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Promoting Compliance with Sustainability Standards in Malaysian Palm Oil Industry through a Collection Centre Model

Abd Rahman Ahmad[1*], Mohd Suffian Mohd Muhili[2]
Wan Fauzi @ Wan Fauziah Wan Yusoff[3], Noor Aslinda binti Abu Seman[4]
Mohd Nazir Mohd[5]

[1]Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia, 86400 Batu Pahat, Johor, Malaysia.
Email: arahman@uthm.edu.my
[2]Procter & Gamble, Surian Tower Petaling Jaya, 47810 Petaling Jaya, Selangor, Malaysia.
Email: mohdmuhili.m@pg.com
[3]Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia, 86400 Batu Pahat, Johor, Malaysia.
Email: fauziahy@uthm.edu.my
[4]Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia, 86400 Batu Pahat, Johor, Malaysia.
Email: naslinda@uthm.edu.my
[5]Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia, 86400 Batu Pahat, Johor, Malaysia.
Email: nazir@uthm.edu.my

CORRESPONDING AUTHOR (*):
Abd Rahman Ahmad
(arahman@uthm.edu.my)

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ABSTRACT

This paper examines the development of a collection centre model for smallholders in the Malaysian palm oil industry. The model aims to ensure compliance with sustainability standards and improve the quality of palm oil production. The model involves several parties, including smallholders, contractors, collection centres, and mills. The requirements for compliance with the model are outlined, with an emphasis on labour regulations, traceability, and pre-grading of fresh fruit bunches. The Malaysian Palm Oil Board (MPOB) plays a crucial role in regulating the industry and issuing licenses for various activities. Several studies have been conducted on the environmental, financial, and innovative aspects of implementing no-deforestation, no-peat, and no-exploitation (NDPE) policies in the industry. The findings suggest that environmental performance and innovation are key drivers of economic value creation that promote NDPE policies. Attitude and awareness also play a significant role in supporting NDPE and engaging with ecopreneurial businesses. Increased awareness of sustainability has a positive effect on NDPE implementation but may also increase costs. Finally, the impact of palm oil on health, social and economic aspects, environment, and biodiversity has been reviewed in the Malaysian context. The collection centre model is a crucial step in ensuring compliance with sustainability standards and improving the quality of palm oil production. Further research is needed to explore the potential of this model for enhancing

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the sustainability of the palm oil industry.

Contribution/Originality: The contribution of this paper lies in its comprehensive examination of the development of a collection centre model specifically designed for smallholders in the Malaysian palm oil industry. The paper highlights the model's objective, which is to ensure adherence to sustainability standards and enhance the overall quality of palm oil production. It sheds light on the various stakeholders involved in the model, including smallholders, contractors, collection centres, and mills.

1. Introduction

The palm oil industry assumes a pivotal role in the economic development of Malaysia. Nevertheless, the sector has been marred by concerns surrounding sustainability and the environmental ramifications of its operations, particularly with regard to the practices employed by smallholders and contractors. To mitigate these issues, a range of initiatives have been introduced to foster sustainability and ensure compliance with environmental and social regulations. One notable initiative is the development of a collection centre (CC) model, which aims to elevate the quality of palm oil mills by enforcing adherence to requisite standards and requirements. The CC model involves multiple stakeholders, including smallholders, contractors, and mills, and places paramount importance on conforming to specific criteria to achieve a high-caliber standard of palm oil production. The model strives to guarantee that fresh fruit bunches (FFB) are harvested and graded in accordance with the guidelines established by the Malaysian Palm Oil Board (MPOB), while also maintaining traceability at both the collection centre and mill levels. Furthermore, the model encompasses labor regulations designed to promote equitable treatment of workers and compliance with pertinent laws and regulations. This scholarly article will undertake a comprehensive examination of the CC model, delving into its requirements, compliance mechanisms, and impact on Malaysia's palm oil industry. Drawing upon previous research, case studies, and expert perspectives, the paper will evaluate the effectiveness of the CC model and identify avenues for improvement. The ultimate aim of this research is to contribute to the ongoing endeavors to foster sustainability and ethical practices within the palm oil industry, while concurrently ensuring the sustained growth and development of the sector.

2. Traceability

In the context of the Collection Centre model, traceability plays a crucial role in ensuring the quality and sustainability of palm oil production. As stated by Hasan et al. (2018), traceability refers to the ability to trace the movement of palm oil from the collection centre to the final product. The traceability process starts at the collection centre level, where the fresh fruit bunches (FFB) are received, weighed, and tagged with a unique identification number. The tagged FFBs are then transported to the mills, where they are processed into crude palm oil (CPO). Traceability also involves monitoring the transportation process from the collection centre to the mill. The transporters are required to ensure that the tagged FFBs are not mixed with non-certified FFBs during transportation. At the mill, the traceability process continues with the tagging of the CPO produced from the FFBs received from the collection centre. This tagging allows for the identification of the source of the FFBs used in the production of the CPO. The

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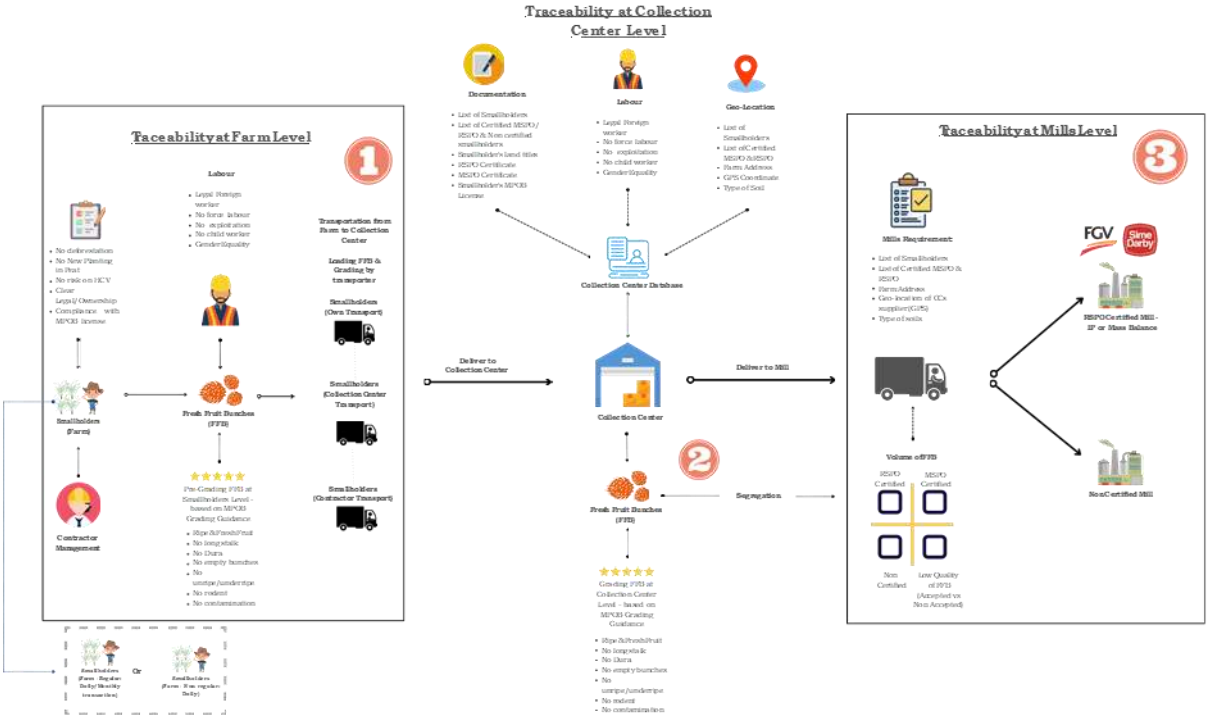
traceability process enables the monitoring of the compliance of the smallholders and contractors to the requirements of the Collection Centre model. This monitoring is critical in ensuring that only certified FFBs are delivered to the mills. Additionally, traceability enables the identification of any non-compliance issues and allows for timely corrective action to be taken to rectify the situation.

Figure 1 presents the proposed collection centre model for smallholders in the Malaysian palm oil industry, aimed at promoting sustainability and enhancing the quality of palm oil production. The model involves multiple parties, including smallholders, contractors, collection centres, and mills, and emphasizes compliance with sustainability standards, including labour regulations, traceability, and pre-grading of fresh fruit bunches.

Figure 1: Proposed Model for Collection Centre



3. Improving Traceability at Farm Level

To comply with MSPO SCCS, traceability can be achieved through mass balance or segregation methods with corresponding traceability attributes and declarations, ensuring that the product origin and quantity can be uniquely identified and the withdrawn quantity at each stage of the value chain does not exceed the supply (MSPO Supply Chain Certification Standard, 2022). The positive impacts of MSPO include compliance with legality, reduced work accidents, implementation of best agricultural practices, tax breaks and financial incentives for MSPO audits, market access, and meeting the demands of environmentally sensitive markets for certified sustainable palm oil (Malaysian Palm Oil Certification Council, 2022). At the firm level, few requirements from the model CC are applied so that smallholders and contractors need to comply with

a) No deforestation
b) No New Planting in Peat
c) No risk on HCV

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d) Clear Legal/Ownership
e) Compliance with MPOB license Palm Oil Fresh Fruit Bunches (FFB) quality

The "No-Deforestation" standard, also known as the "NDPE" standard, is a more rigorous certification standard that specifically prohibits palm oil production involving deforestation, the use of peat soils, and exploitation of people. This standard is achieved by protecting High Conservation Value (HCV) and High Carbon Stock (HCS) areas to prevent deforestation, avoiding planting on peat to ensure "No Peat," and protecting the rights of human and workers' rights, local communities, and indigenous peoples to ensure "No Exploitation." In addition, compliance with MPOB's license to produce FFB quality is also a crucial component of the "No-Deforestation" standard (European Federation of Engineering Consultancy Association [EfECA], 2020).

It should be noted that NDPE policies are mainly driven by downstream stakeholders in high-risk supply chains, particularly in the palm oil industry. To comply with NDPE requirements, buyers and financial institutions of palm oil are obliged to ensure that palm oil companies they do business with have established and are implementing NDPE policies.

No Deforestation consists of:
a) No development on High Carbon Stock (HCS) Forests or High Conservation Value (HCV) Areas.
b) No burning.
c) Progressively reduce greenhouse gas (GHG) emissions on existing operations.

No New Development on Peat consists of:
a) No new development on peatland regardless of depth.
b) Best Management Practices for existing plantation on peat.
c) Where feasible, explore options for peat restoration by working with expert stakeholders and communities.

No Explication of People and Local Communities involves:
a) Respect and support internationally recognized human rights.
b) Respect and recognize the rights of all workers
c) Respect and protect the rights of children and their welfare.
d) Support the inclusion of smallholders into the supply chain.
e) Respect land tenure rights.
f) Respect the rights of indigenous and local communities to give or withhold their Free, Prior and Informed Consent (FPIC) to operations and lands to which they hold legal, communal, or customary rights.
g) Identify measures to provide remediation where the company has caused or contributed to negative human rights impacts.

The adoption of No Deforestation, No Peat and No Exploitation (NDPE) policies with strong human rights commitments, such as the respect for workers' rights to retain their travel documents, has become increasingly common in the palm oil industry. For instance, Sime Darby, a leading Malaysian palm oil company, has expressed its commitment to human rights in its Human Rights Charter, which includes ensuring equal opportunities for all employees, respecting their freedom of association, eradicating labour exploitation, providing decent working conditions, and prohibiting child labour, sexual harassment, and violence (Wahab, 2019).

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Palm oil is a vital source of vegetable oil, accounting for 39% of global supply and occupying 7% of agricultural land used for oil-producing crops (Malaysian Palm Oil Board (MPOB), 2018c). These activities are governed by the Malaysian Palm Oil Board Act 1998 (Act 582), the Malaysian Palm Oil Board (Licensing) Regulations 2005, and the Malaysian Palm Oil Board (Licensing) (Amendment) Regulations 2011 (Kumaran et al., 2021a). The MPOB's objective in licensing is to promote the healthy growth of the industry and maintain orderliness by regulating, controlling, and coordinating all activities related to the cultivation, milling, sale, purchase, production, exportation, and importation of palm oil products (Malaysian Palm Oil Board [MPOB], 2018b). Moreover, MPOB is responsible for the development of the palm oil industry and is thus obligated to review license criteria periodically to align with current circumstances. The labour regulations are equally important in the model CC and should be in accordance with:

a) Legal Foreign worker
b) No force labour
c) No exploitation
d) No child worker
e) Gender Equality

Enforcement of policies in the palm oil industry can result in growers, particularly foreign workers, facing suspension or termination of sourcing relations. Sime Darby, for instance, has demonstrated a top-level commitment to human rights through its Human Rights Charter, which outlines a pledge to ensure equal opportunities for all workers, freedom of association, elimination of labour exploitation, provision of decent work, and prohibition of child labour, sexual harassment, and violence (Wahab, 2019). Forced labour has been a persistent issue in developing countries like Malaysia, where it is often linked to migrant workers who are vulnerable due to their status and the palm oil industry's heavy reliance on them. Forced labour is considered a form of modern slavery and a type of human trafficking, according to the International Labour Organization (2020). The negative impact of forced labour on Malaysia's international image and the export ban on its products has prompted the government to develop the National Action Plan On Forced Labour (NAPFL) for 2021-2025. The NAPFL aims to eradicate forced labour in Malaysia and addresses vulnerable groups who are not protected by existing legal frameworks, including undocumented migrant workers, refugees, stateless individuals, and asylum seekers.

The impact of the palm oil industry on gender equality is a complex issue. The industry's expansion creates job opportunities, which can benefit women who often make up a significant portion of the workforce, despite the industry being considered a masculine commodity. However, women's employment in the industry is often characterized by limited access to workers' rights protection and additional domestic responsibilities, including childcare. Moreover, women who work in the industry are exposed to health risks due to the use of chemical fertilizers and pesticides. Additionally, they face challenges such as lack of access to maternity leave, equal wages, good sanitation, lactation facilities, and rights fulfilment, including menstruation. The Roundtable on Sustainable Palm Oil (RSPO) recognizes the importance of women's rights and needs as workers, acknowledging that they differ from their male counterparts. Thus, addressing the gender equality dimension of the palm oil industry requires considering and addressing the specific challenges faced by women in the industry, including their rights as workers and their safety and health.

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These requirements allow to ensure that the fresh fruit bunches (FFB) are carefully monitored in terms of Pre-Grading FFB at smallholders' level based on MPOB Grading Guidance such as:

a) Ripe & Fresh Fruit
b) No long stalk
c) No Dura
d) No empty bunches
e) No unripe/underripe
f) No rodent
g) No contamination

Smallholders are taking steps to produce high-quality fresh fruit bunches (FFB) of palm oil by implementing proper handling methods to avoid damaging or bruising the FFB during harvesting and collection (Zainon et al., 2017). Grading of the FFB is essential to ensure that it is harvested and collected at the correct ripeness level, and to determine its quality, which helps to set a fair purchase price (Zainon et al., 2017; Dan et al., 2018). Furthermore, optimal ripeness of the bunches is crucial for achieving high rates of extraction (Zainon et al., 2017; Dan et al., 2018). Manual grading of palm oil FFB aims to improve the quantity and quality of crude palm oil and kernel production in Malaysia, as well as to ensure that suppliers and millers receive a fair price (Zainon et al., 2017; Dan et al., 2018). Zainon et al. (2017) and Dan et al. (2018) also found that handling factors have a significant impact on the quality of palm oil FFB.

To ensure compliance with the requirements for transporting fresh fruit bunches, the CC model employs a system where smallholders use their own transportation or contractor transport to move the fruit from the farm to the collection centre for loading, grading, and onward transportation. This process guarantees that the transportation of fresh fruit bunches adheres to the required standards, and helps to ensure the quality of the palm oil produced.

4. Improving Traceability at Collection Centre

According to Majid et al. (2021), the Roundtable Sustainable Palm Oil certification (RSPO) and Malaysia Sustainable Palm Oil certification (MSPO) are the predominant sustainability certifications implemented in the Malaysian palm oil industry. RSPO emphasizes the prohibition of forced labor as a crucial sustainability requirement, while MSPO references the existing labor laws that explicitly forbid the utilization of forced labor. The traceability at the collection centre is firstly conducted through documentation that specifies the:

a) List of Smallholders
b) List of Certified MSPO/RSPO & Non certified smallholders
c) Smallholder's land titles
d) RSPO Certificate
e) MSPO Certificate
f) Smallholder's MPOB License are kept in the collection centre database.

The Malaysian government has introduced the Malaysia Sustainable Palm Oil (MSPO) certification as a means to sustain the quality of palm oil production in the country and meet global requirements. Several empirical studies, including those by Shahida et al. (2019), Majid et al. (2021), Hafizuddin-Syah et al. (2018), Ni et al. (2016), Mansor et al. (2018), Rewathi and Choy (2020), Aszahar and Syahlan (2018), have examined the

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effects of MSPO on sustainability. For instance, Shahida et al. (2019) investigated the impact of MSPO on the profitability of 39 listed palm oil companies in Malaysia from 2013 to 2017 and found that it increased their profitability by 3.5%. Meanwhile, Chiriacò et al. (2018) studied the effectiveness of the Roundtable Sustainable Palm Oil (RSPO) certification on environmental, social, and economic sustainability in the industry. They found that RSPO-certified plantations had positive economic trends, including higher yields of fresh fruit bunches (FFB).

Maretna et al. (2021) conducted a study using secondary data from 18 Indonesian and 32 Malaysian palm oil companies' annual reports to investigate the relationship between RSPO participation, palm oil downstream industry development, and exporting decisions. The study found that larger and RSPO-certified firms were more likely to be exporters, and the RSPO certificate was still beneficial for supporting palm oil export and maintaining the company's sustainability image. Carlson et al. (2018) evaluated the impact of RSPO certification on deforestation and fire from 2001 to 2015 by using a comprehensive dataset of RSPO certified and non-certified oil palm plantations covering approximately 188,000 km2. They found that RSPO certification reduced deforestation by 33% from a counterfactual of 9.8 to 6.6% y−1, which is consistent with the results found by Majid et al. (2021). However, Apriani et al. (2020a; 2020b) and Wicke (2019) found that smallholders have limited understanding of the challenges associated with RSPO certification, except for the need for organizational support, and external support from local NGOs was crucial in facilitating RSPO certification. Furthermore, the model CC equally emphasizes on the labour requirement information such as:

a) Legal Foreign worker
b) No force labour
c) No exploitation
d) No child worker
e) Gender Equality are equally being kept in the collection centre database.

Sime Darby, a leading Malaysian corporation, demonstrates its commitment to human rights through its Human Rights Charter, which ensures equal opportunity, freedom of association, eradication of labour exploitation, provision of decent work, and prohibition of child labour, sexual harassment, and violence (Wahab, 2019). In Malaysia, the National Action Plan on Business and Human Rights (NAPFL) governs business conduct and includes regulations that prohibit forced and child labour, respect customary land and indigenous people's rights, ensure safety and health compliance, mandate minimum wage implementation, restrict excessive working hours, and guarantee the right to association (Wahab, 2019).

The Geo-localisation is another important aspect point for the traceability at collection centre and it include the:

a) List of Smallholders
b) List of Certified
c) MSPO & RSPO
d) Farm Address
e) GPS Coordinate
f) Type of Soil that are also kept in the collection centre database.

It is worth noting that several large brands have implemented their own No Deforestation, No Peat, and No Exploitation (NDPE) policies or responsible sourcing programs, which rely on the traceability of palm oil back to the mill level. These

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companies typically engage third-party auditors to verify their policies through on-the-ground audits but also utilize geospatial data to better understand the mills within their supply chains. In addition, the collected fresh fruit bunches that are transported by the smallholders are then segregated to ensure the FFB grading at the collection centre level based on the MPOB Grading Guidance that include;

a) Ripe & Fresh Fruit
b) No long stalk
c) No Dura
d) No empty bunches
e) No unripe/underripe
f) No rodent
g) No contamination

Once the segregation process is completed at the collection center, the fresh fruit bunches (FFB) are subsequently transported to the mills for further processing. Palm oil holds a prominent position as one of the most significant vegetable oil crops on a global scale. The Malaysian Palm Oil Board (MPOB) reports that Malaysia stands as the world's second-largest producer of palm oil (MPOB, 2018a). The Malaysian government and MPOB govern the licensing and regulation of these activities, abiding by the Malaysian Palm Oil Board Act 1998 (Act 582), Malaysian Palm Oil Board (Licensing) Regulations 2005, and Malaysian Palm Oil Board (Licensing) (Amendment) Regulations 2011 (Kumaran et al., 2021b). As per the Malaysian Palm Oil Board (Licensing) Regulations 2005, any individual or entity undertaking activities that necessitate a license must acquire one from MPOB prior to commencing operations (Kumaran et al., 2021c).

Furthermore, MPOB ensures that all activities related to the cultivation, milling, sale, purchase, production, exportation, and importation of palm oil products are conducted in compliance with the regulations and guidelines set by the Malaysian government. Failure to comply with these regulations may result in penalties or suspension/revocation of licenses. As a regulatory body, MPOB plays a critical role in promoting the healthy growth and development of the palm oil industry in Malaysia, while ensuring that it operates in an orderly and sustainable manner. To achieve this objective, MPOB periodically revises the criteria for license application to keep up with the current situation and maintain the industry's competitiveness. The Malaysian Palm Oil Board (MPOB) (2018a) also makes sure that any changes made are communicated to the public, and a guidance booklet on license application is produced to ensure that the industry stakeholders are well informed about the licensing requirements and procedures.

5. Improving Traceability at the Mill

The implementation of traceability measures at the mills level requires various key pieces of information, including a list of smallholders and certified MSPO and RSPO suppliers, as well as the farm address and GPS coordinates of the collection centre's (CC) suppliers. Furthermore, the type of soils used in the production process should also be documented and monitored (MPOB, 2019). These measures ensure that the palm oil produced and supplied to the mills can be traced back to the specific smallholder and collection centre from which it originated. This provides greater transparency and accountability in the supply chain, enabling stakeholders to identify and address any potential issues related to sustainability, social responsibility, or compliance with NDPE policies. The traceability at mills level requires the:

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a) List of Smallholders
b) List of Certified MSPO & RSPO
c) Farm Address
d) Geo-location of CCs supplier (GPS)
e) Type of soils

The studies conducted on NDPE policies have primarily focused on the environmental aspects of the palm oil industry. For example, Ong et al. (2019) surveyed 124 manufacturers to examine the relationship between environmental performance, environmental innovation, and financial performance. Their findings suggest that companies that prioritize environmental innovation and performance are better positioned to create economic value and promote NDPE policies. Another study by Maideen et al. (2022) found that attitude and awareness play a significant role in supporting NDPE policies and engaging with ecopreneurial businesses. Using a mixed-methods approach, Ahmad et al. (2022) conducted a case study of a palm oil company and found that increased awareness of sustainability positively impacted NDPE policies but also resulted in increased costs. Finally, Hanafiah et al. (2022) conducted a review of 234 articles to summarize the evidence on the impacts of palm oil on health, social and economic aspects, environment, and biodiversity, with a focus on NDPE requirements in the Malaysian context.

6. Challenge of Implementing the Collection Centre Model

Implementing the collection centre model in the context of RSPO and MSPO presents several challenges. RSPO and MSPO are two of the leading certification schemes for sustainable palm oil production, and they have set high standards for the industry. However, implementing these standards can be difficult, particularly for smallholders who may lack the resources and knowledge to comply with the requirements. The collection centre model faces challenges in the context of certification schemes such as the Roundtable on Sustainable Palm Oil (RSPO) and the Malaysian Sustainable Palm Oil (MSPO) certification. RSPO certification requires compliance with strict sustainability standards, including traceability and labour regulations (RSPO, 2018). Meanwhile, MSPO certification focuses on ensuring that palm oil production is environmentally sustainable, socially responsible, and economically viable (Malaysian Palm Oil Board, n.d.). The collection centre model must meet the requirements of both schemes to gain certification, which can be a challenge for smallholders who may lack the resources and knowledge needed to comply with the standards (Abdul-Manan et al., 2020).

Ensuring traceability in the palm oil supply chain is crucial for achieving RSPO certification and improving sustainability in the industry. The collection centre model provides a solution to this challenge by serving as a centralized location for smallholders to sell their produce and have it pre-graded before being sent to mills. This helps to improve the traceability of the palm oil supply chain by creating a clear and identifiable point of origin for the product. However, despite the benefits of the collection centre model, ensuring traceability throughout the entire supply chain can still be difficult due to the complex and fragmented nature of the industry. According to RSPO (2018), the palm oil supply chain involves multiple stages, including harvesting, transport, processing, and distribution, and each stage involves multiple actors, including smallholders, contractors, collection centres, mills, and traders. This complexity can make it difficult to track the palm oil from its origin to its final destination. To address this challenge, the RSPO has implemented a set of standards and guidelines to ensure

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traceability and transparency throughout the supply chain. These standards require companies to maintain records of their supply chain and demonstrate compliance with sustainability principles, including no deforestation, no peat, and no exploitation. The RSPO also conducts audits and inspections to verify compliance with these standards and identify areas for improvement. Similarly, MSPO also mandates traceability throughout the supply chain as part of their certification requirements. MSPO requires that each link in the supply chain must be able to identify the source of palm oil and palm kernel oil that it procures or trades. It also mandates that all documents and records related to procurement and trade must be kept for at least five years.

On the challenges related to labour regulations in the context of the collection centre model, it is important to note that RSPO and MSPO certification require compliance with a range of labour standards, including fair labour practices, non-discrimination, and the prohibition of child and forced labour (RSPO, 2018; Malaysian Palm Oil Board, n.d.). These standards are intended to protect the rights and welfare of workers throughout the palm oil supply chain. The collection centre model is designed to address labour issues by providing a regulated workplace for smallholders to sell their produce and ensuring that they receive fair wages. However, there are several challenges to implementing this model effectively. Firstly, smallholders may lack knowledge of labour regulations and may not have the resources to comply with them. This could lead to non-compliance with labour standards and potentially put workers at risk (Abdul-Manan et al., 2020).

Secondly, even if smallholders are aware of labour regulations and willing to comply, there may be challenges in enforcing these regulations. The fragmented nature of the palm oil industry, with many smallholders operating independently, can make it difficult to monitor compliance with labour standards (RSPO, 2018). This challenge is compounded by the fact that the collection centre model is still a relatively new concept and may not have the necessary infrastructure or regulatory frameworks in place to effectively monitor labour conditions. Finally, there may be resistance from some smallholders to comply with labour regulations due to concerns about increased costs or a lack of understanding about the benefits of fair labour practices. This could lead to reluctance to participate in the collection centre model and potentially limit its effectiveness in improving labour conditions (Abdul-Manan et al., 2020).

To overcome these challenges, the Malaysian government has provided support and incentives for smallholders to adopt sustainable practices and obtain certification (Abdul-Manan et al., 2020). For example, the Malaysian government has provided funding for smallholders to establish collection centres and has provided training on sustainable practices (Abdul-Manan et al., 2020). The government has also provided incentives for mills to purchase certified sustainable palm oil (CSPO) and has encouraged companies to adopt sustainable practices through initiatives such as the Corporate Social Responsibility (CSR) framework (Malaysian Palm Oil Board, n.d.).

Based on the challenges faced in implementing the collection centre model in the context of RSPO and MSPO, several recommendations can be made to improve its effectiveness. Firstly, to improve traceability, there should be greater collaboration and communication among all parties involved in the supply chain, including smallholders, contractors, collection centres, and mills. This could be achieved through the use of digital technology, such as block chain, to track the movement of palm oil from smallholders to mills (Mansor et al., 2020). This would improve transparency and enable

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more efficient monitoring of compliance with sustainability standards. Secondly, to address the issue of compliance with labour regulations, greater support and training should be provided to smallholders to ensure that they are aware of and able to comply with relevant regulations. This could include the provision of resources such as templates for employment contracts and training on workers' rights (Abdul-Manan et al., 2020). It may also be necessary to increase enforcement of labour regulations to ensure that they are being adhered to by all parties in the supply chain. Lastly, the Malaysian government could continue to provide support and incentives for smallholders to adopt sustainable practices and obtain certification. This could include increasing funding for the establishment of collection centres and providing more extensive training on sustainable practices. The government could also incentivize companies to purchase CSPO by providing tax breaks or other financial benefits.

7. Conclusion

The model collection centre (CC) is a critical component of the palm oil supply chain, and compliance with its requirements is necessary to achieve a high-quality standard of palm oil mills. The CC model involves several parties, including smallholders, contractors, and mills, and aims to ensure that certified mills receive only high-quality fresh fruit bunches (FFB) from smallholders. At the firm level, the CC model requires compliance with several requirements, which smallholders and contractors must adhere to. These requirements are focused on the model of the collection centre and emphasize the need to ensure the certified mills of the smallholders. Additionally, labour regulations are equally important in the CC model and have been discussed in this report. To ensure the quality of FFBs, the CC model requires pre-grading of FFBs at the smallholder level, in accordance with the Malaysian Palm Oil Board (MPOB) Grading Guidance. After pre-grading, the FFBs are traced at the collection centre level and then at the mills level, providing assurance of the quality and sustainability of the palm oil supply chain. Overall, the CC model is an important tool in ensuring a high-quality standard of palm oil mills and promoting sustainable practices within the palm oil industry. Compliance with its requirements is critical to maintaining the integrity of the palm oil supply chain and ensuring that consumers can trust the sustainability of the products they purchase.

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Conflict of Interest

The authors reported no conflicts of interest for this work and declare that there is no potential conflict of interest with respect to the research, authorship, or publication of this article.

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