



in collaboration with  
MIT Sloan Management

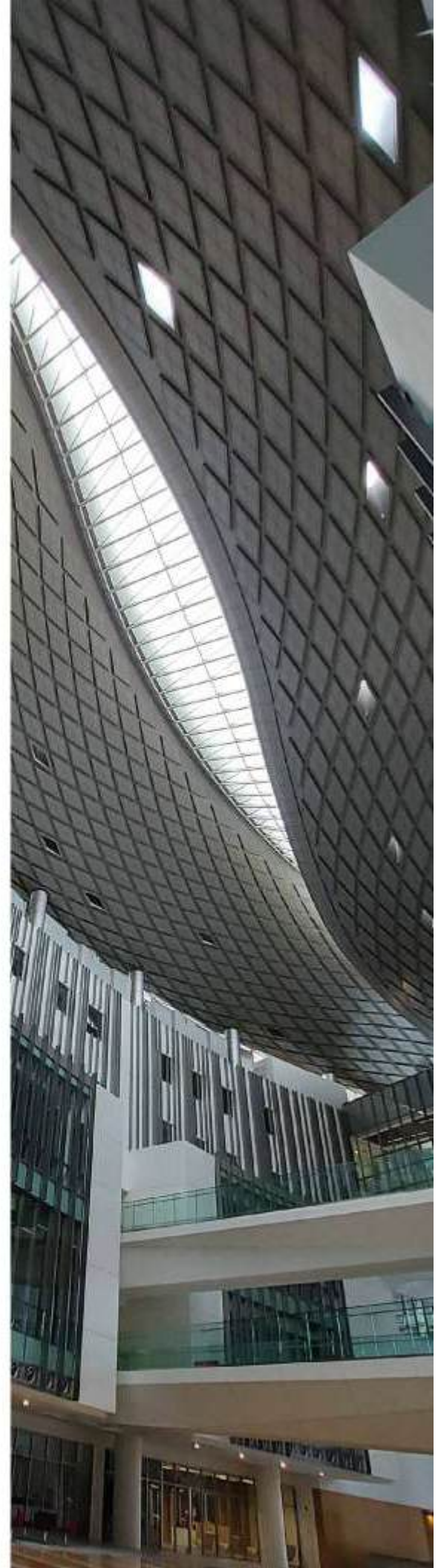
**ASB Working Paper Series 11/2024**

---

# **Are Small Farmers Doomed? A Techno-Political Analysis of the EUDR's Effect on Palm Oil Supply Chains in Malaysia**

**Pieter E. Stek  
Asad Ata**

**November 2024**



## [ABSTRACT / EXECUTIVE SUMMARY]

The European Union's Deforestation Regulation (EUDR) requires European buyers to comply with due diligence requirements that ensure the product has not been produced on land that has been subject to deforestation. However, these measures are likely to lead to the exclusion of small farmers, who depend on layers of middlemen who lack a traceable system in place for verification and validation. For small farmers, traceability is relatively costly due to their lack of scale, while they are also marginalized within the local palm oil supply chains. It is therefore almost inevitable that this demand from EU buyers will be met by sourcing from larger plantations to meet EUDR compliance. This study maps the current palm oil supply chains in West Malaysia and then provides a critical analysis of how the EUDR fits within the tripartite standards regime of standard-setting, accreditation, and certification. A techno-political analysis shows that a stakeholder-led consensus-based approach which operates outside of democratic control, tends to create a community of practice ('social world') that develops a closed standard that does not meet the needs of weaker, marginal producers. While not necessarily intended to harm small producers, the implementation of a tripartite standards regime like the EUDR leads to the exclusion of small producers. The study also shows that a territorial approach to sustainability governance, which is part of the Malaysian Sustainable Palm Oil (MSPO) standard, could achieve the goals of the EUDR if executed appropriately without the forced exclusion of small farmers from global supply chains.

**ASB-WP | NOVEMBER 2024**

**Are Small Farmers Doomed? A Techno-Political Analysis of the EUDR's Effect on Palm Oil Supply Chains in Malaysia**

The views and opinions expressed are those of the authors and do not represent those of the Center for Sustainable Small-owners (CSS), the Asia School of Business (ASB) or its affiliates. All errors remain the authors' own.

Attribution – Please cite the work as follows:

Stek, Pieter E. and Ata, Asad (2024). *Are Small Farmers Doomed? A Techno-Political Analysis of the EUDR's Effect on Palm Oil Supply Chains in Malaysia*. ASB – The Center for Sustainable Small-owners (CSS) 11/2024, Kuala Lumpur: Asia School of Business.

Creative Commons Attribution CC BY 3.0

Please visit <https://asb.edu.my/faculty-research/working-papers-database> for further information on the ASB - The Center for Sustainable Small-owners (CSS) Working Paper Series.



## Are Small Farmers Doomed? A Techno-Political Analysis of the EUDR's Effect on Palm Oil Supply Chains in Malaysia

Pieter E. Stek and Asad Ata

Asia School of Business, Kuala Lumpur, Malaysia

The European Union's Deforestation Regulation (EUDR) requires European buyers to comply with due diligence requirements that ensure the product has not been produced on land that has been subject to deforestation. However, these measures are likely to lead to the exclusion of small farmers, who depend on layers of middlemen who lack a traceable system in place for verification and validation. For small farmers, traceability is relatively costly due to their lack of scale, while they are also marginalized within the local palm oil supply chains. It is therefore almost inevitable that this demand from EU buyers will be met by sourcing from larger plantations to meet EUDR compliance. This study maps the current palm oil supply chains in West Malaysia and then provides a critical analysis of how the EUDR fits within the tripartite standards regime of standard-setting, accreditation, and certification. A techno-political analysis shows that a stakeholder-led consensus-based approach which operates outside of democratic control, tends to create a community of practice ('social world') that develops a closed standard that does not meet the needs of weaker, marginal producers. While not necessarily intended to harm small producers, the implementation of a tripartite standards regime like the EUDR leads to the exclusion of small producers. The study also shows that a territorial approach to sustainability governance, which is part of the Malaysian Sustainable Palm Oil (MSPO) standard, could achieve the goals of the EUDR if executed appropriately without the forced exclusion of small farmers from global supply chains.

**Key words:** palm oil, small farmers, standards, supply chain



## 1. INTRODUCTION

Malaysia, as the world's second-largest producer and exporter of palm oil, is one of the countries that has significant exposure to the new European Union Deforestation Regulation (EUDR). The stated purpose of the EUDR is to "guarantee that the products EU citizens consume do not contribute to deforestation or forest degradation worldwide," (European Commission, 2023) and the regulation prohibits the import of cattle, cocoa, coffee, oil palm, rubber, soya and wood unless they can be verified to be "deforestation-free" (Regulation (EU) 2023/1115, 2023).

The production of palm oil is a significant source of income for many rural communities across the tropical climate zone (Ogahara et al., 2022). Since the early 2000s, there has been a movement towards the development and implementation of environmental and social standards for palm oil. This movement has been led by the Roundtable on Sustainable Palm Oil (RSPO), an organization founded by large palm oil producers, traders, buyers, and an environmental organization. The RSPO introduced its first certification system in 2007, and in 2019 launched a separate standard aimed at small farmers (RSPO, 2019).

Like the RSPO, the EUDR can be viewed as a "tripartite standards regime" (TSR), linking standard-setting, certification, and accreditation activities, and enabling the development of a market for sustainable products (Fouilleux & Loconto, 2017; Hatanaka et al., 2012; Loconto et al., 2012). However, the certification of small producers has been a persistent problem for TSRs (Fouilleux & Loconto, 2017).

Within the specific context of palm oil, researchers note that sustainability standards for small farmers "do not respond to many key challenges, nor build upon smallholder advantages for both socio-economic and environmental benefits," (Ogahara et al., 2022, p. 9). This conclusion has also been drawn more broadly with regards to sustainability standards for small and medium sized enterprises (SMEs), especially those in developing countries. As described by Sommers (2017), the adoption of sustainability standards:

"requires managerial and technical skills as well as the financial means for investments, both of which SMEs systemically lack. Hence, the spread of standards could exclude SMEs from international production and from lucrative markets" (Sommer, 2017, p. 2)

As EUDR implementation comes into focus, the problem of small producers is highlighted once more, although it echoes a long-running discourse on how small producers fit within Malaysia's agricultural landscape. Colonial administrators in Malaysia during the 1930s already problematized small palm oil farmers' lack of organization, and the critical role of middle-men dealers (Pakiam, 2021). In that sense, today's EUDR may seem uncomfortably close to the colonial discourse of that era.

The aim of this study is threefold. First, it provides a theoretical framing of the EUDR from the perspective of TSRs and more broadly, the development of palm oil sustainability standards (section 2). Second, the study addresses the specific challenges of the palm oil supply chain for small producers in Malaysia, showing how EUDR traceability, as it is currently envisaged, is unworkable for small producers (section 3). Third, the study outlines how reframing palm oil production and deforestation from a territorial lens could offer an outcome that achieves the goals of the EUDR and would allow small producers to remain in the supply chain (section 4).

The final section (section 5) provides a brief discussion of the research findings and their implications. The issues and framing of small palm oil producers in Malaysia and the EUDR, and the solutions to overcoming related challenges, may also apply for different TSRs, different commodities, and different geographies.

## 2. TRIPARTITE STANDARDS REGIMES IN PALM OIL

### 2.1 Defining Tripartite Standards Regimes

Tripartite Standards Regimes (TSRs) emerge as a specific regulatory regime once a voluntary sustainability standard is developed. TSRs combine the socio-technical standards with certifications and accreditations, creating a specific but integrated standards regime (Fouilleux & Loconto, 2017; Hatanaka et al., 2012; Loconto et al., 2012).

The standard at the core of the TSR is developed by a Standard Development Organization (SDOs), which consists of experts and interested parties, who create the standard (Fouilleux & Loconto, 2017; Loconto et al., 2012). Examples of SDOs include the International Standards Organization (ISO), a non-governmental organization based in Geneva, Switzerland which sets international technical industrial standards. In the field of palm oil, there is the Roundtable of Sustainable Palm Oil (RSPO), which is a non-governmental organization based in Kuala Lumpur, Malaysia.

SDOs work with Certifying Bodies (CBs) whose task is to audit organizational processes, products or services to ensure they meet the standard. CBs are in turn monitored by Accreditation Bodies (ABs) who verify if the standard developed by the SDOs is being certified correctly (Fouilleux & Loconto, 2017). In the case of RSPO standards for palm oil, its AB is Assurance Services International, a private company based in Bonn, Germany.

TSRs are notably different from government regulation, both in how decisions are made, as well as in their scope and role. TSRs typically involve voluntary private standards, and they often occur in a trans-national setting (Fouilleux & Loconto, 2017). As explained by Busch (2011):

“TSRs differ from state-based modes of governance in that they are often a cobbled-together network of persons, organizations, and things, rather than being constructed on a formal hierarchy of status relations. TSR may be granted special status by nation-states, or they may be an entirely private form of governance, subject to state laws about contracts, fraud, and so forth, but not the subject of any special legislation.” (Busch, 2011, p. 221)

Technical standards also have a number of important functions in the technical and economic sphere. They are an important channel for the diffusion of knowledge, as they encourage the formation of a scientific consensus on a particular topic, and subsequently support the dissemination of best-practices in terms of technical design, safety, environment, and functionality. From an economic perspective, standards help enhance equipment interoperability and lower transaction costs by providing transparent information about a product, thereby facilitating trade (Egan, 2002; Loconto et al., 2012). Standards therefore not only give rise to a TSR, but also help to create a market for a specific kind of product such as *sustainable* palm oil.

### 2.1 Standards Regimes and Technologies of Governance

Viewed more broadly, standards regimes can be viewed as a ‘technology of governance’ (Bowker & Star, 2000; Espeland & Stevens, 2008; Schweber, 2017). “Governance comprises the means used to influence behavior, the production of resources, and the distribution of resources,” (Davis et al., 2012, p. 78). More specifically: “To govern, in this sense, is to structure the possible field of action of others” (Foucault, 1983, p. 221).



TSRs can be framed as a ‘technology of governance’ because they go beyond the sphere of what is traditionally regarded as government, a phenomenon Foucault calls ‘governmentality’ (Foucault, 1983; Hunt & Wickham, 1994; Schweber, 2017). Increasingly, the “techniques and tactics of domination” (Foucault, 1980, p. 102) used by governments are adapted and applied to other social settings. As Schweber (2017, p. 295) explains, “whereas in earlier power/knowledge regimes were associated with the exercise of power by specific actors in specific types of institution (e.g. the courts, prison, the military, schools), under neoliberalism they have (also) permeated other aspects of everyday life.”

Further examples of technologies of governance include military intervention, fund transfers, the adoption and use of legal instruments, publication of scientific reports, advertising campaigns, and educational programs. Each of these technologies involves the application of different types of resources, both tangible, in terms of funds and personnel, as well as intangible, in terms of status and information (Davis et al., 2012).

International environmental standards are an area where self-regulation often occurs due to a “governance void” (Rasche, 2012, p. 679) on the part of the state, as states are unable or unwilling to establish and agree on a credible international regulatory framework. In response to this, non-state actors, sometimes in collaboration with governments and intergovernmental organizations, create their own environmental standards (Collard et al., 2016; Terlaak, 2007).

Of particular concern is the tendency of environmental standards to become ‘closed’ (certification and reporting) as opposed to ‘open’ (principle-based). While both ‘open’ and ‘closed’ standards have advantages and disadvantages, there appears to be a natural social-organizational tendency towards closed standards (Bowker & Star, 2000; Christensen et al., 2017). Closed standards often exclude criteria that are not quantitative (Schweber, 2017), exclude ethical considerations (Kärreman & Alvesson, 2010), and exclude dissenting or different views; “when discussion is thwarted, a particular view of reality is maintained at the expense of equally plausible ones, usually to someone’s advantage.” (Deetz, 1992, p. 188). While RSPO’s principles provide a broad, open framework, operating through 7 principles and their associated criteria and indicators, allowing for some flexibility in how organizations achieve compliance rather than prescribing exact methods. the certification, reporting, and auditing systems add elements of a closed standard to ensure accountability and traceability.

A community of practice (or ‘social world’) is created by the persons setting standards. who have a shared understanding about the subject matter. Membership of such a community depends to a large extent on one’s knowledge of the standards, as well as being part of a consensus about the meaning of the activities being undertaken (Bowker & Star, 2000; Schweber, 2017). In this sense, the standards that are created primarily reflect the interests and shared beliefs of members of the community. In her review of voluntary environmental standards, Schweber (2017) notes:

“often taken for granted calculations contained in standards and techniques serve to filter, rank, distinguish and reward particular arrangements over others, with potentially significant implications for the effect of the techniques in which they are embedded.” (Schweber, 2017, p. 295)

For this reason, Christensen et al. (2017) emphasize the need for the open discussion and contestation of environmental standards, particularly when standards developed for multinational corporations are

applied to SMEs to ensure that all aspects important to SMEs are adequately incorporated into the standard.

### **2.3 The EUDR as a Tripartite Standards Regime**

Although the EUDR is formally a domestic regulation that only applies to EU-based firms, the EUDR has extraterritorial effects as a technology of governance. EU importers pass traceability requirements on to their suppliers, who are located outside the Union, thus generating the measure's extra-territorial effect.

As currently defined, EUDR requires traceability of deforestation-sensitive products to their location of production, specified as a geospatial point or polygon. This spatial traceability should enable an EU importer to document and verify whether a crop was grown on recently deforested land after December 31, 2020. Verification involves the use of geospatial data, satellite imagery, and risk assessment tools to ensure compliance with the regulation's deforestation-free criteria (European Commission, 2023).

In this sense, the EU can be viewed as performing a standards-setting role like an SDO, particularly when its regulations become de facto global benchmarks for sustainable and deforestation-free trade, with the EUDR as its standard. The EUDR appears to give rise to a chain of CBs and ABs which work to ensure the traceability of the supply chain. Where the EUDR is different from a voluntary private-sector standard such as the RSPO, is that unlike the SDO standards which are voluntary unless adopted into law, EUDR is inherently regulatory driven by political negotiation rather than the consensus-driven process of SDOs and that the EUDR is an extension of broader EU trade diplomacy.

For example, the EU and Malaysia are currently in administrative-level consultations about palm oil supply chains as part of the *KAMI* project.<sup>1</sup> One of the aims of the consultation is to explore amending the Malaysian Sustainable Palm Oil (MSPO) standard to bring it in line with the EUDR (MSPO and EFI, 2024). In this sense, the MSPO, which is being funded by the Malaysian government, is trying to become a CB within the tripartite framework. One could argue that the European Forestry Institute (EFI), which engages in the technical aspects of the EUDR, acts as the AB. The EFI is also managing the *KAMI* project.

Although the EUDR does not completely fit within the TSR framework, it is clearly a technology of governance that attempts to impose certain behavior on actors elsewhere – in this case the behavior of the Malaysian palm oil supply chain. The influence of the EUDR is greater than the size of the EU itself, as other economic partners may follow similar traceability and no-deforestation requirements in future, as the EU is often a pioneer in developing environmental regulations (Bradford, 2020; F. Hidayat, 2024).

The assumption that the EUDR is fixed, and producer countries like Malaysia must adapt, also indicates the economic power imbalance that exists between Malaysia and the EU. Malaysia's position in this regard appears to be weakening further, as artificial palm oil production technology is reaching a stage whereby large-scale commercial production may soon become viable (F. Hidayat, 2024).

## **4. SMALL FARMERS IN MALAYSIA'S PALM OIL SUPPLY CHAIN**

According to the Malaysian Palm Oil Board (MPOB), there are approximately 215,000 independent smallholders (ISH) in Malaysia cultivating approximately 822,073 ha of land. Their output represents 28% of the palm oil production in Malaysia. (MSPO and EFI, 2024) Before discussing the specific structure of the supply chain in Malaysia, we briefly discuss how small palm oil farmers have been impacted by

---

<sup>1</sup> <https://efi.int/partnerships/kami/malaysia>



sustainability certification schemes.

#### **4.1 Background: Small Palm Oil Farmers and Sustainability Certification**

Sustainable palm oil standards have been developed to mitigate some of the negative environmental and social effects of palm oil production. Negative environmental impacts mainly include deforestation, biodiversity loss and increases in greenhouse gas emissions due to land-use changes and harmful agricultural practices (Abood et al., 2015; Carlson et al., 2013; Vijay et al., 2016). However, small farmers are generally found to be more biodiversity friendly than large plantations, although they are still far less biodiverse than forests (Dhandapani et al., 2020; Razak et al., 2020).

Small producers have traditionally been marginalized in global palm oil value chains: while accounting for approximately 30% of global production, it is typically lower-yielding and small farmers claim a much smaller share of around 6% of the total value chain (Ogahara et al., 2022; Rijk et al., 2021). The low yields achieved by small farmers are often attributed to poor or insufficient inputs, including poor quality planting material, wrong application of fertilizer, herbicides and insecticides, and poor quality soils (Ogahara et al., 2022). Nevertheless, palm oil often brings in more income than other crops, and therefore it plays an important role in rural economies (Ogahara et al., 2022).

It is important to note that the narrative of low yields among small farmers is contested by some authors, who note that small farms can meet, or even exceed, the yields obtained by large corporate plantations, highlighting their autonomy and ability to learn and adapt to changing circumstances (Li & Semedi, 2021).

A solution to small farmers' problems is often seen in the formation of farmer groups (cooperatives, associations, etc). These groups can improve farmers' bargaining power (Bennett et al., 2019; Raharja et al., 2020) and lower the transaction costs of sustainability certification schemes by certifying groups of farmers at the same time, and by disseminating good agricultural practices to their members, as a way to also improve yields (Ogahara et al., 2022). It is important to note that organizing farmers is not a new issue, especially in Johor, one of the 13 states in southern peninsular Malaysia comprising of the largest number of independent smallholder farmers. A need to organize small farmers in the area was already noted by British colonial administrators during the 1930s (Pakiam, 2021).

In order to get sustainability certification, small farmers may need to join an organization that is capable of disseminating good agricultural practices and carrying out internal audits and record-keeping to ensure that the sustainability standards are being followed (K. N. Hidayat et al., 2015). The cost of such an organization is high relative to farmers' income levels, and the return on investment is uncertain (Dharmawan et al., 2021; Kunz et al., 2019; Tey et al., 2021). Due to insufficient demand for sustainable palm oil, smallholders typically do not receive a large price premium for certified palm oil (Apriani et al., 2020; Martens et al., 2020).

Joining a certification organization also creates dependence, as small farmers can only use licensed suppliers and sell to licensed mills, and depend on the organization to maintain their certification (K. N. Hidayat et al., 2015). The certifying organization, which is often a non-governmental organization, exerts significant influence over the small farmers, which is a situation that is not sufficiently addressed by certification schemes (Ogahara et al., 2022).

An alternative to using certification organizations is a jurisdictional approach, whereby the government takes over the role of the certification organizations. This approach exists under the Malaysian Sustainable

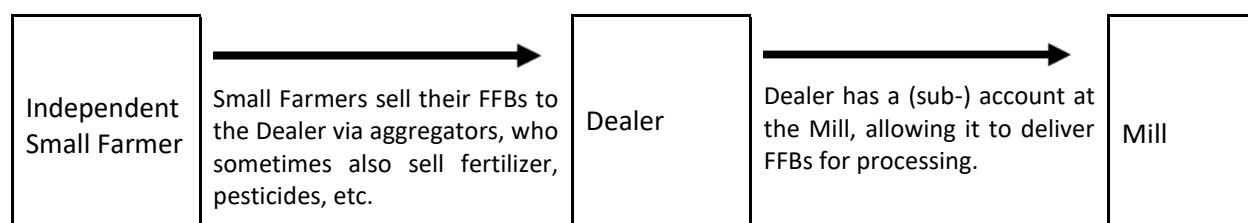
Palm Oil (MSPO) standard and is now also being tried in the Malaysian state of Sabah for RSPO certification. In Sabah, the statewide certification process is being led by the Sabah Forestry Department and financially supported by several international donors. The jurisdictional approach effectively converts the voluntary RSPO standard into a mandatory standard for Sabah, an action which also raises a number of legal and political concerns (Colchester, 2020).

Regardless of whether group or jurisdictional certifications are used, the cost of certification for small farmers is typically borne by external parties (donors or governments), and therefore acts as a social program for small farmers aimed at achieving positive socioeconomic and environmental outcomes.

#### 4.2 Small Farmers and Big Mills

Independent small farmers typically sell their fruit known as Fresh Fruit Bunches or FFBs to a palm oil mill through a system of intermediaries or aggregators and eventually a large dealer holding an account in a palm oil mill (POM). This system of middlemen exists because Malaysia's palm oil sector is primarily organized around large plantations which are owned and operated by large vertically integrated business groups. Given the relatively high quality of rural road infrastructure, these firms operate large-capacity mills, which are able to process FFBs from a relatively large catchment area. It is not unusual for mills to skip small farmers nearby and reach out to larger far-off suppliers capable of providing traceable FFBs. On the other hand in times of low season, the independent smallholder farmers are used as fillers to make up the running capacity of these large POMs. Conversely in times of high season the ISH may have to move mill to mill to find a buyer for their produce.

Both dealers and aggregators known as collection centers play a critical role in providing small farmers with access to the mills. Their role includes aggregating FFBs from multiple farmers to ensure they can get processing slots at the mill. However, the collection centers can also help to arrange transportation, and at times sell fertilizer and pesticides to farmers, along with small amounts of commercial credit besides providing other value-added services like harvesters who pluck the fruit. Dealers might also have relationships with large plantations, holding accounts at their mill, and have their FFBs processed under the plantation's quota. The typical supply chain from small farmer to the mill is shown in Figure 1, below



**Figure 1:** Typical palm oil supply chain from small farmer to mill in Peninsular Malaysia.

The presence of dealers poses significant challenges from the perspective of supply chain traceability because the collection centers fulfill a largely unofficial role within the supply chain. Once the fruit is plucked, it needs to be supplied to the POM within a 24-hour window to prevent loss of quality. In other regions, such as in Nigeria or Sumatra, mills tend to be smaller, and farmers deliver FFBs directly to mills. When the infrastructure like the roads around the mills are not in the best condition, the POMs not only make effort to collect from every possible supplier around the mill, but also run several programs to help these suppliers. In Peninsular Malaysia small farmers such as those in Johor *cannot* sell directly to mills because of their very small volumes, and are therefore forced to use middlemen, which increases the

complexity and opacity of the supply chain:

“As dealers are not certified and as they are not required to pass relevant information on the area of FFB production to the mill, tracing palm oil back to the plot of land on where FFBs were cultivated is not possible. Additionally, the smallholders and mills that dealers transact with can change frequently, further complicating the situation.” (MSPO and EFI, 2024, p. 21)

In terms of their spatial location, dealers can also exist virtually without having a physical location as their main job is to provide connectivity to the mill through their account. In Peninsular Malaysia, mills are typically located 5-10 km from oil palm farms. While farms closer to the mill are preferred by POMs to minimize transportation costs (Shevade & Loboda, 2019), the time from harvest of 24 hours is the guiding constraint allowing POMs in Malaysia to receive supply from as far as 80 km.

Viewed from the four chains of custody models (see Table 1), identity preserved custody is not feasible for small farmers due to the large scale of mills. It is not possible to process a single batch of FFBs from a single farm at a large mill. Segregated supply chains are uneconomical in mill catchment areas with certified and uncertified production, because they would require the replication of collection and transportation infrastructure. However, this problem is solved if all production within the mill catchment area is certified. As this has not happened, mass balance systems are currently being explored through collaborations between collection centers and certification organizations. However, mass-balance methods have been rejected under current EUDR proposals. Book-and-claim systems are currently used by the RSPO and MSPO, as small RSPO-certified farms are still in the minority, making it the most viable approach to ensuring traceability. Book-and-claim is also not acceptable under EUDR rules.

Chain of custody	Supply chain implementation	Comments
Identity preservation	Each product can be traced to a specific producer (farm).	Accepted under EUDR, difficult for palm oil due to large-scale mills.
Segregation	Certified and non-certified products have completely separate supply chains.	Accepted under EUDR
Mass balance	Certified and non-certified products are collected together, but with book-keeping to verify origin of certified products.	Not accepted under EUDR
Book-and-claim	Certified products enter the non-certified supply chain, but suppliers get a certificate ('claim') which they can sell to buyers seeking certified products.	Currently used for small-holder RSPO certification; not accepted under EUDR

**Table 1:** Four chains of custody in supply chains, adapted from RSPO (RSPO, 2024)

These examples also illustrate the challenge of establishing credence for commodity products such as palm oil where the end characteristic of the product is unable to prove its certified or uncertified nature.

In cases such as these, a supply chain that is traceable becomes an intrinsic part of the product characteristic. To illustrate the challenges of traceability within the current supply chain, consider that FFBs are typically collected on the roadside next to the farm for collection. FFBs are then picked up by a smaller vehicles, which may drive directly to a small mill, or transfer the FFBs to larger trucks at aggregation points. Transportation sometimes occurs at night due to lower temperatures, less traffic, and less police enforcement against truck overloading. Once the truck arrives at the mill, carrying FFBs from various farms, the bunches are inspected and might then be declared under the main account of another party, such as the dealer, where with change of custody any traceability information ,if collected until that point is lost.

#### **4.3 Dealing with the Dealers**

Even if transparency and traceability at the mill gate is improved, logistics providers would need to verify the precise origin of FFBs. While dealers can know which aggregation point or collection center is the source of their supply, they may be unable to reliably verify the specific farm of origin for the FFBs. Transparently declaring the origin of FFBs to the Mill, or on a publicly-accessible traceability system, could also harm the commercial position of dealers. Dealers, like any business, are not keen to disclose their client and supplier lists, along with their turnover, to their competitors, clients and the wider public.

The way in which dealers operate is complex, opaque and informal, and this presents an important weakness from a supply chain traceability perspective. Dealers could potentially be used to mask the origins of FFBs so that they can enter a 'deforestation-free' supply chain, something that has happened in the past with MSPO and RSPO-certified palm oil (Kusumaningtyas, 2018; Low, 2024).

In response to these challenges, the MSPO has recently developed a dealer standard under MS2530:2022 Part 4-3, which will be implemented from January 2025. However, this standard also has significant gaps. A joint report issued by KAMI, an intergovernmental palm oil working group between Malaysian and the EU notes the lack of "a traceability reporting module/interface for dealers" and the lack of an "interface for EU operators to register and access EUDR-relevant information for their due diligence statements such as geolocation and immediate supplier information." (MSPO and EFI, 2024) Thus it must be concluded that even if the MSPO standard for dealers were implemented widely in January 2025, it would not make dealers EUDR compliant.

Due to the absence of traceability for small farmers, the report concludes that: "certified palm oil is likely to be derived from lower-complexity supply chains and further information could potentially be available in audit reports." (MSPO and EFI, 2024) The 'high-complexity' involved in tracing FFBs produced by small farmers will likely lead EU buyers, and the mills they source from, to remove dealers and small farmers from their supply chain to avoid potential compliance liabilities.

#### **4.4 High Complexity, High Cost, and High Corruption?**

While it is theoretically possible to design a traceable and highly complex supply chain, experience with other sustainable agriculture certification schemes suggests that the cost of compliance tends to be relatively high for independent small producers, placing them at a further disadvantage. As a result, small producers are forced to enter a cooperative, thus surrendering their independence, and will face an increase in their costs if compliance is not subsidized in some way.

RSPO and EUDR standards involve intricate certification and auditing processes. As a result, consultants, certification bodies, and auditors emerge to guide producers through compliance. This often requires

specific audits, traceability systems, and training, which are costly. These actors charge fees for their services, creating a dependency cycle for the producers. Complex certification and supply chain schemes are also vulnerable to fraud, as is the case with the EU's own common agricultural policy (Giannakas & Fulton, 2002). Implementation of RSPO and EUDR standards also requires monitoring and verification. Many countries lack the public institutional capacity for rigorous enforcement. A market forms around certification, with private organizations profiting from certification training, branding, and consulting. These intermediaries make compliance costly, particularly for smallholders. It is therefore possible that EUDR compliance for small farmers will be costly, and nevertheless lead to significant abuse. Ultimately the standards may disproportionately favor larger corporations with resources to absorb compliance costs. While NGOs may highlight these inequalities, raising funds and gaining visibility as advocates for the marginalized, facilitators charge fees to level the playing field for smaller entities.

### **5. A TERRITORIAL APPROACH TO TRACEABILITY AND MONITORING DEFORESTATION**

The EUDR is based on a relatively simple concept: that the EU should not import products that lead to or are derived from deforestation. The way in which this goal has now been operationalized is by enforcing a verifiable proof tracing a product's origin and substantiating it with information that validates no deforestation. Though apparently simple in the context of ISH for oil palm this is not easy, especially with Malaysia's highly complex supply chain that includes intermediaries between the small farmers and big mills and good infrastructure allowing the mills to choose their suppliers from far off distances but within a 24 hour window needed to maintain the quality of fruit.

While traceability to small producers can become highly complex, the growing of oil palm and related deforestation risks, are also a highly territorial phenomenon. Oil palm farming on recently deforested land is influenced by biophysical suitability as well as access to mills and related infrastructure (Shevade & Loboda, 2019). The relatively high cost of transportation means that in Peninsular Malaysia oil palm farms are located within 20 km of a palm oil mill, and transportation beyond 40 km appears to be uneconomical (Shevade & Loboda, 2019). This suggests that while until now the first mile of the palm oil supply chain involving small farmers which typically existed within a radius of 10 km, and has been a relatively local phenomenon is likely to scale up as POMs will look for far-off suppliers capable of providing traceable produce.

At the same time if traceability and deforestation risk can be framed as a territorial phenomenon, it provides an interesting path towards lowered complexity, and one that incorporates certain concepts that already exist within the MSPO standard.

Recognizing the challenges of certifying independent small holders, the MPOB in 2002 began a small farmer outreach and upgrading scheme, *Tunjuk Ajar dan Nasihat Sawit (TUNAS)* or Guidance and advice on Palm Oil, which aimed to organize smallholders into groups (Sustainable Palm Oil Clusters, SPOCs). SPOCs are served by a TUNAS agent, or SPOC manager. The SPOC manager is essentially a government employee who manages between 500-2,000 smallholders. Each independent small farmer automatically belongs to a local SPOC. As of January 2019 there were 162 SPOCs with a total of 262,724 members covering 1,015,524 ha. (Kannan et al., 2021). The MPOB has gradually begun to certify SPOCs, achieving 30% coverage in July 2020, and 74% by mid-2024 (BERNAMA, 2024). However, the registration rates of small farmers within SPOCs may be lower, with a figure of 24.82% cited for May 2020 (Bok et al., 2022).

Concerns have been raised about the high number of farmers per SPOC manager, and that there are cases of non-compliance within SPOCs that have achieved MSPO certification. A significant factor in non-

compliance is related to record-keeping and traceability, which again highlight the complexity challenges posed by certification (Kannan et al., 2017, 2021).

A possible solution to reducing complexity and the related high cost of EUDR compliance could be to provide traceability and compliance for the first mile of palm oil supply chains at a territorial level, for instance based on the location of SPOCs or individual mills. SPOCs or mill catchment areas could be treated as a single EUDR traceability 'polygon', and their compliance can be determined based on this polygon. If deforestation is occurring within a SPOC or mill catchment, then its palm oil can be excluded from the EUDR supply chain. If the SPOC or catchment is found to be deforestation-free, then all small farms within it are automatically marked as EUDR compliant.

Aside from reducing costs and complexity, such an approach would have a number of additional advantages. Deforestation within the SPOC can be independently verified, as the monitoring of deforestation has become increasingly feasible using remote sensing technology (Perbet et al., 2019). Real-time monitoring can allow authorities to immediately take action against deforestation events. Furthermore, monitoring at the SPOC-level can hold state and local governments accountable for policies on land-use change.

Local farmers and SPOC officers can also form a coalition that aims to prevent deforestation in order to maintain access to a deforestation-free supply chain, serving a core aim of the EUDR, and potentially empowering the local community in terms of advocating in favor of sustainable land-use. Additionally, the main focus of the SPOC manager can be directed towards preventing deforestation, rather than trying to ensure record-keeping in a system with numerous middle-men that is unlikely to ever conform to EUDR traceability rules.

By certifying all palm oil within a specific territory or jurisdiction, it becomes much simpler to implement a segregated supply chain, as precise record keeping and tracing to an individual small farm may no longer be required. However, it will require a greater top-down approach requiring support from various organizations within the SPOC. While there may be additional complexity added where mills source across the SPOC(s), the overall complexity will be greatly reduced eg. from tracing 262,724 small farms to providing compliance for 162 SPOCs.

It can be argued that by grouping small farms within a SPOC or mill catchment and assessing deforestation at an aggregated level, any non-compliance may result in the form of 'collective punishment', it can be a viable option built upon a culture of shared responsibility given that the existing alternatives like MSPO get implemented very loosely by conducting audits from a relatively small sample of the entire SPOC while standards such as RSPO's 2019 ISH standard while done at group level, lack the scalability and are financially not viable while still leaving a Gap with EUDR compliance.

At the same time the challenges generated from this territorial approach eg. non-compliant actors within the territory may still benefit from the collective compliance framework without making meaningful contributions to sustainability, weakening the incentive for individual farmers and businesses to adopt sustainable practices.

It is also to be taken into account that assessing compliance at a regional level, will make it harder to identify specific actors responsible for deforestation or other non-compliant activities leading to less targeted enforcement and reduced effectiveness in addressing deforestation. Territorial compliance



assumes uniform adherence to sustainability standards across a region whereas exporters may favor products from territories deemed compliant, marginalizing producers in non-compliant regions, regardless of their individual practices. This could exacerbate inequalities between regions and undermine the livelihoods of small farmers outside compliant territories.

Tracing to the farm or plantation (TTP) implies the need to manage the greater complexity at an increased cost, which will likely make it uneconomical, if at all feasible. Focusing solely on traceability risks ignoring systemic drivers of deforestation, such as poverty, weak governance, or land tenure issues. While the EUDR regulation sets a high standard, it does not provide adequate financial or technical support for transitioning producers to comply. Without subsidies or capacity-building initiatives, many producers especially in developing countries may find it very difficult to adapt. Eventually, small farmers will simply be excluded from EUDR supply chains due to a lack of documentation and record-keeping.

Applying EUDR at a territorial level seems to offer a reasonable path towards ensuring EUDR compliance while maintaining small farmers within the supply chain. It is also a measure that can be implemented almost immediately, unlike plans to certify dealers or ensure the traceability of all small farmers.

A hybrid approach of combining territorial-level monitoring with gradual implementation of farm-level traceability, can ensure a balanced approach that can be scaled over time. This will require providing financial and technical support to regions aiming for territorial compliance, particularly in high-risk areas. Individual farmers or businesses within compliant territories should be recognized and rewarded so that they can go above and beyond baseline standards.

## **6. CONCLUSION: AVOIDING ENVIRONMENTAL AND SOCIO-ECONOMIC DESTRUCTION**

Taken at face value, the EUDR has laudable environmental goals: to prevent deforestation, which threatens the world's carbon sinks and biodiversity. However, as a side-effect, the EUDR could permanently exclude small farmers from sustainable supply chains, even if the vast majority of these farmers do not grow their crops in recently deforested areas. Implementation of the EUDR could mean that only large plantations or farmers' organizations like cooperatives can have access to EU markets, which is an unintended consequence of the regulation, and which has rightly raised the concerns of affected countries such as Malaysia. Is the EUDR "fair" if it systematically ends up excluding the small farmers? Countries exporting commodities to the EU, such as the Southeast Asian countries, may view EUDR as a form of trade protectionism that unfairly targets their agricultural practices while ignoring European contributions to deforestation e.g., through imports or consumption patterns.

The problem of small producer traceability in highly complex supply chains is not unique to Malaysia or to palm oil: it can be found in countries and sectors around the world (Dietz et al., 2021; Mithöfer et al., 2017). While sustainability standards are not explicitly designed to exclude small producers, they are typically designed with the needs of larger lead producers in mind, and are difficult and relatively costly to implement for small producers (Sommer, 2017). In the case of the EUDR, the geocoding of individual farms may be feasible. However, tracing FFBs from farm to mill in a complex, multi-layered and dynamically adjusting supply chain is very difficult.

The response to this challenge seems typical of TSRs: the joint consultation between the EU (SDO and AB) and the Malaysian government (CB) does not challenge the standard itself, but proposes that in response to the problem of complexity, every layer and actor in the supply chain should become certified, even if

the economic and practical viability of doing so is unclear.’.

It is telling that the SPOC and territorial approaches to certification are not even mentioned in documents about the EUDR co-published by the MSPO, the ‘inventor’ of the SPOC (MSPO and EFI, 2024). The single-minded focus on traceability highlights the strength of the standards and knowledge regime that has already emerged around the EUDR. Together with the European parliament and the European commission, the certifiers and accreditors have already built a techno-political alliance that has successfully co-opted Malaysian public organizations such as the MSPO and MPOB with the default position that small producers are ‘the problem’ that must be controlled through certification, and that the MSPO standard needs ‘improvement.

Without strong push-back from actors outside of the TSR – politicians, civil society, academics, and small farmer organizations, both in Europe and in producer nations – the EUDR will continue to develop as a closed standard, whose practicality and economic viability are highly doubtful for independent small farmers, and with high degree of supply chain complexity making it susceptible to fraud and manipulation.

If EUDR were to adopt a more open standard, whereby the EU and local actors can renegotiate its implementation based on the specific local context of small and large producers (Christensen et al., 2017) there is hope in it achieving its intended objective. This approach should preserve the fundamental anti-deforestation goal of the EUDR, while seeking collaboration and co-regulation with regards to implementation, by incorporating both the views of the regulator (EU) and the regulated parties (small farmers) (Rouvière & Caswell, 2012).

Applying EUDR at a territorial level is a practical and inclusive pathway to compliance, particularly in the short term, balancing the need for sustainability with the economic realities of small farmers. In Malaysia’s case, the territorial approach to palm oil certification via SPOCs already offers a potential avenue for monitoring deforestation, while offering a simpler system of traceability. It provides a mechanism to keep small farmers in the supply chain and allows for immediate action. However, this approach must be managed to avoid diluting accountability and creating unintended market distortions. A hybrid model that transitions from territorial compliance to more granular farm-level traceability over time would likely yield the most balanced and sustainable outcomes.

## REFERENCES

- Abood, S. A., Lee, J. S. H., Burivalova, Z., Garcia-Ulloa, J., & Koh, L. P. (2015). Relative contributions of the logging, fiber, oil palm, and mining industries to forest loss in Indonesia. *Conservation Letters*, 8(1), 58–67.
- Apriani, E., Kim, Y.-S., Fisher, L. A., & Baral, H. (2020). Non-state certification of smallholders for sustainable palm oil in Sumatra, Indonesia. *Land Use Policy*, 99, 105112. <https://doi.org/10.1016/j.landusepol.2020.105112>
- Bennett, A., Ravikumar, A., McDermott, C., & Malhi, Y. (2019). Smallholder Oil Palm Production in the Peruvian Amazon: Rethinking the Promise of Associations and Partnerships for Economically Sustainable Livelihoods. *Frontiers in Forests and Global Change*, 2. <https://www.frontiersin.org/articles/10.3389/ffgc.2019.00014>
- BERNAMA. (2024, July 24). *Only 74 Pct Oil Palm Smallholders Achieve Mspo Certification—Kpk*. BERNAMA. <https://www.bernama.com/en/news.php?id=2321277>
- Bok, C. H., Lim, C. H., Ngan, S. L., How, B. S., Ng, W. P. Q., & Lam, H. L. (2022). Life cycle assessment and life cycle costing analysis for uncertified and Malaysia sustainable palm oil—MSPO-certified independent smallholders. *Journal of Cleaner Production*, 379, 134646. <https://doi.org/10.1016/j.jclepro.2022.134646>
- Bowker, G. C., & Star, S. L. (2000). *Sorting things out: Classification and its consequences*. MIT press.
- Bradford, A. (2020). *The Brussels Effect: How the European Union Rules the World*. Oxford University Press.
- Busch, L. (2011). Food standards: The cacophony of governance. *Journal of Experimental Botany*, 62(10), 3247–3250. <https://doi.org/10.1093/jxb/erq439>
- Carlson, K. M., Curran, L. M., Asner, G. P., Pittman, A. M., Trigg, S. N., & Marion Adeney, J. (2013). Carbon emissions from forest conversion by Kalimantan oil palm plantations. *Nature Climate Change*, 3(3), Article 3. <https://doi.org/10.1038/nclimate1702>
- Christensen, L. T., Morsing, M., & Thyssen, O. (2017). License to critique: A communication perspective on sustainability standards. *Business Ethics Quarterly*, 27(2), 239–262.
- Colchester, M. (2020). Preliminary findings from a Review of the Jurisdictional Approach initiative in Sabah. *Forest Peoples Programme, June*, 1–7.
- Collard, R.-C., Dempsey, J., & Rowe, J. (2016). Re-regulating socioecologies under neoliberalism. In S. Springer, K. Birch, & J. MacLeavy (Eds.), *The Handbook of Neoliberalism*. Routledge.
- Davis, K. E., Kingsbury, B., & Merry, S. E. (2012). Indicators as a technology of global governance. *Law & Society Review*, 46(1), 71–104.
- Deetz, S. (1992). *Democracy in an age of corporate colonization: Developments in communication and the politics of everyday life*. SUNY press.
- Dhandapani, S., Girkin, N. T., Evers, S., Ritz, K., & Sjögersten, S. (2020). Is Intercropping an Environmentally-Wise Alternative to Established Oil Palm Monoculture in Tropical Peatlands? *Frontiers in Forests and Global Change*, 3. <https://www.frontiersin.org/articles/10.3389/ffgc.2020.00070>
- Dharmawan, A. H., Mardiyarningsih, D. I., Rahmadian, F., Yulian, B. E., Komarudin, H., Pacheco, P., Ghazoul, J., & Amalia, R. (2021). The Agrarian, Structural and Cultural Constraints of Smallholders' Readiness for Sustainability Standards Implementation: The Case of Indonesian Sustainable Palm Oil in East Kalimantan. *Sustainability*, 13(5), Article 5. <https://doi.org/10.3390/su13052611>
- Dietz, T., Grabs, J., & Chong, A. E. (2021). Mainstreamed voluntary sustainability standards and their effectiveness: Evidence from the Honduran coffee sector. *Regulation & Governance*, 15(2), 333–355. <https://doi.org/10.1111/rego.12239>

- Egan, M. (2002). Setting Standards: Strategic Advantages in International Trade. *Business Strategy Review*, 13(1), 51–64. <https://doi.org/10.1111/1467-8616.00202>
- Espeland, W. N., & Stevens, M. L. (2008). A sociology of quantification. *European Journal of Sociology/Archives Européennes de Sociologie*, 49(3), 401–436.
- European Commission. (2023). *Regulation on Deforestation-free products*. [https://environment.ec.europa.eu/topics/forests/deforestation/regulation-deforestation-free-products\\_en](https://environment.ec.europa.eu/topics/forests/deforestation/regulation-deforestation-free-products_en)
- Foucault, M. (1980). Power/knowledge, brighton. *Harvester Press*, 206, 381–393.
- Foucault, M. (1983). The Subject and Power. In H. L. Dreyfus & P. Rabinow, *Michel Foucault: Beyond Structuralism and Hermeneutics* (Second Edition, pp. 208–228). The University of Chicago Press.
- Fouilleux, E., & Loconto, A. (2017). Voluntary standards, certification, and accreditation in the global organic agriculture field: A tripartite model of techno-politics. *Agriculture and Human Values*, 34(1), 1–14. <https://doi.org/10.1007/s10460-016-9686-3>
- Giannakas, K., & Fulton, M. (2002). The Economics of Decoupled Farm Payments under Costly and Imperfect Enforcement. *Canadian Journal of Agricultural Economics/Revue Canadienne d'agroéconomie*, 50(3), 297–315. <https://doi.org/10.1111/j.1744-7976.2002.tb00339.x>
- Hatanaka, M., Konefal, J., & Constance, D. H. (2012). A tripartite standards regime analysis of the contested development of a sustainable agriculture standard. *Agriculture and Human Values*, 29(1), 65–78. <https://doi.org/10.1007/s10460-011-9329-7>
- Hidayat, F. (2024, April 30). *Indonesia and Malaysia: Palm Oil Under Pressure from Substitutes and EU Deforestation Regulation*. FULCRUM. <https://fulcrum.sg/indonesia-and-malaysia-palm-oil-under-pressure-from-substitutes-and-eu-deforestation-regulation/>
- Hidayat, K. N., Glasbergen, P., & Offermans, A. (Eds.). (2015). Sustainability Certification and Palm Oil Smallholders' Livelihood: A Comparison between Scheme Smallholders and Independent Smallholders in Indonesia. *International Food and Agribusiness Management Review*. <https://doi.org/10.22004/ag.econ.208400>
- Hunt, A., & Wickham, G. (1994). *Foucault and law: Towards a sociology of law as governance*. Pluto Press.
- Kannan, P., Basaruddin, N. H., Hashim, K., Abu Bakar, H., Omar, W., Khairil, S. N., Mohd Salleh, Z., & Mansor, N. H. (2017). Monitoring and Reporting of Oil Palm Fresh Fruit Bunch (FFB) Transactions among Independent Smallholders and Dealers: An Analysis of a Case Study in Selangor, Malaysia. *Oil Palm Industry Economic Journal*, 17(2), 68–81.
- Kannan, P., Hanani, M., RAHMAN, N., Say Peng, T., & MAZLAN, S. (2021). A REVIEW ON THE MALAYSIAN SUSTAINABLE PALM OIL CERTIFICATION PROCESS AMONG INDEPENDENT OIL PALM SMALLHOLDERS. *Journal of Oil Palm Research*, 33, 171–180.
- Kärreman, D., & Alvesson, M. (2010). Understanding ethical closure in organizational settings—the case of media organizations. *Ethics and Organizational Practice: Questioning the Moral Foundations of Management*, 57–80.
- Kunz, Y., Otten, F., Mardiana, R., Martens, K., Roedel, I., & Faust, H. (2019). Smallholder Telecoupling and Climate Governance in Jambi Province, Indonesia. *Social Sciences*, 8(4), Article 4. <https://doi.org/10.3390/socsci8040115>
- Kusumaningtyas, R. (2018). External concerns on the RSPO and ISPO certification schemes. *Online: Hhttps://Www.Foeurope.Org/Sites/Default/Files/Euus\_trade\_deal/2018/Report\_profundo\_rspo\_ispo\_external\_concern\_s\_feb2018.Pdf (Last Accessed: May 2021)*.
- Li, T. M., & Semedi, P. (2021). *Plantation Life: Corporate Occupation in Indonesia's Oil Palm Zone*. Duke University Press.

- Loconto, A., Stone, J. V., & Busch, L. (2012). Tripartite Standards Regime. In *The Wiley-Blackwell Encyclopedia of Globalization*. John Wiley & Sons, Ltd. <https://doi.org/10.1002/9780470670590.wbeog919>
- Low, C. C. (2024, May 10). *Mkini submits list of oil palm projects breaching MSPO rules to minister*. Malaysiakini. <https://www.malaysiakini.com/news/705188>
- Martens, K., Kunz, Y., Rosyani, I., & Faust, H. (2020). Environmental governance meets reality: A micro-scale perspective on sustainability certification schemes for oil palm smallholders in Jambi, Sumatra. *Society & Natural Resources*, 33(5), 634–650.
- Mithöfer, D., Roshetko, J. M., Donovan, J. A., Nathalie, E., Robiglio, V., Wau, D., Sonwa, D. J., & Blare, T. (2017). Unpacking ‘sustainable’ cocoa: Do sustainability standards, development projects and policies address producer concerns in Indonesia, Cameroon and Peru? *International Journal of Biodiversity Science, Ecosystem Services & Management*, 13(1), 444–469. <https://doi.org/10.1080/21513732.2018.1432691>
- MSPO and EFI. (2024). *Joint gap assessment of the EUDR information needs and information availability from the Malaysian Sustainable Palm Oil (MSPO) certification*. European Forest Institute. [https://efi.int/sites/default/files/files/flegtredd/KAMI/MSPO\\_Joint\\_Gap\\_Assessment.pdf](https://efi.int/sites/default/files/files/flegtredd/KAMI/MSPO_Joint_Gap_Assessment.pdf)
- Ogahara, Z., Jespersen, K., Theilade, I., & Nielsen, M. R. (2022). Review of smallholder palm oil sustainability reveals limited positive impacts and identifies key implementation and knowledge gaps. *Land Use Policy*, 120, 106258. <https://doi.org/10.1016/j.landusepol.2022.106258>
- Pakiam, G. K. (2021). “Not the Oil of the Country”: Smallholders and British Malaya’s Oil Palm Industry, 1929–1941. *Agricultural History*, 95(1), 69–103.
- Perbet, P., Fortin, M., Ville, A., & Béland, M. (2019). Near real-time deforestation detection in Malaysia and Indonesia using change vector analysis with three sensors. *International Journal of Remote Sensing*, 40(19), 7439–7458. <https://doi.org/10.1080/01431161.2019.1579390>
- Raharja, S., Marimin, Machfud, Papilo, P., Safriyana, Massijaya, M. Y., Asrol, M., & Darmawan, M. A. (2020). Institutional strengthening model of oil palm independent smallholder in Riau and Jambi Provinces, Indonesia. *Heliyon*, 6(5). <https://doi.org/10.1016/j.heliyon.2020.e03875>
- Rasche, A. (2012). Global policies and local practice: Loose and tight couplings in multi-stakeholder initiatives. *Business Ethics Quarterly*, 22(4), 679–708.
- Razak, S. A., Saadun, N., Azhar, B., & Lindenmayer, D. B. (2020). Smallholdings with high oil palm yield also support high bird species richness and diverse feeding guilds. *Environmental Research Letters*, 15(9), 094031. <https://doi.org/10.1088/1748-9326/aba2a5>
- Regulation (EU) 2023/1115 of the European Parliament and of the Council of 31 May 2023 on the Making Available on the Union Market and the Export from the Union of Certain Commodities and Products Associated with Deforestation and Forest Degradation and Repealing Regulation (EU) No 995/2010 (Text with EEA Relevance), 150 OJ L (2023). <http://data.europa.eu/eli/reg/2023/1115/oj/eng>
- Rijk, G., Wiggs, P. C., & Piotrowski, M. (2021). *FMCGs, Retail Earn 66% of Gross Profits in Palm Oil Value Chain*.
- Rouvière, E., & Caswell, J. A. (2012). From punishment to prevention: A French case study of the introduction of co-regulation in enforcing food safety. *Food Policy*, 37(3), 246–254. <https://doi.org/10.1016/j.foodpol.2012.02.009>
- RSPO. (2019). *RSPO Independent Smallholder Standard*. Roundtable on Sustainable Palm Oil (RSPO). [https://rspo.org/wp-content/uploads/RSPO\\_ISH\\_Standard\\_2019-English.pdf](https://rspo.org/wp-content/uploads/RSPO_ISH_Standard_2019-English.pdf)
- RSPO. (2024, July 1). *Supply chains*. Roundtable on Sustainable Palm Oil (RSPO). <https://rspo.org/as-an-organisation/certification/supply-chains/>



- Schweber, L. (2017). Jack-in-the-black-box: Using Foucault to explore the embeddedness and reach of building level assessment methods. *Energy Research & Social Science*, 34, 294–304. <https://doi.org/10.1016/j.erss.2017.08.005>
- Shevade, V. S., & Loboda, T. V. (2019). Oil palm plantations in Peninsular Malaysia: Determinants and constraints on expansion. *PLoS ONE*, 14(2), e0210628. <https://doi.org/10.1371/journal.pone.0210628>
- Sommer, C. (2017). *Drivers and constraints for adopting sustainability standards in small and medium-sized enterprises (SMEs)* (Working Paper No. 21/2017). Discussion Paper. <https://www.econstor.eu/handle/10419/199511>
- Terlaak, A. (2007). Order without law? The role of certified management standards in shaping socially desired firm behaviors. *Academy of Management Review*, 32(3), 968–985.
- Tey, Y. S., Brindal, M., Djama, M., Hadi, A. H. I. A., & Darham, S. (2021). A review of the financial costs and benefits of the Roundtable on Sustainable Palm Oil certification: Implications for future research. *Sustainable Production and Consumption*, 26, 824–837. <https://doi.org/10.1016/j.spc.2020.12.040>
- Vijay, V., Pimm, S. L., Jenkins, C. N., & Smith, S. J. (2016). The Impacts of Oil Palm on Recent Deforestation and Biodiversity Loss. *PLOS ONE*, 11(7), e0159668. <https://doi.org/10.1371/journal.pone.0159668>