable and thereby mitigate the destructive effects of ecosystem degradation and deforestation. The promise of sustainability is tempting, with the potential to yield extreme and lasting benefits, not only to society but also to the environment.

One of the key promises of adopting RSPO standards is the potential to reduce costs and increase productivity efficiency. It is a vision that aligns with global efforts to combat climate change, protect biodiversity, and ensure equitable economic development. However, the actual rate of RSPO adoption among smallholders in Thailand has, regrettably, fallen short of these imposing aims.

This research sought to unravel the intricate web of challenges that obstruct the path toward RSPO adoption by smallholders in Thailand. The findings of this study unveil a sheer reality that traditional and conventional practices continue to prevail over

RSPO, despite its evident potential for environmental and social good. The challenges faced by smallholders in Thailand can be broadly categorized into three domains: social, economic, and environmental.

Socially, factors such as limited awareness and education regarding sustainable practices, coupled with resistance to change deeply rooted in traditional agricultural practices, act as significant barriers. The social framework of rural communities, where farming traditions have been passed down through generations, often resists abrupt shifts in cultivation methods.

Economically, the financial burden of transitioning to sustainable practices poses a remarkable challenge for smallholders. The initial investments required for RSPO compliance can be daunting, particularly for those with limited resources. Additionally, the perceived uncertainty of returns on these investments can discourage smallholders from making the leap to sustainability.

Environmentally, the smallholders themselves often lack the knowledge and resources to implement sustainable practices effectively. This gap in knowledge and access to technology further impairs the challenges in adopting RSPO standards.

Lastly, the research presented here highlights the complexity of achieving sustainability within the palm oil industry, particularly when viewed through the lens of smallholders in Thailand. Despite the promise of RSPO, the preference for conventional practices remains deeply ingrained due to a multitude of social, economic, and environmental obstacles.

Nonetheless, this is not a call to abandon the pursuit of sustainability, but rather a clarion call to confront these challenges head-on. It is a must that stakeholders, including governments, NGOs, and the palm oil industry itself, work collaboratively to develop and implement innovative solutions that address the specific needs and challenges faced by smallholders in Thailand. By doing so, we can chart a course toward a more sustainable future for the palm oil industry, one that benefits both smallholders and the global environment, leaving a legacy of responsible and ethical palm oil production for generations to come.

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