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Effectiveness of Self-Regulating Sustainability Standards for the Palm Oil Industry

Etsuyo MICHIDA[1]
Institute of Development Economies, Japan External Trade Organization (IDE-JETRO)

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Abstract: *National sustainability certification schemes for the palm oil sector such as Indonesian Sustainable Palm Oil (ISPO), and Malaysia Sustainable Palm Oil (MSPO) have emerged to address negative environmental externalities and increase productivity of the sector. However, their reach does not extend to international markets, with differing aspirations and compliance mechanisms compared to the globally recognised private certification scheme. Benchmarking and harmonisation across the schemes could have multiple benefits. First, it decreases fragmentation of standards and allows procurement of certified palm oil at lower costs. Second, a harmonised regional scheme rather than multiple national schemes makes communication on the improvement of sustainability standards with global users easier, while involvement of users in their revision is expected to lead to their global recognition. Third, having a harmonised ASEAN standard can help other member countries in the region or countries from other regions to benchmark and adopt it as a proxy global standard, which prevents further fragmentation and proliferation of local standards. Making sustainable palm oil certifications acceptable for international markets is expected to pave the way for similar programmes for other agricultural products. Lastly, as the proliferation of standards leads to confusion amongst consumers, a harmonised standard improves understanding and clarifies the expected impact on the palm oil sector.*

Keywords: Certification, Palm oil, Standards, Sustainability
JEL Classifications: Q24, Q21, P13, P28

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1. Introduction

Achieving the United Nations' Sustainable Development Goals (SDGs) and a carbon-neutral society with social inclusion is one of the most urgent challenges in our time. Both producers and consumers are responsible for making economic activities sustainable. However, consumers usually have no information on production processes of food or a product by looking, tasting, or using. Sustainability characteristics of a product are unobservable for users and consumers without accompanying data or indicators. Thus, differentiation between sustainable and unsustainable products requires producers to record and convey the information on the production processes in a transparent manner.[2] Also, we need criteria that allow production processes claimed as sustainable to be validated by a legitimate body. Transition to sustainable production and consumption is equivalent to constructing data-driven value chains. Sustainability certification schemes take these roles, and it is increasingly important for them to collect sustainability information and certify products that meet the criteria.[3] As globalisation creates complex commodity chains, certification schemes that trace value chains from farm to final use have been increasingly used as a transnational governance mechanism. Transparency of sustainability is needed for any product, in both agriculture and industry (ITC, 2021).

One of the important products for sustainability certification is palm oil partly because the sector attracts international attention due to its high growth and possible negative impacts. Palm oil contributes to the world demand for food, animal feed, oleo-chemicals, and biodiesel. Moreover, it is an important edible oil for people in poverty as it is one of the most productive vegetable oils on a production-area basis and is supplied at a competitive price (Zimmer, 2016). For producer countries in the tropical South, palm oil generates income and offers pathways for equitable economic development (Qaim, Sibhatu, Siregar, and Grass, 2020). However, the contribution of palm oil to economic wellbeing does not guarantee environmental and social protection. While palm oil plantations expanded to carbon-rich peatland and natural forest with scarce biodiversity in countries like Indonesia, Malaysia, and Thailand in the last decades, implementation

[2] Certification schemes present criteria to the public and many make audit reports on estates available as a proof that the third-party bodies approve that the criteria are met.

[3] Ecolabels set the bar on sustainability management (ICT, 2016) and address asymmetry of information between producers and consumers (Roheim and Zhang, 2018).

of conservation policy lagged. Social issues including land disputes and human rights violations have also been witnessed. Ensuring sustainability of palm oil requires tracing back to the source through global supply chains covering retailers, importers, exporters, transporters, producers, mills, collectors of fresh fruits bunch, plantations, and growers.

Sustainability certifications on palm oil have been developed by the private sector in countries such as Germany, the Netherlands, and Switzerland, as well as the public sector in producer countries. Examining the roles and effectiveness of both private and public certifications involves questions about how to reconcile consumers' and producers' responsibility and if the impacts of private and public certifications on the production processes are equivalent. The other question on demand side is how to involve consumers in both northern and growing southern markets[4] for sustainability efforts. This chapter discusses the following issues:

- Background and impacts of the certification schemes on production, trade, the environment, and social issues for the two public certification schemes relative to a private scheme.
- Differences in characteristics of the private and public schemes
- Acceptance of public certification schemes and what needs to be done for the market uptake of national certifications.

The methodology used in this chapter is the qualitative approach through interviews, seminars as in the appendix interview list, and document analysis, together with quantitative and econometrics approaches where statistics are available.

[4] In this chapter, the northern countries refer to advanced, industrial countries, while the southern countries are developing or emerging countries. We will refer to the western countries and these include mainly European and North American countries.

2. Background of Palm Oil Sustainability Certifications and Interaction with Public Policy

Private and voluntary sustainability standards have been mainly developed in western countries and applied for agricultural products grown in developing countries. While certification varies across schemes, the process is usually as follows. First, a grower satisfies a list of requirements created by a certification scheme.[5] Next, an auditor checks the documents provided by the grower as well as visits the site for examination. Once compliance is confirmed, the auditor produces a report and submits it to the scheme owner. The auditor finally issues a certification.

In 2017, the largest area dedicated to agricultural products certified by private sustainability standards (bananas, cocoa, coffee, cotton, oil palm, soybeans, sugarcane, and tea) was in Brazil, followed by Côte d'Ivoire, Indonesia, India, and China. Counting private certification schemes only, the certified area of palm oil is 2.5 million hectares following 5.2 ha for cotton, and 2.9 ha for cocoa (ITC, 2020). Sustainability becomes a key for corporate social responsibility, as well as achieving the SDGs. While large-scale multinationals in developed countries can manage sustainability risks by tracing value chains and requesting suppliers to manage production methods, small and medium firms often lack the capacity to do so. The advantage of certifications is to help small and medium firms as buyers procure certified raw materials in a way that can ensure sustainable supply chains without directly examining production management of suppliers. Also, while large multinationals advertise efforts on sustainability in various manners, presenting certification labels on products allows small and medium firms to communicate sustainable procurement to consumers. For sustainable growers, certifications make production processes more transparent and enable them to differentiate from unsustainable growers. Once certified, producers can receive a premium for their sustainability effort. As producers have information related to their own processes, it is more efficient for them to examine how to achieve sustainability requirements.

[5] For example, according to the author's hearing at the Malaysian Palm Oil Board (MPOB) in Malaysia, MSPO requires that certain peatland should not be used for planting, workers need to wear safety helmets and agricultural chemicals need to be stored in a safe place. According to the author's hearing at GlobalGAP in Japan, a list of suppliers and customers and dates of transactions need to be documented in order to allow tracing once some issues arise for produce.

However, from the view point of producers, obtaining certifications adds costs to producers rather than procurers. Further, producers without certifications are increasingly unlikely to participate in global value chains or attract investment from major financial institutions conducting the environmental, social, and governance investments. For some producers, requirements of certifications by customers and investors are *de facto* regulation. Some stakeholders mention that the shifting of sustainability costs from buyers in northern countries to producers in southern countries is unjust.

Concerning financial institutions, Jones (2017; 362) states 'it becomes a real threat for some reinsurance industry whose business models reach out many decades ahead, it became acutely aware of the potential damage of rising sea levels and shifts in rain and temperature patterns.' Hence, more investors and banks are keen to invest in value chain firms that are certified by sustainable certifications for their environmental, social, and governance investments. Not only for the private sector, but the public sector also has started to use certified products. Governments including the European Union (EU) and Japan have required sustainability certifications for public and related procurement of biomass as part of its renewable energy policy to prevent harm to society and the environment (Humphrey and Michida, 2021).

Private certification schemes are developed by nongovernmental organisations (NGOs), industrial associations, and the private sector. Private certification schemes function through demand and supply relationships with market mechanisms and have played a leading role in advancing sustainable production and product tracing. Multiple private schemes were established in the palm oil sector, including the Roundtable on Sustainable Palm Oil (RSPO), International Sustainability and Carbon Certification (ISCC), Roundtable on Sustainable Biomaterials (RSB). RSPO, which has the highest market share amongst voluntary palm oil sustainability certifications, was established in 2004 through multi-stakeholder platforms where producers, processors, investors, as well as social and environmental NGOs, participate. ISCC is a multi-stakeholder private scheme supported by the German government and RSB is a membership-based initiative coordinated by a Swiss university covering biofuel and by-products.

Although palm oil is more for edible uses, biofuel policy played a pivotal role in private certification schemes on palm oil and other oil crops. Since the 1990s, the advantages of biodiesel over conventional fossil fuels have drawn attention. Producer countries of biofuel such as the EU for rapeseed, the US for soybeans, and Brazil for

sugarcane promoted biofuels for climate change mitigation, energy security, farmer support, and rural development (Bozbas, 2008; Garcez and de Souza Vianna, 2009). However, food price increases between 2006 and 2008, which coincided with an increase in biofuel production, food-energy competition, land-use change, and environmental degradation due to biofuel, raised concern. As criticism on biofuels soared, the EU required private sustainability certifications for the production, trade, and use of biofuels in member countries with the 2009 Renewable Energy Directive (RED I). This move is explained as 'certification bestows legitimacy, making it easier for governments to justify supporting green firms, and might even in time offer a path to persuade policy-makers to price environmental externalities into competitor conventional products' (Jones, 2017; 234). RED I recognised voluntary sustainability schemes including ISCC, RSB in 2011, and RSPO RED, which is specifically dedicated to meeting RED requirements in 2012. In 2019, 60% of world biodiesel import was accounted for by the 23 EU member states. In addition, palm oil demand for biodiesel in the EU is determined by policy based on sustainability criteria with RED I rather than consumer's preferences.

Private schemes are increasingly used as a tool to manage global public goods beyond borders, which cannot be regulated by public policy in consumer countries. Emerging utilisation of private certification schemes is a result of perceived governmental failures in addressing global problems based on bounded jurisdictions (Ponte, 2014). While the World Trade Organization (WTO) typically does not allow market access restriction based on environmental and labour conditions,[6] voluntary private certification schemes currently do not fall under the WTO's rule. An important advantage of private regulations is that they essentially bypass ongoing conflicts about state sovereignty, which have often restricted western governments from using trade policies to affect the domestic regulations of developing countries (Vogel, 2008). Private certification is introduced in response to NGOs and concerns amongst civil society and NGOs are an important driver for developing and introducing private certification (Oosterveer, Adjei, Vellema, and Slingerland, 2014). To address global warming concerns, biodiesel policy both in the EU and Japan utilises private standards for managing sustainability beyond the border. Adopting private certification schemes has an impact across borders through

[6] WTO stipulates that 'like' products shall not be discriminated against. However, definitions of like products depend on cases.

procurement behaviour of firms, both producers and importers, operating within the border.

The EU published RED II in 2018 covering 2021–30 and becoming effective in 2021, setting criteria for high-risk indirect land-use change (ILUC) biofuels. In 2019, Commission Delegated Regulation (EU 2019/807) was issued and determines the high-risk ILUC feedstocks which are decided as palm oil is capped at 2019 levels and phase out by 2030. These regulations aim to eliminate the use and import of both conventional and sustainable palm oil for biodiesel use. Indonesia and Malaysia filed WTO lawsuits over RED II in 2020 and 2021, respectively.

For non-biodiesel use, the Amsterdam Palm Oil Declaration, which is a roadmap to 100% sustainable palm oil by 2020, was placed in 2015 and signed by seven European countries: Denmark, France, Germany, Italy, the Netherlands, Norway, and the United Kingdom. Sustainable palm oil for the Declaration seemed to be defined as RSPO-certified oil only (CPOPC, 2019a). The EU's recognition of RSPO for biofuel policy and the Amsterdam Palm Oil Declaration made private schemes to be an instrument of public policy. In Europe, nearly 90% of palm oil is certified in 2019 with both public policy as well as voluntary action taken by industry associations for using certified palm oil, as will be shown in a later section.

Backed by public policy as well as voluntary action taken by the private sector especially in the EU, RSPO gradually becomes influential in the palm oil market. Private governance through RSPO has created conflict with the public governance of producer countries. Private voluntary standards have been developed and progressed driven by markets and non-state actors, aiming at managing global value chains often governed by multinationals that make procurement. Major RSPO stakeholders are buyers, retailers, and NGOs in developed consumer countries. As noted by Schouten and Glasbergen (2011), 'RSPO gains legitimacy through the representation of those governed in decision making, the participation of those governed for commenting, and neutrality among all stakeholders, and these rules of power can be seen as functional equivalents of the rules fulfilling the same functions in liberal democratic states.' In addition, as noted by Ponte (2014), 'the term "roundtable" indicates not only hearing various views from multi-stakeholders but also the possibility for a range of stakeholders to have a more equal standing at the negotiation table, although in most existing instances governments are excluded or sit only as "observers".' Representation of multiple stakeholders helped the

RSPO to gain legitimacy to be accepted as reliable private regulation in northern consumer markets. Governments of consumer countries are not included as stakeholders,[7] but are positioned to influence private certification schemes through recognising schemes that can meet the public policy sustainability requirements. However, RSPO private multi-stakeholder platforms do not include producer country governments for decision making.

As RSPO becomes a major sustainability certification for the palm oil sector, the Council of Palm Oil Producing Countries (CPOPC), an intergovernmental organisation for palm-producing countries, states 'It [RSPO] was not originally designed to speak to sustainability for the entire sector or an entire country, or to assume a public-facing role as a spokesperson for the palm oil community. This role has changed and grown significantly over time' (CPOPC, 2019b). Producers also started to doubt that the policy framework using sustainability standard schemes aims to set trade barriers as disguised protectionism for the sake of protecting domestic farmers in importing countries.

Moreover, private sustainability initiatives, not limited to palm oil, present limitations for including a larger number of growers, especially small-scale producers (Ponte, 2014). About RSPO, Brandi et al. (2015) found that insufficient information and capacity prevent smallholders from obtaining certification. Especially for independent smallholders, land titles, seedlings, pesticide usage, fertilisation, and documentation are found to be crucial challenges. Certification with traceability requirements removed many smallholders from palm oil value chains, and market-based certification schemes are not considered as inclusive or sustainable for producer countries (CPOPC, 2019b). Consequently, the legitimacy of RSPO, which is more demand-side with market-driven mechanisms, is increasingly in question in the view of governments of producer countries (Schouten and Bitzer, 2015; Schouten and Glasbergen, 2011; Watts and Irawan, 2018; Wijaya and Glasbergen, 2016).

A few years after RSPO started, government-led certification schemes, i.e. Indonesian Sustainable Palm Oil (ISPO) and Malaysian Sustainable Palm Oil (MSPO) were established in 2009 and 2013, respectively. ISPO and MSPO are considered regulatory diffusion from RSPO (Michida, Humphrey, and Vogel, 2021). While RSPO, ISCC, and RSB are private voluntary certification schemes, ISPO and MSPO are public

[7] The exclusion of governments as stakeholders in private certification schemes is not only observed in RSPO but also in other schemes (Wijaya and Glasbergen, 2016; 220).

certification schemes, and these become mandatory for growers and mills.[8] Both public and private schemes are aimed at improving sustainability on palm oil production, but mechanisms and priorities differ. For sustainability certification schemes to have a real impact, they need to cover a larger number of growers since reducing greenhouse gases (GHGs) is public good.

A limitation has been revealed about private schemes since they certify a small number of large plantations with related growers, but they do not prevent an increase in emissions or deforestation of smaller producers sufficiently. Many independent smallholders especially have not been certified by voluntary private schemes. Private schemes also need to generate enough demand to meet the supply for the market mechanism to keep functioning. But as we will see, demand has been short of supply in recent years for the RSPO. To fill the gap, public schemes envisage certifying all growers; however, certifying smallholders needs time, effort, and money. As public schemes are mandatory with regulations, market demand is not necessary for diffusion. While RSPO pertains to consumer responsibility, ISPO and MSPO are a way for producer countries to make efforts toward achieving the SDGs. Have certification schemes both private and public achieved their targets? The next section examines RSPO that has the highest market share amongst the private sustainability certification schemes on palm oil.

3. Private Certification Schemes: Roundtable Sustainable Palm Oil

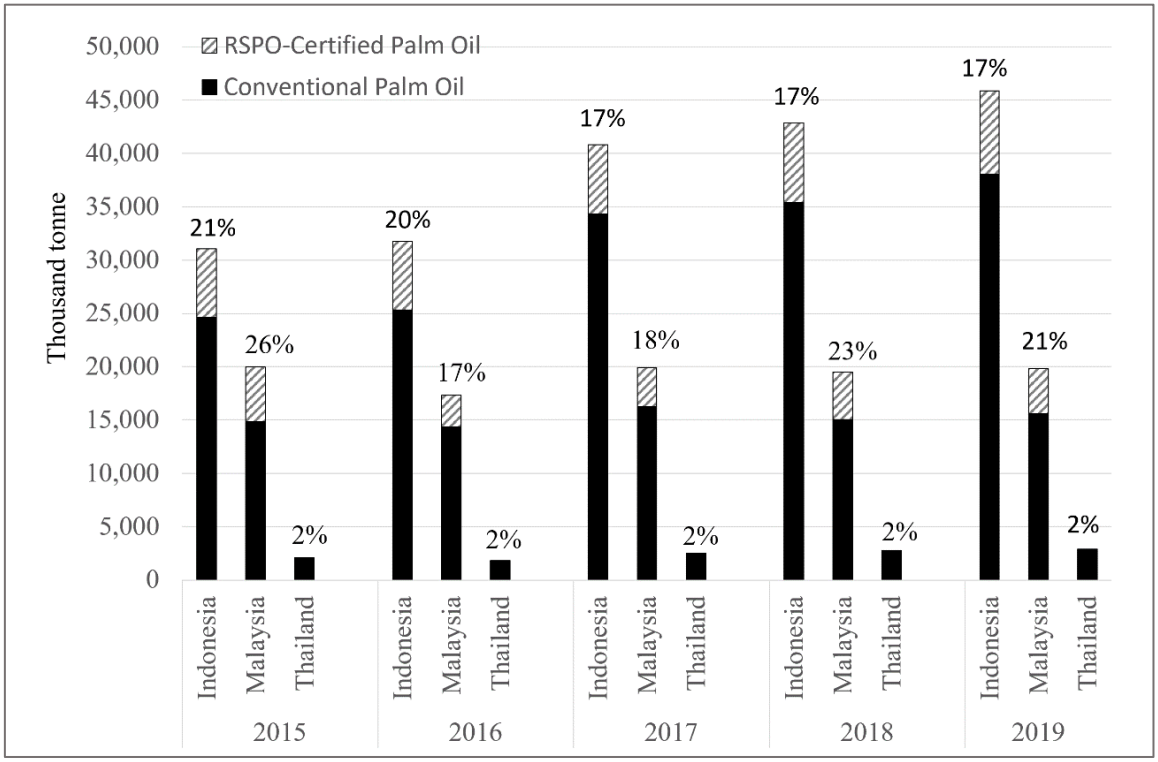
RSPO was created in 2004 to combat social, environmental, and sustainability issues surrounding oil palm plantations in developing countries by using consumers' purchasing power. RSPO started as an informal multi-stakeholder cooperation under the umbrella of the World Wildlife Fund (WWF), Unilever, and Malaysia Palm Oil Associations. Stakeholders for creating RSPO standards included oil palm producers, processors or traders, consumer goods manufacturers, retailers, banks/investors, and environmental/social non-governmental organisations (NGOs) (RSPO, 2020). Incorporating various views on its standards called Principle and Criteria raised expectation for accountability, transparency, and inclusiveness for the RSPO standards. The RSPO has been leading the sustainable palm oil market and advancing sustainable

[8] See details in the next section.

practices through value chains, or ‘raising the bar’. To have an impact on sustainability, the slogan for the RSPO is ‘to transform markets to make sustainable palm oil the norm’.

Due to sustainability policies, as well as efforts by industries and NGOs, uptake of RSPO-certified palm oil in Europe has significantly increased. In 2017, 74% of palm oil imported for food in Europe was RSPO-certified (ESPO, 2019; 18); in 2019, 86% was certified (IDH, 2020). However, as of 2020, the RSPO-certified oil global market share has not expanded beyond around 19%. The shares of the RSPO-certified palm oil production from 2015–19 are 17%–20% for Indonesia, 17%–26% for Malaysia, and 2% for Thailand. The shares in the three countries have not shown an increasing trend (Figure 1).

Figure 1: Production of Conventional and RSPO-Certified Palm Oil between 2015–19 and Percentage of RSPO-Certified Palm Oil

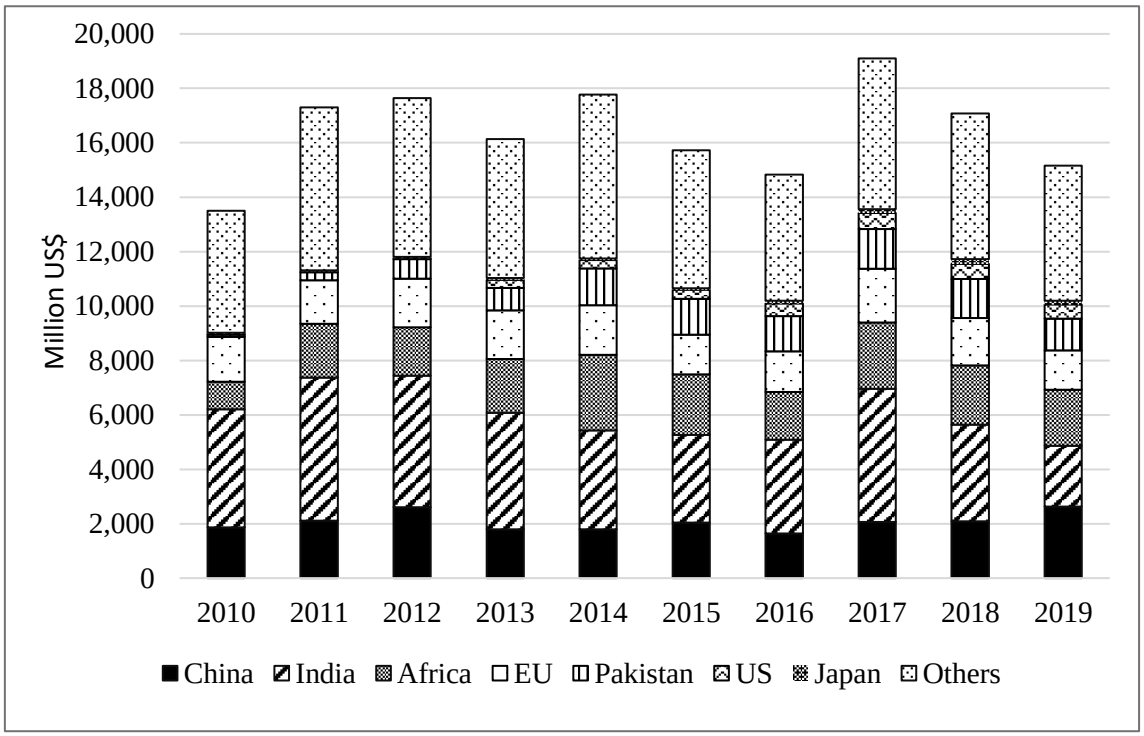


Source: Author created from RSPO Impact Report 2015-2019, Malaysian Oil Palm Statistics (2019), Directorate General of Estate Crops, Indonesia Homepage, USDA Thailand Oilseeds and Products Annual 2015, 2015, 2016, 2017, 2018, 2019.

As discussed, western countries are usually advanced industrial economies with affluent markets and demand driven by energy policies. On the other hand, southern countries are developing/emerging economies with large-scale consumers of palm oil for edible purposes. The stagnation of market share for RSPO is caused by the palm oil market structure. The large markets for palm oil lie in emerging countries including China, India, Pakistan, as well as in Africa. (Figure 2 shows the destination countries for exports from Indonesia, Figure 3 from Malaysia, and Figure 4 from Thailand). If emerging countries demand higher-priced sustainable palm oil soon, the RSPO-certified oil market could expand. However, negligible demand for RSPO-certified palm oil is found in emerging economies. For example, while the RSPO office was established in China and RSPO-certified oil has been promoted (Teoh, 2011), Chinese RSPO Ordinary Members that purchase, use, or trade more than 500 tonnes per year numbered 40, with RSPO Associate Members dealing with fewer than 500 tonnes numbering 134 as of September 2020. Further, many Chinese members stated in their reports that local demand for RSPO-certified palm oil is mainly for multinational companies that have final markets in Europe or the US and they cannot find demand from Chinese domestic customers. For India, the number of RSPO Ordinary Members is 34 and that of Associate Members is 31. As the number of global RSPO Ordinary and Associate Members is 1,907 and 2,871, respectively, the number of members both in China and India is small relative to their trade volume of palm oil (Table 1). The number of members does not suggest much as their import volume of palm oil for these two countries is unknown. To grasp the scale from data, Table 2 shows total amount of palm oil imported by RSPO members as well as RSPO-certified oil imported by members in 2017. While RSPO members import 8.3% and 28.0% of palm oil for China and India, respectively, according to the RSPO member reporting and trade statistics, the same members import only 1.1% and 0.09% of RSPO-certified oil. Schleifer and Sun (2018) discussed that, in India, palm oil is consumed by impoverished people as cooking oil and even if consumers are aware of sustainability issues related to palm oil, they are not able to absorb the price premium for RSPO-certified palm oil. In China, unlike India, palm oil is used in food processing, consumer goods, and oleochemicals by brand manufacturers; concern by big brands could help promote sustainable palm oil. Although the Chinese market might be promising for RSPO promotion relative to India, the figures show that demand for certified oil is far from enough to achieve a larger market. The RSPO driven by northern markets presents

limitations due to the palm oil market characteristics, with a smaller share of North-South trade relative to that of South-South trade.

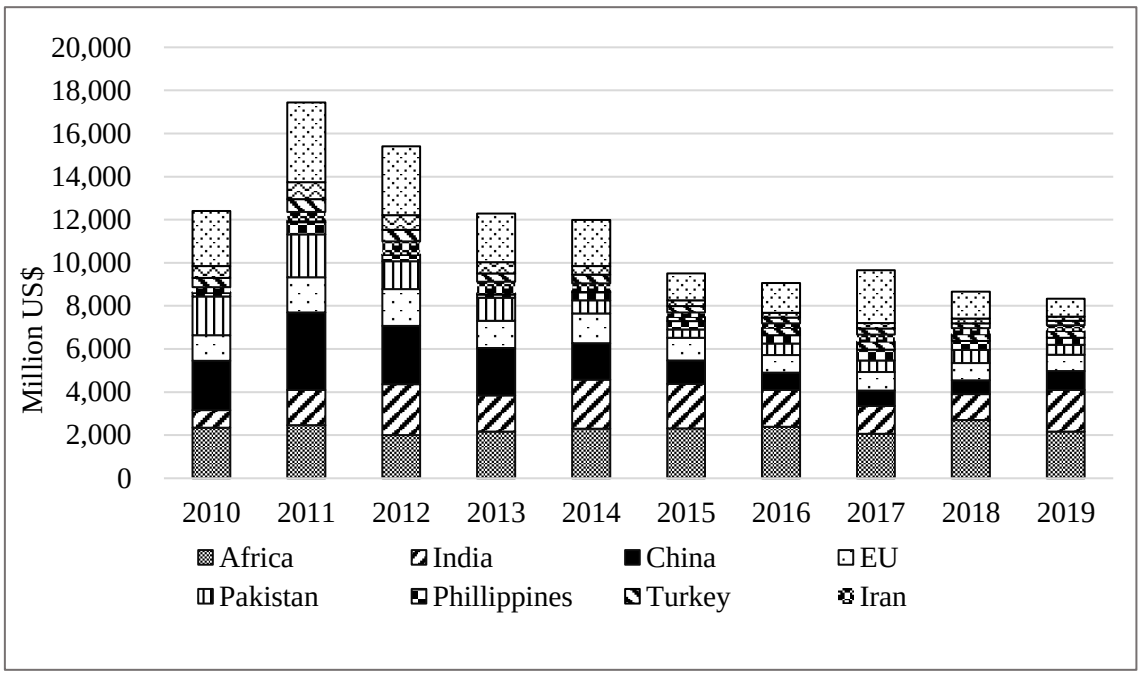
Figure 2: Value of Palm Oil Exports from Indonesia for Major Destination Countries between 2010 and 2019



EU = European Union, US = United States.

Source: Author created from UN Comtrade.

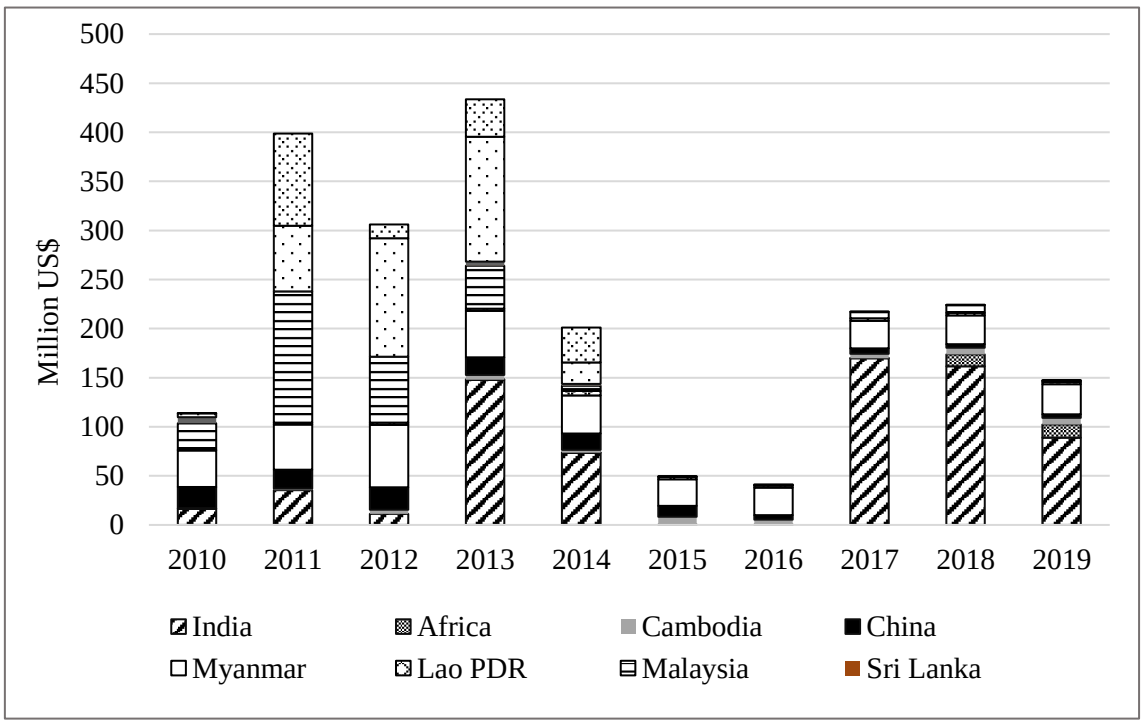
Figure 3: Value of Palm Oil Exports from Malaysia for Major Destination Countries between 2010 and 2019



EU = European Union, US = United States.

Source: Author created from UN Comtrade.

Figure 4: Value of Palm Oil Exports from Thailand for Major Destination Countries between 2010 and 2019



EU = European Union, Lao PDR = Lao People's Democratic Republic.

Source: Author created from UN Comtrade.

Table 1: Number of RSPO Members in China, India, and the World as of September 2020

	China	India	World
No. of Ordinary Members	40	34	1907
Share of World Ordinary Members	2.1%	1.8%	100%
No. of Associate Members	134	31	2871
Share of World Associate Members	4.7%	1.1%	100%
Share of World Palm Oil Import (HS1511)	13.1%	21.6%	100%

RSPO = Roundtable on Sustainable Palm Oil.

Source: Author created from https://www.rspo.org/ and UN Comtrade. The RSPO members are as of September 2020 and the trade data are for 2018, the most updated when created.

Table 2: Shares of RSPO-Certified Palm Oil in Total Palm Oil Import (HS1511) from Indonesia and Malaysia in China and India in 2017

	China	India
Palm Oil (HS1511) Import from Malaysia and Indonesia	100% (5,076,985 tons)	100% (8,979,175 tons)
Share of RSPO Member Import of Both Certified and Non-Certified Palm Oil	8.3%	28.0%
RSPO-Certified Oil Import/ Total Palm Oil Import	1.1%	0.09%

RSPO = Roundtable on Sustainable Palm Oil.

Source: Author created from Humphrey and Michida (2020).

Domestic consumption by producer countries also accounts for a significant portion of palm oil demand; in Indonesia, 13 million tonnes are consumed annually (USDA, 2019a), which is about 30% of local production and equivalent to the volume exported to both China and India (Table 3). In Malaysia, domestic consumption is estimated at 3 million tonnes (USDA, 2019b), which accounts for 20% of palm oil production and is equivalent to the export volume to India. Further, domestic consumption of palm oil in Indonesia, Malaysia, and Thailand increased by 50%, 25%, and 20%, respectively, between 2014 and 2019, as in Table 3. The rates of increase are relatively higher compared to export markets. In Indonesia, the government implements policies to increase the use of diesel containing palm oil, and the use of 20% of blended biodiesel became mandatory in 2015; the percentage of palm oil mixed with diesel oil is expected to rise to absorb the stock of domestic production. The share of domestic biodiesel is

reported as 20% of palm oil production in 2019 (ERIA, 2019). Indonesia's trial implementation of a 30% blended biodiesel programme in December 2019, Malaysia's implementation of a 20% blended biodiesel programme, and Thailand's implementation of a 10% blended biodiesel programme all progressed in 2020 (CPOPC, 2019b). Making domestic palm oil sustainable is also a key to transform the market. However, RSPO-certified palm oil is not demanded by domestic markets in producer countries. According to the RSPO homepage, amongst the 54 supply chain holders that are involved in selling certified products in Indonesia, 11 deal with consumer goods and 10 report that their major destination markets are in Europe and North America.

Table 3: Domestic Consumption of Palm Oil between 2016–19

(thousand metric tonnes)

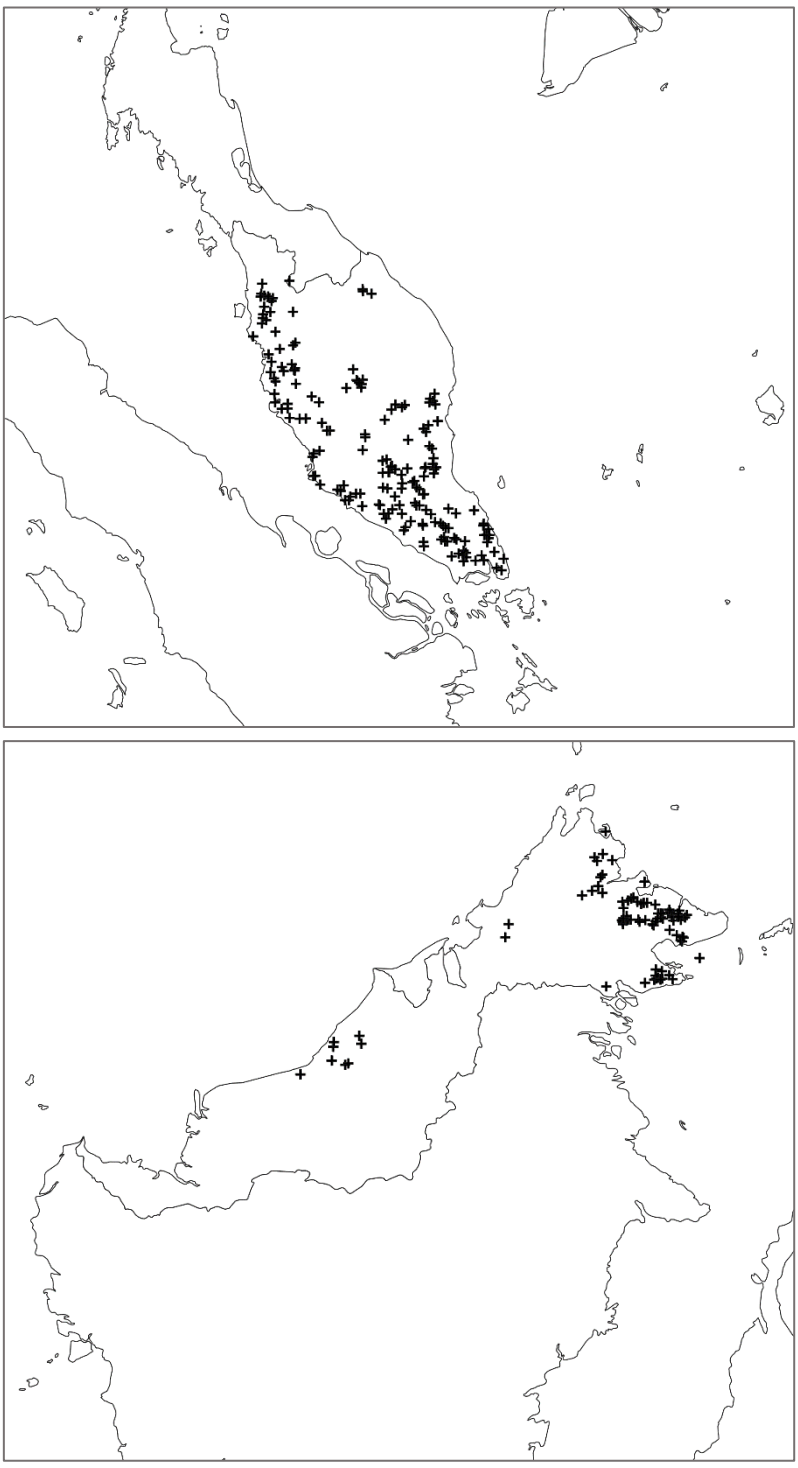
	2016	2017	2018	2019	Percentage change between 2016–19 (%)
Indonesia	9,125	11,565	13,721	13,680	49.9
India	9,350	9,270	9,605	9,060	-3.1
China	4,750	5,100	7,012	6,262	31.8
European Union	6,900	6,950	6,960	6,770	-1.9
Malaysia	2,622	3,238	3,573	3,275	24.9
Pakistan	2,995	3,145	3,245	3,290	9.8
Thailand	2,135	2,343	2,640	2,586	21.1
Bangladesh	1,364	1,580	1,600	1,600	17.3
United States	1,355	1,563	1,496	1,507	11.2

Source: Author created from US Department of Agriculture data; https://apps.fas.usda.gov/psdonline/circulars/oilseeds.pdf (accessed 30 June 2022).

Figure 5 shows the geographic distribution of RSPO-certified mills and plantations in Malaysia. Certified producers are distributed both in Peninsula and Borneo.[9] Figure 6 shows the location of RSPO-certified mills in Indonesia. In Indonesia, RSPO-certified mills are concentrated in Sumatera and Kalimantan.

[9] Geographical data for Indonesia and Thailand for RSPO-certified mills and plantations are not available from the used data source.

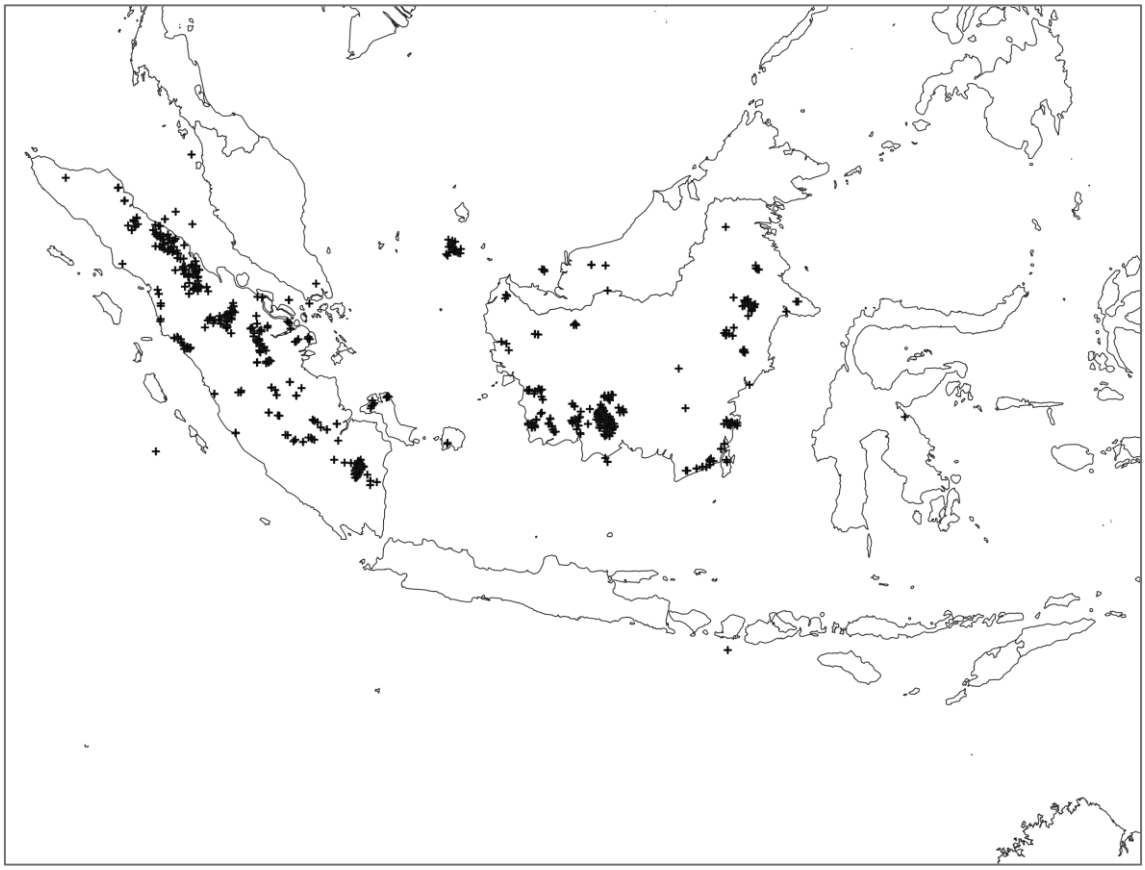
Figure 5: Map of RSPO Certified Mill and Supply Base in Malaysia before February 2021



RSPO = Roundtable on Sustainable Palm Oil.

Source: Author uses the data from Global Forest Watch (www.globalforestwatch.org), RSPO Palm Oil Mill (accessed 4 May 2020).

Figure 6: RSPO Growers in Indonesia, March 2021



RSPO = Roundtable on Sustainable Palm Oil.

Source: Author uses the data from Global Forest Watch (www.globalforestwatch.org) accessed on 4 May 2020, RSPO Palm Oil Mill.

Certified-palm oil demand is expected to motivate producers in developing countries to review and improve production processes to be qualified for certification. Incentives are created if the trade of certified products benefits producers. Many pieces of literature have examined how standards impact trade, and the evidence is mixed about standards as catalysts for or impediments against trade and development, reflecting the complexity of these effects and their specificity to industries and countries (Beghin, Maertens, and Swinnen, 2015). Literature surveys find that standards-as-catalysts can be found for larger traders, but standards-as-barriers for smaller traders (Anders and Caswell, 2009).

Standards-as-catalysts is supported for the palm oil case by the fact that RSPO-certified palm oil is accepted in Europe, North America, and other developed countries. There are also claims for standards-as-barriers concerning RSPO. Although RSPO has

tried to include smallholders and an innovative jurisdictional approach that certifies selected regions by cooperating with local governments (Pacheco, Schoneveld, Dermawan, Komarudin, and Djama, 2020; Watts and Irawan, 2018), the scale is still limited. Moreover, private sustainability certifications targeting northern markets need to increase the confidence of consumers and differentiate from conventional products. Claims raised by NGOs about lack of effectiveness of certifications lead to increasingly stricter requirements, making it more difficult for smallholders to be certified (Kalfagianni and Pattberg, 2013). Consequently, an NGO demonstrated a concern that rising auditing costs for proving sustainability could be instead utilised for capacity building for smallholders (interview 6).

Moreover, issues also change over time regarding incentives for being certified. While earlier adopters of RSPO-certified producers captured premiums that ranged from $10 per tonne for mass balance and $50 for per tonne for segregation and repaid certification costs in 2008, the premium declined by 50%–70% in 2011 as the supply of RSPO-certified palm oil exceeded the demand (WWF, 2012; 33). Due to demand-supply imbalance, palm oil produced in RSPO-certified plantations is not sold as certified but as conventional, which implies no premium paid for RSPO-certified producers. The market uptake of RSPO-certified palm oil is mere 49% in 2019, the same level as 48% in 2014 (RSPO, 2019). Further, around half of RSPO-certified oil is not demanded as certified with premium. As the EU RED II stops procuring palm oil for biodiesel purposes, demand for certified oil is expected to decrease further. Moreover, Bitzer and Glasbergen (2015) suggested uncertainty of demand for certified palm oil deters the spread of certifications amongst producers. Moreover, mills and factories need investment in dual pipes, tanks, and time to segregate certified-palm oil from conventional, which lowers economic efficiency and productivity (interview 1). Although RSPO has made significant progress, issues on the ground need to be addressed further to make a further change. Otherwise, the statement ‘there is little systematic evidence about how most civil regulations have affected corporate practices and the extent to which they have ameliorated the oft-cited shortcomings of state regulation and interstate treaties’ (Vogel, 2008) applies.

4. Differences between ISPO/MSPO and RSPO

Indonesia and Malaysia developed national schemes as major producing countries. Thailand is also palm oil-producing country, but its export volume is not as large as in Indonesia or Malaysia and no national certification scheme has been developed to date. While the development of ISPO and MSPO will be discussed further in the next sections, we first overview the differences between the two certification schemes, ISPO, and MSPO compared to RSPO in this section. ISPO and MSPO have developed standards similar to the RSPO after learning from RSPO experiences (Table 4). However, the characteristics and expected impacts are different between the public and private schemes as in Table 5. The RSPO aimed at advancing sustainable practices, or 'raising the bar'. RSPO is used to differentiate products using conventional palm oil and asks consumers to pay premium for certified ones. The driving force behind 'raise the bar' is market pressure from the North on stricter management on environmental, social, and governance perspectives. Consumers' uncertainty of certification leads to a lower willingness-to-pay for certified products than the real costs of production (Grabs et al., 2001, Harbaugh et al., 2011), which harms the RSPO system; stricter and detailed standards are expected and developed. Besides, obtaining private certifications tend to be costly due to membership fee as well as certification fee in addition to auditing costs. Consequently, producers owned by listed companies whose stocks are traded on equity market are amongst the certified as those producers are more willing to conduct the ESG management to meet shareholders' needs.

Moreover, for RSPO, mills are responsible for certifying growers but managing and tracking many smallholders is difficult as well as costly. Due to the voluntary nature of RSPO with no penalty for non-participation, private schemes tend to become exclusive of smallholders. This has another impact in terms of competitiveness. As few plantations or growers are certified, certified palm oil needs to be segregated from the conventional oil in separate tanks, pipes, and facilities. Obtaining RSPO certifications requires investment in facilities and capacity building in addition to auditing costs, which pushes up palm oil prices.

The premium for RSPO-certified palm oil is generated through the market, with a higher premium expected if demand is stronger. As higher prices create incentive for producers to obtain certification, awareness-raising for consumers to create demand is

inevitable. Thus, RSPO scheme owners, together with firms that use RSPO, need promotion in order to expand the number of certifiers.

Table 4: Principles of ISPO, MSPO, and RSPO Standards

ISPO Principles (11/Permentan/OT.140/3/2015, March 18, 2015)	MSPO Principles (MS 2530-3: 2013), Part III	RSPO Principles (2018)
P1: Legal requirements on Land Allocated for Plantation P2: Plantation Management P3: Protection to the Utilization of Primary Natural Forest and Peatlands P4: Environmental Management and Monitoring P5: Responsibility towards Employees P6: Social Responsibility and Community Economic Empowerment P7: Sustainable Business Improvement	P1. Management Commitment and Responsibility P2: Transparency P3: Compliance to Legal Requirements P4: Social Responsibility, Health, Safety, and Employment Condition P5: Environment, Natural Resources, Biodiversity and Ecosystem Services P6: Best Practices P7: Development of New Plantings	P1: Behave Ethically and Transparently P2: Operate Legally and Respect Rights P3: Optimise Productivity, Efficiency, Positive Impacts and Resilience P4: Respect Community and Human Rights and Deliver Benefits P5: Support Smallholder Inclusion P6: Respect Workers' Rights and Conditions P7: Protect, Conserve, and Enhance Ecosystems and the Environment
Plantations: 7 Principles, 34 Criteria, 133 Indicators for Plantations Plasma Farmers: 7 principles, 10 Criteria, 69 Indicators Independent Smallholders: 4 Principles, 8 Criteria, 48 Indicators	7 Principles, 114 indicators	7 Principles

ISPO Principles (38/Permentan /2020, November 24, 2020)	MSPO Principles (revised in 2022)
P1: Compliance on Legal requirements P2: Application of Best Practices in Plantation P3: Management of the Environment, Natural Resources, and Biodiversity P4: Responsible Employment P5: Social Responsibility and Empowerment of Economic Community P6: Application of Transparency P7: Effort for Enhancement of Sustainable Business	The new MSPO is not yet available on the MPOCC website as of August 2022..
7 Principles, 7 Principles, 38 Criteria, 173 Indicators	Principles, indicators

RSPO = Roundtable on Sustainable Palm Oil, MSPO = Malaysia Sustainable Palm Oil, ISPO = Indonesia Sustainable Palm Oil.

Source: Author created from RSPO, ISPO, MSPO's standards and Subagyono (2021).

Contrary to RSPO, ISPO, and MSPO are government and producer-driven certification schemes. Once an economically important region introduces policies that affect beyond borders, the policies tend to diffuse across the globe (Michida, Humphrey, and Nabeshima, 2017; Michida et al., 2021). And ISPO and MSPO are also diffused version of the RSPO. In the process of adopting foreign-born RSPO into national policy, ISPO and MSPO consider local conditions and adaptation of standards led to creating policy to 'raise the floor' instead of 'raise the bar' (Humphrey and Michida, 2021; Roozen, 2021). Both schemes are mandatory,[10] and include smallholders who tend to be excluded from RSPO and from participating in global value chains. Both ISPO and MSPO have similar criteria to RSPO (Table 4) but are based on a collection of domestic laws and regulations related to palm oil production. Certification processes include audit the

[10] MSPO started mandatory implementation in 2019. ISPO was mandatory for large plantations and expected to be mandatory for all producers with the Decree of Agricultural Minister and Presidential Regulation after 2020.

implementation of national regulations, which is expected to strengthen implementation of domestic regulations. ISPO and MSPO require each grower to be certified, instead of mills being responsible for certifying their suppliers. Regarding costs, producers certified by ISPO/MSPO do not need segregation between certified and conventional oil once mandatory regulations are fully implemented. Part of auditing and related costs for small- and medium-holders was subsidised by governments for MSPO[11] and certification costs for ISPO. These characteristics are expected to place lower additional costs and to lead to lower product prices so that consumers in lower-income countries can also benefit. The localised standards can contribute to an inclusive policy both within and beyond the countries.

Table 5: Differences between RSPO and ISPO/MSPO

	Private Certification Schemes (RSPO)	**Public Certification Schemes (ISPO/MSPO)**
Year	2007, 2013, 2018	2011, 2020(ISPO), 2013, 2022(MSPO)
Dynamics	Raise the bar	Raise the floor
Business Context	Differentiation from conventional palm oil	No differentiation
Major Market	North, Europe, US	China, India
Membership	Exclusive	Inclusive
Membership fees	€2,000 per year per premise	Free
Import charges	US$1 per tonne	Free
Average cost of certification	€1,000 per man-day	US$625 per man-day (MSPO)
Requirement	Voluntary No penalty for not being certified	Mandatory Penalty for not being certified
Scheme Owner	Private	Public
Driver	Market-driven	Producer-driven
Participants	Tend to be listed producers[12]	All mills and growers including small-scale producers (ISPO 2021, MSPO after 2018)

[11] MPOCC provided incentives for certification. https://www.mpocc.org.my/incentives (accessed on October 11, 2020) and Perpres No.44/2020 states that the fiscal budget can be spent on certification.
[12] This is based on the analysis below.

	Private Certification Schemes (RSPO)	Public Certification Schemes (ISPO/MSPO)
Sustainability focus	More on sustainability, global warming especially with the EU	More on poverty/equitable development
Premium	Supply and Demand	Not yet revealed
Standards	7 Principles and 40 Criteria	7 Principles and 28 Criteria (ISPO) 7 Principles and 33 Criteria (MSPO)
Supply Chain Module	Yes	Yes (MSPO), Yes (ISPO, 2020)

EU = European Union, RSPO = Roundtable on Sustainable Palm Oil, MSPO = Malaysia Sustainable Palm Oil, ISPO = Indonesia Sustainable Palm Oil, US = United States.

Source: Created by author using various documents and interviews.

Table 6 shows multiple reports comparing RSPO, ISPO, and MSPO as well as other private certification schemes. Most of the reports compare criteria and standards across the schemes and discuss the differences and similarities based on different versions. While some reports such as Daemeter (2014), EFECA (2016), and Mclnnes (2017) compared standards and other reports (Indonesia Ministry of Agriculture and RSPO, 2015; 3Keel, DGEnvironment EC, and LMC International, 2017) compared certification systems as well. Watts and Irawan (2018) mentioned differences in the incentive of RSPO and ISPO. Most reports recognise that the mandatory schemes offer the greatest possibility to change practices on the ground, while others point out that ISPO and MSPO are less stringent in terms of deforestation and peatland utilisation and less detailed in requirements compared to RSPO. While ISPO/MSPO standards strongly aim to improve poverty by increasing productivity and export competitiveness as well as inclusiveness of smallholders, the two standards did not require strict management on deforestation or peatland utilisation, at least at the beginning. With criticism over looser regulation, national standards have been strengthened. As sustainability means different things to different people, multiple alternatives are codified (Jones, 2017). Although both poverty reduction and environmental protection are SDGs and the producer countries insist that the social and economic goals are equally important as the goals on the environment, there is no global consensus on weights amongst the different goals. Therefore, even with the revision, the differences in characteristics amongst the three schemes will remain.

Table 6: Studies that Compare Public and Private Sustainability Certifications

Documents	Standards	Issues
Yaap and Paoli (2014)	RSPO(2013), ISPO(2015) with two other schemes	Environmental and social P&C
Indonesia Ministry of Agriculture and RSPO (2015)	ISPO(2015), RSPO(2013)	Certification system and P&C, HCV, GHG calculation
EFECA (2016)	RSPO(2013), ISPO (2011), MSPO(2013)	Key differences on the environment, social, HCV, FPIC, peatland, planting cut-off date
Mclnnes (2017)	RSPO(2013), ISPO(2011), MSPO(2013), and three other schemes	All P&C
Aubert, Chakib, and Laurans (2017)	RSPO(2013), ISPO, MSPO with other private initiatives	Overall issues and scheme governance
3Keel et al. (2017)	RSPO(2013), ISPO, MSPO, with other private scheme	Overall and trade issues but focus on carbon and biodiversity
MPOCC (2018)	RSPO (2013), MSPO(2013)	Overall P&C
Watts and Irawan (2018)	ISPO, RSPO with other private initiatives	Terms and incentives
Kusumaningtyas and Gelder (2019)	RSPO(2018), ISPO, MSPO, with other private schemes	Labour, environment, governance

P&C = Principles and Criteria, HCV = High carbon value, FPIC = Free, prior informed consent, GHG = greenhouse gas, RSPO = Roundtable on Sustainable Palm Oil, MSPO = Malaysia Sustainable Palm Oil, ISPO = Indonesia Sustainable Palm Oil.

Source: Created by author using different sources.

All the standards have been reviewed and updated periodically (Table 4). RSPO was revised in 2018 (RSPO, 2018). ISPO was revised via Presidential Regulation (Peraturan Presiden Nomor 44 Tahun 2020) followed by regulation of the Ministry of Agriculture (Permentan Nomor 38 Tahun 2020). Regulation of the Ministry of Industry needs to be issued for traceability. MSPO was revised in 2022 after hearing public comments.

5. Characteristics of Public Certification Schemes in the Palm Oil Sector

5.1. Indonesian Sustainable Palm Oil

The development of palm oil plantations in Indonesia has been a high-priority policy aiming at increasing public revenues, foreign exchange, providing employment opportunities, promoting regional development, and optimising natural resource management sustainably. As the importance of sustainability certifications grew in the palm oil trade, the Indonesia Ministry of Agriculture launched ISPO, learning from its experience with RSPO. The first regulation was issued as Agricultural Ministerial Decree PERMENTAN No. 19/2011 and it provided standards on integrated plantations with mills and made compliance mandatory for plantation companies. The second and revised regulation, Agricultural Ministerial Decree PERMENTAN No.11/2015, provided six standards for integrated plantations, estates, palm kernel shells, biofuel, plasma farmers and independent smallholders. In 2020, Presidential Regulation PERPRES No.44/2020 was issued and required two standards for plantations and growers to be developed and to be made mandatory within 5 years. The aims of the Presidential Regulation No.44/2020 are management and development of palm oil plantations based on ISPO principles and criteria, improvement of palm oil product competitiveness, both in domestic and international markets, and reduction in global warming gases (Musdharifah, 2021). Unlike the previous regulations, the Coordinating Ministry for Economic Affairs is involved in ISPO schemes and issued regulation PREMENKO No.10/2020 on developing a steering committee. This committee, headed by the Coordinating Minister of Economic Affairs, coordinates overall issues across tasks of ministries and creates policy to improve grower capacity, solve issues about overlapping licenses and issues related to forestry plantations, develop supply chain certification and databases, etc. Previous steering committee members reflect that the issues related to ISPO cover different ministerial responsibility, e.g. Agricultural Minister, Minister of Agrarian Affairs and Spatial Planning, National Land Agency, Trade Minister, Industry Minister, Internal Affairs Minister, and Chairman of National Standardization Agency. Regulation of Coordinating Ministry of Economic Affairs PREMENKO No.257/2020 states that the ISPO certification schemes are developed by the ISPO Committee headed by the Agriculture Minister; the ISPO Committee is also tasked with implementation of Steering Committee

policy, evaluation of ISPO certification systems, development of electronic systems for ISPO certification, and coordination with related ministries and local governments.

Unlike the RSPO that was developed from concerns on sustainability, the ISPO is more focused on competitiveness and management of palm oil industries to contribute to economic development and poverty reduction, along with environmental management. ISPO standards are based on the collection of legal requirements and the issued policy series: Presidential Instruction INPRES No.6/2019 of Plan of Actions for Sustainable Palm Oil, Presidential Instruction INPRES No.5/2019 for Peatland Moratorium, Presidential Regulation PERPRES No.44/2019 for Certification System of Sustainable Palm Oil (Government of Indonesia, 2020). PERPRES No.44/2020 improved on ISPO in 2015 in several respects. First, multi-stakeholder involvement for the ISPO Committee is stated. Second, the certification body is independent. Previously, the ISPO committee issued certifications after obtaining audit results. However, involvement of the ISPO Committee in individual certification processes was criticised due to transparency concerns.

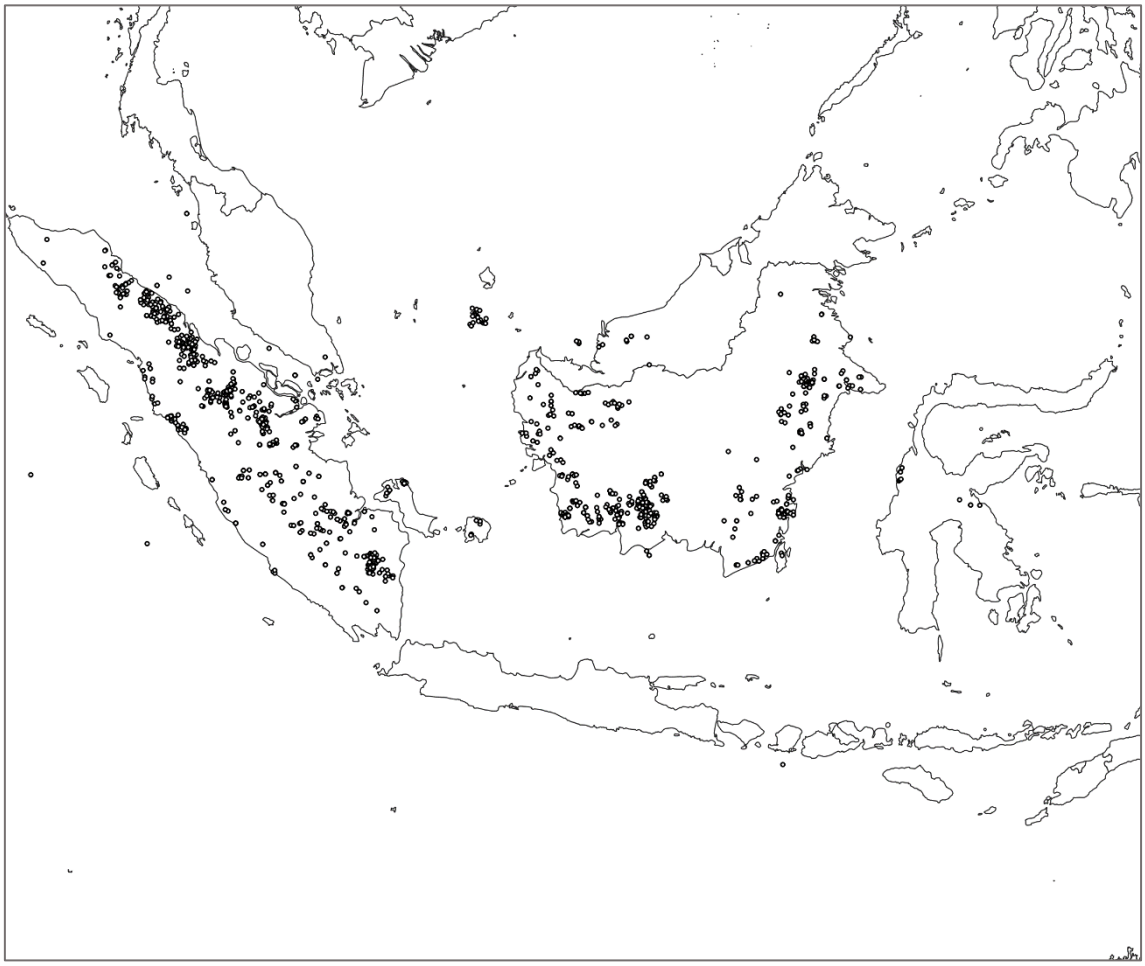
The new Agricultural Ministerial Decree will make ISPO mandatory for all oil palm plantations and growers (Embassy of Republic of Indonesia, 2020). ISPO 2015 did not provide a supply chain tracking system to the source. However, ISPO 2020 is preparing supply chain management with certifications. Under ISPO 2020, upstream of palm oil production, which includes plantations, mills and storage, is governed under the Ministry of Agriculture. Downstream of palm oil products, which is transportation, processing, and refineries, is managed under the Ministry of Trade. When Ministry of Trade regulations are issued and ISPO supply chain certification is complete from upstream to downstream, ISPO-certified palm oil can be traced. Although implementation is not yet completed as of 2021, the ISPO standards and governance of the scheme are improving.

Other related policies complement ISPO, such as Inpres No.8/2018 on coordinating the postponement and evaluation of oil palm plantation permits (Embassy of Republic of Indonesia, 2020) and the regulations for the protection and management of the peatlands (Peraturan Pemerintah No. 71/2014) (CPOPC, 2020).

At the end of 2019, ISPO coverage expanded to 5.2 million hectares, which constitute 66.2% of the 7.8 million hectares of palm oil plantations through 754 certifications. Geographical distribution of ISPO-certified growers is shown in Figure 7. Figure 8 presents locations of both RSPO mills and ISPO growers. According to the ISPO

homepage, the number of growers certified by RSPO is 190 and that for ISPO is 1,093 as of March, 2021.

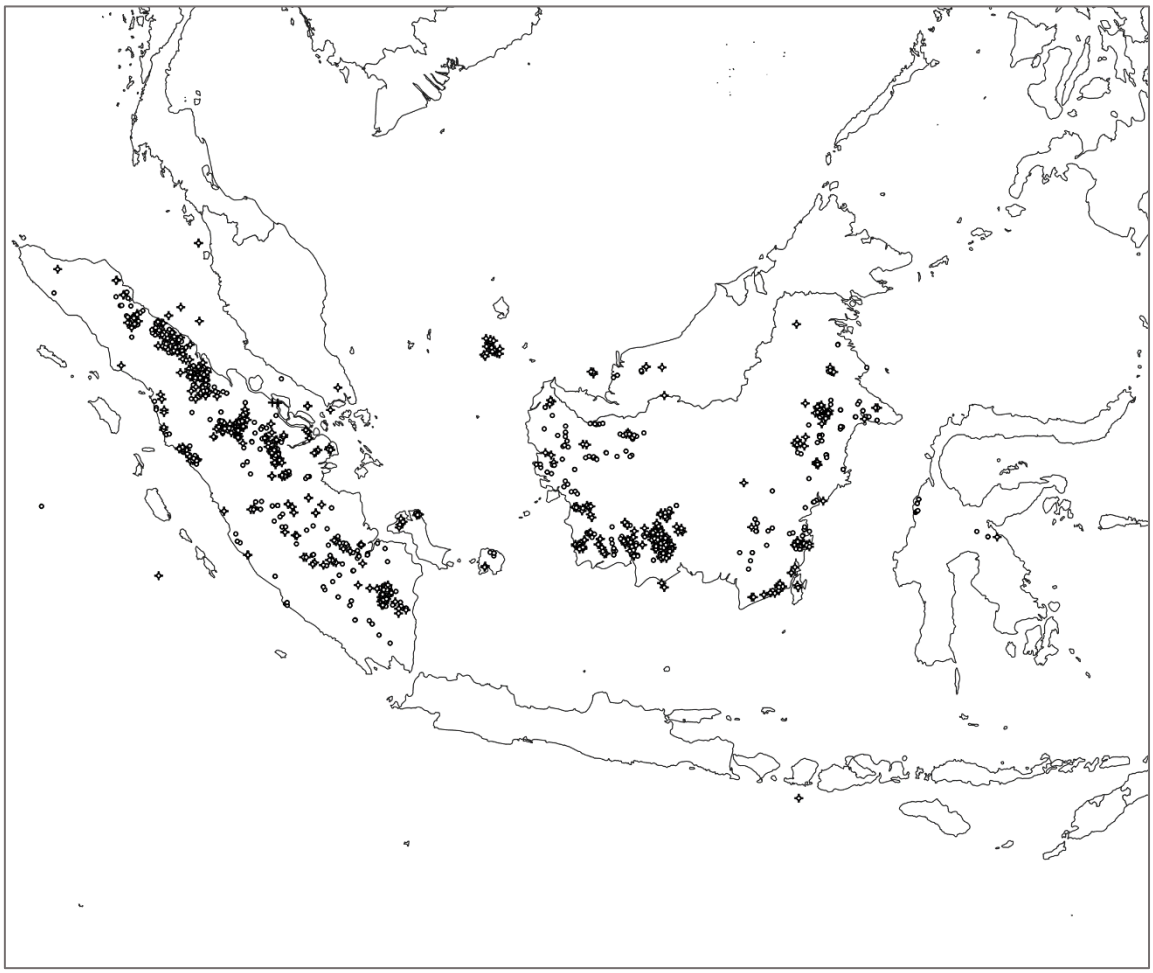
Figure 7: Distribution of ISPO Certified Mills and Growers



ISPO = Indonesia Sustainable Palm Oil.

Source: Author created from https://ispo-org.or.id (accessed in October, 2020).

Figure 8: Distribution of ISPO and RSPO Certified Growers



RSPO = Roundtable on Sustainable Palm Oil, ISPO = Indonesia Sustainable Palm Oil.

Note: The notation is the same as in Figure 7. x shows the RSPO mills that appear overlapped by ISPO certified represented by circle.

Source: RSPO data are obtained from RSPO and ISPO data obtained from https://ispo-org.or.id (accessed October 2020).

5.2. Malaysian Sustainable Palm Oil

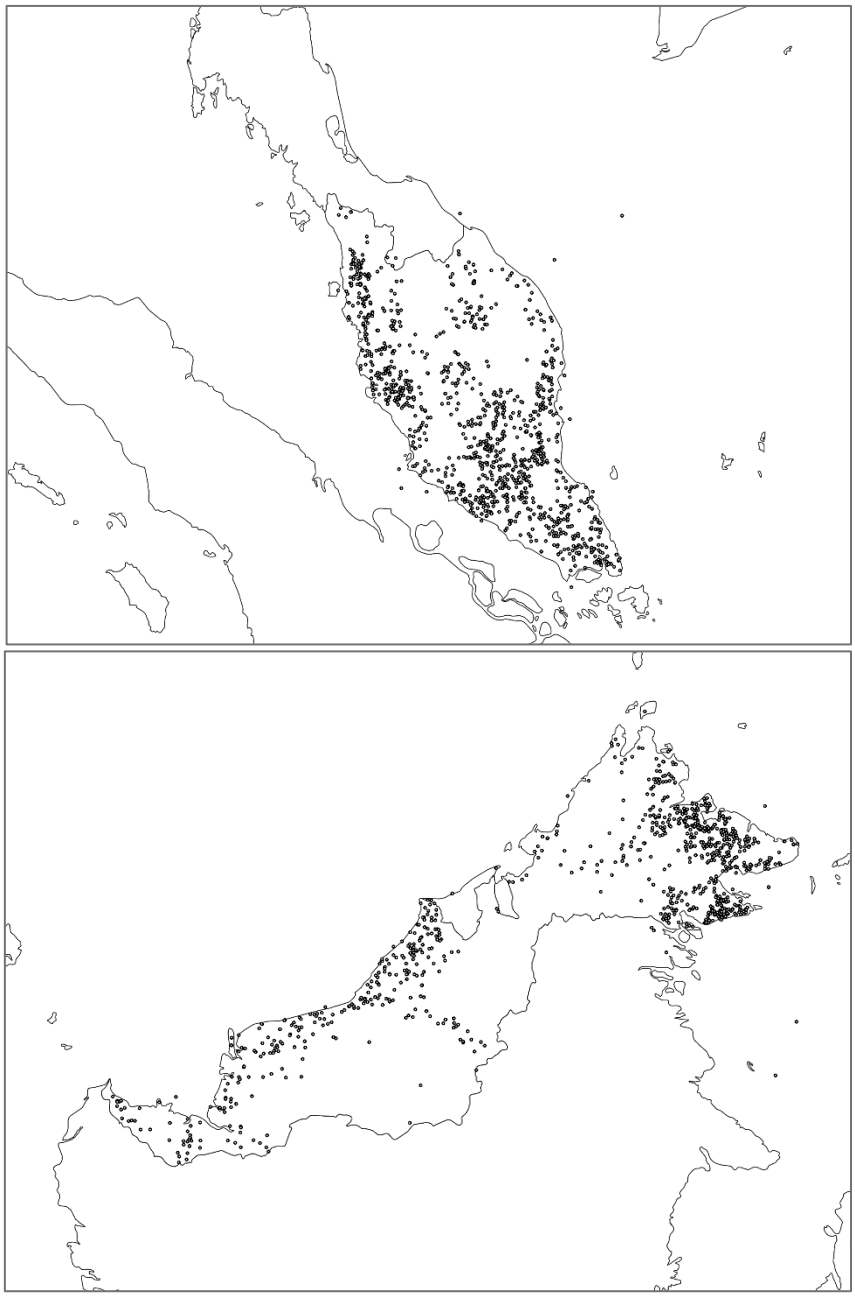
Malaysian Sustainable Palm Oil (MSPO) is the national certification scheme with the MSPO standards MS 2530:2013 Series. MSPO has three areas, i.e. standards, certification bodies, and accreditation programmes (Janor, Ahmad, Er, and Lyndon, 2018), and the structure is similar to RSPO. Although the impacts of certification systems are generally ambiguous and certification costs could be greater than benefits, Senawi, Rahman, Mansor, and Kuntom (2019), authors from the Malaysian Palm Oil Board (MPOB), a government body responsible for MSPO, state that, 'it is undeniable that certification is necessary for market access and has always been used as a tool to reflect

reputation and quality of the product or services.' Senawi et al. (2019; 497) also state that 'the standards were proposed to underpin a new governance model for the global palm oil industry which has to shift direction from a profit-driven business to a more sustainably sound business.' This shows that the Malaysian government intends to utilise MSPO not only for market access but also to transform the production practices of smallholders. Oil palm plantations, independent smallholders, and palm oil processing facilities are certified based on national laws and regulations. Certification schemes for processors as well as traders within the country are also being discussed (as of April 2018). The MSPO came into effect in 2015 as a voluntary standard and its scheme owner is the Malaysian Palm Oil Certification Council (MPOCC). The governing body manages the affairs of the council and decides the overall policy and direction in carrying out MPOCC's activities and comprises multi-stakeholder representatives from the Ministry of Plantation Industries and Commodities (MPIC), MPOB, academia, research and development institutions, non-governmental organisations, oil palm industry associations, small holders' organisation, and civil society. Implementation of MSPO started in 2015 on a voluntary basis and mandatory implementation for smallholders was targeted for the end of 2019 (Senawi et al., 2019).

In January 2018, the total certified area under the MSPO was 633,000 hectares, which account for 11% of the total plantation area in Malaysia. The certified areas under MSPO increased at a fast pace. As of March 2020, the total certified area increased to 87.1%. As of March 2021, the total certified area increased to 87.7%, or 5.20 million hectares. There were 4.10 million hectares of plantations and 0.71 million hectares of organised smallholders certified. In addition, there were 392,784 hectares of independent smallholders. The challenges are identified as common non-compliance cases amongst independent smallholders including procedures upon receiving a complaint from neighbours and stakeholders, employee safety and health, and waste management (Senawi et al., 2019). Figure 9 shows the geographical distribution of MSPO plantations as of March 2021 and Figure 10 is superimposed with the map of RSPO-certified plantations as of March 2021. The number of MSPO growers is 5,156 and that of RSPO is recorded as 378. MSPO has supply chain certifications and an application that allows consumers to track value chains of palm oil back to growers. A plantation that did not obtain RSPO previously is under MSPO and improvement in management to prevent harassment as well as in product testing has been introduced with certification (interview

4). The national mandatory scheme improves efficiency, as well as social issues along with production processes for those that have not been covered by RSPO. Table 7 shows the relative coverage of MSPO and RSPO in terms of the number of producers and area. The number of certified growers and mills is larger for MSPO than for RSPO.

Figure 9: Geographical Distribution of MSPO Estates as of March 2021

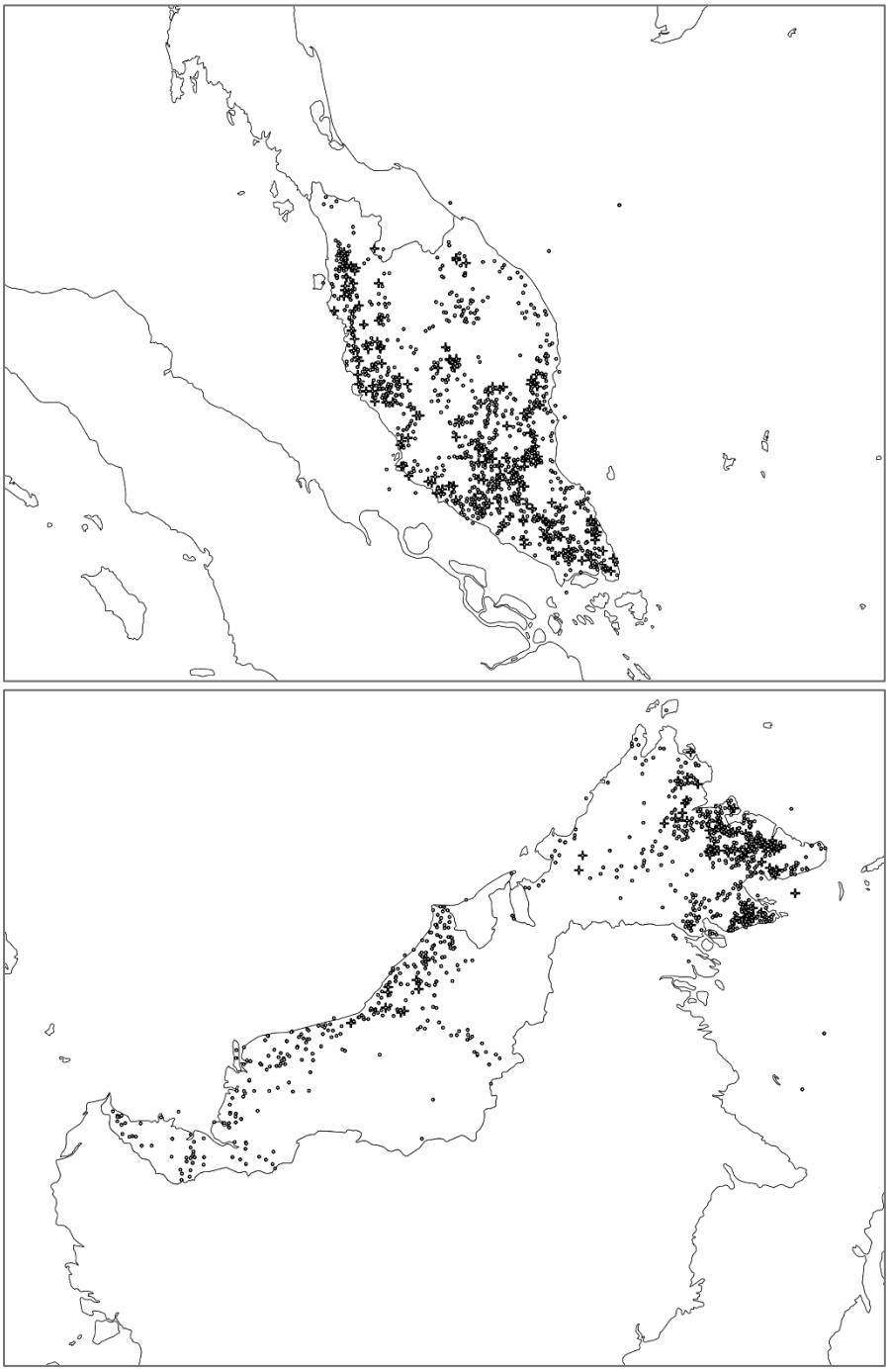


MSPO = Malaysia Sustainable Palm Oil.

Note: Dots show growers.

Source: Author created with MSPO data, https://www.mpocc.org.my/ (accessed October 2020).

Figure 10: Distribution of RSPO and MSPO



RSPO = Roundtable on Sustainable Palm Oil, MSPO = Malaysia Sustainable Palm Oil.

Note: Dots represent MSPO estates and x represents RSPO certified estates. Source: RSPO data from https://www.rspo.org/ - *Roundtable on Sustainable Palm Oil* (accessed 3 November 2020); MSPO data from https://www.mpocc.org.my/, (accessed October 2020).

Table 7: Share of MSPO and RSPO

	MSPO Part 2, 3	RSPO	RSPO/MSPO share
A number of growers	3,516 (part 3)	383	10.9%
Area covered (ha)	5,104,650.3	892,832.4	17.5%
A number of mills	426	145	34.0%

Note: A number of growers for MSPO only refers to Part 3 in order to be comparable with the number of RSPO growers that cover plantations.

Source: MSPO Trace, https://mspotrace.org.my/home accessed on 24 October 2020, RSPO https://www.rspo.org/ (accessed 3 November 2020).

5.3. Determinants of Obtaining RSPO Certifications in Malaysia

What determines how growers obtain RSPO certifications? In this section, we investigate factors affecting decision of growers by using statistical analysis of Malaysian data.[13] Our hypotheses are as follows.

H1. Growers with larger estates tend to obtain RSPO certifications.

H2. Growers owned by listed parent companies tend to obtain RSPO certifications.

H3. Growers located closer to sea ports tend to obtain RSPO certifications.

H4. Growers located closer to sea ports that export a larger amount of palm oil to the EU market tend to obtain RSPO certifications.

We also examine the effect of government-owned growers as well as regional income levels where growers are located.

[13] There is limited availability of ISPO data and the analysis on ISPO has not been attempted in this chapter.

Table 8: Description of Variables

Variable	Definition
RSPO	RSPO=1 if the estate is RSPO-certified RSPO=0, otherwise
Certified area	Certified area under MSPO (ha)
Min_Dis	Distance to the closest major ports
PortEU	Average tonnage of palm oil exported to EU from the major ports closest to an estate between 2014–18
Listed	Listed=1 if parent companies are listed in the stock market Listed=0, otherwise.
RGDP per capita	Regional GDP for state in which an estate is located.
Govown	Govown=1 if estates are developed under government initiatives, Govown=0, otherwise

RSPO = Roundtable on Sustainable Palm Oil, MSPO = Malaysia Sustainable Palm Oil, EU = European Union.

Source: Authors.

The summary statistics are shown in Table 9. The data are collected from websites of MPOCC, RSPO, as well as MPOB (MPOB, 2018), and other Malaysian government website and statistics. The MSPO data are obtained December 2021 and RSPO data are obtained in January 2021 from the database. The listed companies are obtained from an appendix of Hafizuddin-Syah, Shahida, and Fuad (2018). The author calculates the distance by using the geographical location of ports and individual estates. The port geographical data are collected from the map and different sources such as Google Maps with the Malaysian Port Authority. State GDP per capita is obtained from Department of Statistics Malaysia using 2017 figures.

Table 9: Summary Statistics for Independent Variables

Variable	No of Obs.	Mean	Std. Dev.	Min	Max
RSPO	4,417	0.09	0.28	0	1
=1	378				
Certified area	4,417	1,291.25	1,641.64	3.37	25,306.00
if RSPO=1	378	2,472.78	1,281.71	42.00	10,477.20
if RSPO=0	4,039	1,180.67	1,628.18	3.37	25,306.00
Min_Dis	4,366	159.22	633.90	3.59	14,312.00
PortEU	4,366	389,961	121,841	106,743	546,262
Listed	4,417	0.15	0.36	0	1
=1	683	1	0	1	1
RGDPpercapita	4,416	32,580.61	10,056.07	13,593.00	49,873.00
Govown	4417	0.13	0.33	0	1
=1	566				

RGDP = Regional GDP at a state level, RSPO = Roundtable on Sustainable Palm Oil.

Source: Author.

We use logit model as follows.

$$p = Prob(RSPO = 1) = \frac{e^{\beta' X}}{1 + e^{\beta' X}}$$

$$1 - p = prob(RSPO = 0) = \frac{1}{1 + e^{\beta' X}}$$

Where p is probability.

$$Logit_i = \log\left(\frac{p_i}{1 - p_i}\right)$$

$$= \beta_0 + \beta_1 Certifiedarea_i + \beta_2 PortEU_i + \beta_3 Listed_i + \beta_4 RGDPercapita_i$$

The above is the cumulative logistic distribution and i=1~N and N is the sample size. The model is estimated by maximum likelihood estimation. Table 8 has a list of dependent variables.

Table 10: Logistic Regression Results

Variables	(1) Full Sample	(2) Sub Sample	(3) Sub Sample Non-Listed	(4) Sub Sample Listed
Certified area ('000)	0.239***	0.239***	0.336***	0.155***
	(3.97e-05)	(3.98e-05)	(5.36e-05)	(5.98e-05)
PortEU	2.03e-06***	1.96e-06***	3.10e-07	3.27e-06***
	(6.29e-07)	(6.48e-07)	(1.19e-06)	(7.37e-07)
Listed = 1	4.443***	4.468***		
	(0.184)	(0.186)		
RGDPpercapita	-3.74e-05***	-3.81e-05***	-7.37e-05***	-2.74e-05***
	(7.68e-06)	(7.72e-06)	(1.92e-05)	(8.51e-06)
Govown = 1		-0.263		
		(0.189)		
Min_Dis		-0.000810	2.15e-05	-0.00853***
		(0.00145)	(0.000224)	(0.00189)
Constant	-4.555***	-4.400***	-2.898***	-0.0243
	(0.391)	(0.400)	(0.685)	(0.429)
Observations	4,365	4,365	3,270	671
LR chi2	1,275.02***	1,277.92***	38.54***	51.84***
Pseudo R2	0.4958	0.4969	0.0931	0.0557

RGDP = Regional GDP at state level
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Author.

The regression results (Table 10) show that obtaining RSPO certifications is more probable for growers with listed parent companies. When marginal effects of 'Listed', which refers to an estate owned by a company whose stocks are traded on the equity market (if Listed =1), are calculated holding the other variables, this means that a grower being certified by RSPO is 44% more probable for listed companies. The result suggests that obtaining RSPO certification seems to be driven by parent company decision. The listed parent companies are more under pressure of meeting international requirements, keeping the brand image, and attracting investment, which leads growers to be certified by RSPO (this mechanism does not work effectively for growers of non-listed companies).

The size of estates has positive effects for obtaining RSPO certifications although the effect is small for the full sample. Distance to near seaports is negative but insignificant. We create a subsample of non-listed/listed growers and estimate the effect of distance to nearest seaports. Distance is significant only for those growers under listed companies. Growers tend to be certified if the nearest major ports have more palm oil export to the EU market. The variable is significant for growers with listed companies but not significant for growers with non-listed companies. The result implies that listed companies are more responsive to exports, especially European market requirements, but non-listed companies are not. It further implies that non-listed companies that supply either domestic markets or markets other than Europe are not affected by either the distance to the port or the export share to Europe in a similar way.

We also examined whether the decision of growers is affected by being government-owned. The variable Govown, which refers to a grower under government initiatives, is negative but insignificant. Growers located in states with lower per capita tend to be more certified by RSPO. This implies that export demand from the EU contributes to higher rate of RSPO certifications in state that are far from city areas, where abundant land is available and per capita income is lower. The result shows that RSPO could narrow the income disparity between city area and remote area in the context of palm oil industry.

The regression examines the factors that affect obtaining RSPO certification. However, all the growers in the sample are certified under MSPO. Therefore, MSPO is shown to be effective in reaching the growers that are not motivated to be certified under RSPO driven by market and investors in developed countries. Mandatory palm oil certifications of MSPO are inevitable for increasing the scale of sustainable production base. The growers that obtain RSPO certifications are also required to be certified under MSPO certifications, which burden growers by paying double certification costs. As we discuss later, harmonisation or benchmarking between the two schemes could reduce duplication in effort and costs related to multiple certifications.

6. Acceptance of Public Regulations by Global Markets

In the palm oil sector, even if plantations certified by RSPO conduct sustainable production, GHGs that are produced by smallholders create negative externality. Therefore, reducing the GHGs through reduction of deforestation or installing carbon capture systems should not be limited to growers with voluntary certifications. Moreover, improvement of social and economic wellbeing through sustainability practices or issues related to local pollution should not be limited to those that can participate in private schemes; rather, all farmers and workers need to benefit and be included. As shown in the previous section, the effectiveness of private voluntary schemes in Malaysia that depend on northern markets is limited in terms of scalability. On the other hand, ISPO and MSPO also aim to supply certified palm oil to all markets. Higgins and Richards (2019) argued that ISPO and MSPO are intended to appeal more directly to markets in the South. From the view of externality, given the fact that markets of palm oil are dominated by the southern market, leakage of uncertified palm oil occurs if the supply of uncertified oil continues. To prevent leakage, having national mandatory schemes in place is inevitable to achieve sustainable production at full scale, which can be done by producer-driven, in addition to consumer-driven, approaches.

Public mandatory certifications can also cover all oil palm growers and land for oil palm by including smallholders. Certification costs for smallholders are subsidised, which helps them plug into supply chains. Mandatory ISPO and MSPO also help to contribute to sustainability by advocating palm oil use in domestic biofuel policy. An increase in certified palm oil helps the global market without much increase in price. Therefore, ISPO and MSPO palm oil is expected to stabilize certified prices and can be supplied to developing countries where poverty prevails. It is not a question of whether to choose RSPO or ISPO/MSPO but the private and public certification schemes have different roles and work complementarily. Achieving sustainability in the palm oil sector needs strong national schemes.

However, ISPO and MSPO have not yet been accepted as sustainability standards globally. Concerns are related to relatively weaker standards (Mclnnes, 2017), looser implementation of national standards (Hidayat, Offermans, and Glasbergen, 2018; Schouten and Bitzer, 2015), and a lack of representation of NGOs in the process of developing standards (Wijaya and Glasbergen, 2016). However, ISPO and MSPO are strengthening the standards in a dynamic implementation process.

Both European public and private sectors use RSPO and other private schemes as the only choices for sustainability. A European retailer tries to avoid palm oil and considers RSPO as the only sustainable certification scheme if necessary and is not aware of ISPO or MSPO (interview 10). For RED I, sustainability considers land use, GHG emissions, and monitoring but no social and food security aspects were included in sustainability criteria (Ponte, 2014).[14] Although Van Dam and Junginger (2011) showed that European state stakeholders considered environmental, social, and economic aspects to be important for sustainability, poverty alleviation or inclusiveness of smallholders that ISPO and MSPO weigh more is not covered under European policy criteria. For social aspects, European policymakers seem to count on private voluntary schemes including RSPO and ISCC to fill the gap.

7. Column: Market Demand and Public Acceptance of National Certifications: Case Study for Japanese Market

Previous studies on consumers' preferences for ecolabels in different markets show that a wide range of factors affects them across countries in different manners (Johnston et al., 2001; Uchida, Onozaka, Morita, and Managi, 2014). Uchida et al. (2014) discussed that Japanese consumers respond to sustainability labels positively although they are not very much informed of its status.

Sustainability labels have not penetrated the Japanese market as much as in Europe. Japanese retailers and producers with famous brands have led the way in adopting sustainability certifications. Amongst the private sector, a group of retailers and consumer good companies, as well as NGOs, established Japan Sustainable Palm Oil Network (JaSPON) to promote RSPO-certified oil in 2019.[15] For some companies operating globally, including Europe and North America, adopting recognised standards is necessary to establish the brand and have access to those markets. However, a lack of consumers' demand for RSPO that is priced higher than conventional oil causes difficulty for some companies to absorb the premium. On the other hand, a social issue-oriented NGO, Solidaridad, established a Japanese office in 2020 and started promoting ISPO and MSPO by arguing that a 'raise the floor' approach is needed for spreading sustainable

[14] Arguments are also made that the EU uses the policy as non-tariff measures as disguised protectionism to protect domestic farmers (Johnston, Wessells, Donath, and Asche, 2001).
[15] Press release about establishing JaSPON https://www.wwf.or.jp/file/20190411_forest01.pdf.

production (Interview 6). The notable event about recognition of ISPO and MSPO was that the committee for sustainable procurement for the 2021 Tokyo Olympic and Paralympic Games, which is under the Tokyo Metropolitan Government, approved using ISPO and MSPO along with RSPO, arguing, with some reservations, that the Committee intends to support efforts of Indonesian and Malaysian governments for sustainability. The Tokyo Olympic Committee's decision was the first that recognised ISPO/MSPO as sustainability certifications. Despite some NGOs criticising the decision, giving recognition to MSPO and ISPO shows that Japanese companies that use palm oil have diverse opinions, unlike in the European market that uniformly agrees to increase use of palm oil with private certifications.

In 2020, the traceability of MSPO extends to the Japanese market. MSPO was originally extended to a Malaysian port. To keep traceability up to users in destination countries, supply chain certifications need to be established after shipping from Malaysia. MSPO has developed an additional rule called the Simple Verification Scheme that enables tracing transporting, landing, storage, and distribution to refineries and auditing for the Japanese market. For MSPO, which establishes a supply chain certification scheme and is ready for tracing back to the source, it is expected that demand for MSPO-certified palm oil will expand if its premium is lowered as supply increases (Interview 11). For ISPO, supply chain certification schemes are not established. As confidence in traceability is important for consumers' perception, implementation of ISPO needs to be completed. Otherwise, traceability mechanisms need to be implemented.

Following the Tokyo Olympic and Paralympic Game decision, the Japanese government started to have a discussion on sustainability criteria for biomass used under Feed-In-Tariff (FIT) policy. Japanese FIT policy requires power companies to purchase electricity generated by renewables such as solar, wind, hydro, geothermal energy, and biomaterials. The policy offers power generators using renewable energy a fixed buying rate subsidised with a surcharge collected from consumers. Power companies using biomaterials are required to procure those certified by the sustainability certification approved under the FIT policy. Sustainability certification standards, both private and public, are benchmarked against Japanese FIT criteria.

As the discussion in Japan includes aspects of the environment, society, and governance, poverty alleviation in producer countries as well as impacts on global warming are emphasised, both in public and private schemes. The benchmarking process

creates communications between producer countries as well as private schemes with the Japanese government. After RSPO was approved in 2018, ISPO, MSPO, as well as other private schemes, were in the process of benchmarking. As of the end of 2020, RSPO and RSB were recognised as sustainability standards for FIT. Through the interaction and adjustment, the benchmarking process leads schemes to adjust standards upward by covering areas that have not been demanded previously such as pollution control and palm oil by-products. Of the energy generated by biomaterials utilised under FIT, 19% is from palm oil and 53% is from biomaterials such as palm kernel shells (PKS) (METI, 2020). Oil palm-related biomaterials account for 72% under the biomass category and the remaining is wood biomass. The FIT policy is also scheduled to develop a method to measure GHG emissions for procurement of biomass in 2021.

In 2019, palm oil used under the FIT policy was estimated at around 180,000 tonnes annually. The policy target for biomass utilisation is set; currently, 66% of it has been fulfilled. If all power companies that obtained permits under the FIT policy start operating at 85% capacity, 3.6 million tonnes of palm oil are expected to be used (METI, 2019). The demand for palm oil with subsidy is approximately five times more than what Japan imported in 2019 and pushes it as the third-largest palm oil importer after China. However, with the phase out of the decades-old renewable energy subsidy, the price of palm oil needs to be competitive in order for power companies to keep using it. Some companies do not operate at the capacity approved under FIT as they have difficulty procuring RSPO-certified oil at profitable prices (interview 2).

8. Prospects for Harmonised Regional Palm Oil Sustainability Standards

Indonesia and Malaysia dominate global palm oil and are in position to take the lead in developing the certified market. The section discusses the benefits of harmonisation/benchmarking of ISPO and MSPO as well as the status of the current effort. Discussions for benchmarking of biodiesel standards in ASEAN have been presented in ERIA (2010) and address fuel quality. Unlike product standards, sustainability certifications are based on criteria for land use, governance, and environmental as well as human rights. Issues related to sustainability differ across countries depending on climate, geography, and socio-economic conditions. ISPO and MSPO are also based on national regulations and policies reflecting distinct situations. Although harmonisation of

sustainability criteria seems a challenge, establishing a regional standard (ASEAN SPO) will streamline certification. ASEAN SPO can be planned in the three steps upon full implementation of ISPO and MSPO.

8.1. The benefit of harmonisation/benchmarking and current status

Multiple private sustainability certification schemes have been developed by different stakeholders with varying motivations and objectives. Public certification schemes add complexity to the proliferation of private standards, causing market distortion. Additional costs are borne by growers and mills due to duplicated auditing and certification costs; these are passed down to consumers. Confusion amongst consumers who are not familiar with differences across certifications also leads to market distortion. Lack of information over certifications leads to a decrease in credibility and shopping between standards occurs (Van Dam and Junginger, 2011). Fragmented standards in the ASEAN region also create trade barriers. Traceability of certified palm oil (CPO) is lost once transporting ISPO or MSPO across the border. Sourcing different CPO requires separate transportation and storage for traceability. Segregation of CPO depending on certifications adds extra costs for distribution.

While southern markets are increasingly interested in using CPO, an increase in the palm oil price harms the markets where lower-priced vegetable oil is in high demand for food. To supply competitive CPO over other vegetable oils, harmonisation or benchmarking across CPO is desirable. For energy use, palm oil will be utilised without subsidy when prices are competitive against fossil fuels. Achieving both sustainable production and improvement of competitiveness is inevitable for the developing palm oil industry. Furthermore, including users and investors for discussion in improving the standards is necessary as global recognition is given mainly by those users and investors. In the following sections, benchmarking refers to treating different schemes as equivalent by comparing amongst two or more schemes. Harmonisation refers to the same principles applied for participating schemes.

The effort for harmonisation and benchmarking across certifications has seen success in the food safety area with buyer power (Fulponi, 2006). As food safety is necessary irrespective of where food comes from and where consumers live, it is not considered an area of competition. The Global Food Safety Initiative (GFSI) was created by the Consumer Good Forum to tackle food industry safety issues through harmonisation

and benchmarking amongst various private and public safety standards. GFSI calls their approach 'once certified, recognized everywhere'. A dozen schemes are benchmarked against GFSI requirements and are seen as equivalent by members, which reduces the number that producers need to obtain. Crandall et al. (2017), examining 15,000 GFSI-certified food producers in Western Europe, Australia, New Zealand, and North America, showed that 51% of the North American producers consider that participating in GFSI benefits producers to minimise redundant customer-required third-party audits.

The GFSI is effective as the benchmarked schemes are recognised as equivalent by a powerful group of buyers and retailers in the consumer goods sector. There seems to be room for improving the benefits of benchmarking in countries where GFSI is not well-known or recognised by customers. In the case of palm oil certifications, the cost reduction in third-party audits is expected by benchmarking between private certifications and public certifications since there are multiple schemes in the private arena whereas there is only one scheme per country for public schemes. Therefore, the purpose of reducing redundant auditing and audit-related costs can be achieved by the benchmarking combinations of RSPO and ISPO or RSPO and MSPO, etc.

Unlike with food safety, harmonisation across sustainability standards seems more difficult. Sustainability is a broad concept and contains different aspects as shown in the various targets suggested in the SDGs. As they mean different things to different people, competing visions of sustainability have become codified (Jones, 2017; 245). Moreover, private voluntary schemes compete through differentiation. There are multiple private schemes recognised for the EU RED I and II, and users can choose a scheme that fit purpose. Hence, different private schemes remain to coexist (Renckens, 2020; 96). The International Biofuels Forum, a country-level joint project of Brazil, China, India, South Africa, the US, and the European Commission established in 2007, and ISO 13065: 2015, which addresses sustainability criteria, initiated harmonisation efforts but have not been successful (Renckens, 2020; 98). In addition to the complexity of the sustainability concept, the diversity of agricultural products and feedstock is a challenge for developing harmonised standards (Van Dam and Junginger, 2011).

While harmonisation of standards is a far-fetched target, palm oil national certification scheme owners have attempted to compare principles and criteria, as well as governance with other schemes. Besides comparison studies, as shown in Table 6, ISPO

and MSPO are also active in comparing standards (Table 11).[16] Comparing standard schemes also helps understand the gap between globally recognised private schemes and newly developed public schemes. ISPO and MSPO, as late-comer certification schemes, can emphasise combined audits by showing differences with existing and diffused private schemes. This helps reduce auditing processes by identifying overlaps. The Indonesian Ministry of Agriculture with ISPO Secretariate and RSPO conducted a joint study to identify multiple differences (Indonesia Ministry of Agriculture and RSPO, 2015). MPOCC offers a combined checklist for MSPO and RSPO (MPOCC, 2018) which compares the two standards, and a study was conducted comparing MSPO with ISCC. Comparison amongst schemes does not ensure equivalence nor meet requirements set by procurers. MPOB and the Solvent Extractors' Association agreed a memorandum of understanding to jointly promote MSPO and IPOS through harmonising the two standards.[17]

Benchmarking has been a feature of Japan's FIT policy. Sustainability schemes, i.e. RSPO for palm oil, RSB, and GGL (Green Gold Level) for by-products have been benchmarked against requirements of the Japanese government as of the end of 2020. The three schemes are approved for use under the FIT policy pending compliance with Japanese sustainability criteria. ISPO and MSPO have been assessed to determine whether they meet the requirements set by Japanese government. If successful, public schemes can be benchmarked against Japanese government sustainability criteria together with private schemes. However, unlike benchmarking efforts by GFSI in the food safety area, no platform of powerful buyers in the private sector drives benchmarking efforts for palm oil sustainability. Once large importing countries recognise benchmarking of ISPO and MSPO, efforts are expected to make significant differences.

[16] Related benchmarking reports can be found for soy private scheme (Kusumaningtyas and Gelder, 2019) and biomass for biofuel (Schlamann, Wieler, Fleckenstein, and Walther-Thoß, 2013).

[17] 27 September 2019, in *Agriculture Times.* https://agritimes.co.in/news-detail.php?news_data=K65lrKoKY/WpqjRo8mQsyIvKWjUoCQxoBAA=

Table 11: Benchmarking Experience for Palm Oil

	Who benchmarks/ Harmonisation	Public/Private	Procurement
GFSI (food safety)	Buyers	Private	Yes
Japanese FIT	Buyers	Public	Yes
ISPO-RSPO	Scheme owners	Public/Private	No
MSPO-ISCC	Scheme owners	Public/Private	No
International Biofuel Forum	Governments	Public	No

GFSI = Global Food Safety initiative, FIT = feed-in tariff, RSPO = Roundtable on Sustainable Palm Oil, MSPO = Malaysia Sustainable Palm Oil, ISPO = Indonesia Sustainable Palm Oil, ISCC = International Sustainability and Carbon Certification.

Source: Created by author.

8.2. A Process for Harmonisation for ASEAN CPO

Compared to benchmarking, harmonisation across national schemes ISPO and MSPO seem more beneficial, but also more difficult to achieve, at least in the short term as both schemes are based on national legal requirements. However, once standards are harmonised and key performance indicators for achieving sustainability are agreed upon in ASEAN, there is no need to segregate palm oil and benchmark across different national schemes for CPO trade. This creates a large benefit for all users but also other producing countries in the region. Developing the national scheme avoids policy fragmentation and a harmonised ASEAN standard can behave as a global standard and enables countries to refer to it for implementation of sustainable production.

Harmonisation can be deployed in the manner of a stepping stone. At the first step, ISPO and MSPO are implemented with traceability. Although both schemes are mandatory, it takes longer for both schemes to implement fully. For the period of transition, it will be important to have traceability installed. Moreover, there may be other requirements on lifecycle analysis of global warming gases or food safety. To meet future demand, having traceability helps producers to adopt additional sustainability criteria easily. The first step is to benchmark the two schemes, at least for keeping traceability beyond borders. This can be done if either countries or companies recognise both ISPO and MSPO as CSPO. Once traceability is established beyond the Malaysian and Indonesian border, ISPO- and MSPO-certified palm oil can be mixed and kept as sustainable palm oil.

Subsequently, harmonised schemes can be discussed amongst major producing ASEAN members, learning from successful national schemes. Including countries like Thailand, ASEAN countries that produce palm oil other than Indonesia and Malaysia can benefit by harmonised schemes as they can learn rules upon developing own sustainability certifications. For a harmonised scheme to be effective, the ASEAN CPO needs to be recognised by international organisations such as the UN (Interview 11) or ISO can be involved as attempted by International Biofuel Forum.

9. Conclusion and Recommendation

Palm oil has been recognised as one of the most competitive vegetable oils for food, non-food, and biodiesel use. Palm oil, as well as its by-products, has also been traded globally in the last decades. Also, palm oil grows in tropical forests with biodiversity or carbon-rich peatland. These characteristics have pushed palm oil to advance sustainability management. Both demand and requirements for sustainable palm oil from developed countries are expected to be higher in the future vis-à-vis achieving the Paris Agreement and the SDGs. The international community is now moving quickly to achieve a carbon-neutral economy. Once a lifecycle assessment of global warming gas emissions is required for environmental taxes or border adjustment in some jurisdictions, producers need to have traceability as well. Although Indonesia and Malaysia claim that the current certifications are biased toward environmental sustainability and poverty alleviation and that equitable growth needs more attention, important markets and investors voice tend to exert power over international action. Cooperation between consumer and producer countries is needed to survive as production sustainability including management and inputs determines the competitiveness of global supply chains. The SDG-related policy and standards would be increasingly applied to other products in both agriculture and industry. Therefore, experience with certification schemes in the palm oil sector can give us important lessons for future sustainability management as well as management over global public goods with differentiated roles taken by both the private and public sector.

National palm oil sustainability schemes start to play valuable roles, given the market structure of higher weight in southern markets and the limitation of the northern-driven approach taken by private schemes. Although southern markets are not likely to demand sustainable palm oil by paying the premium in the short run, management of

global public goods such as global warming and deforestation needs the inclusion of southern markets for management. Analysis in previous sections suggests that a smaller number of listed plantations and related growers that can obtain private certifications are the ones to be part of global value chains into Europe or other developed countries. Smallholders that are left out would be important suppliers for domestic or southern markets, as discussed in this chapter and Higgins and Richards (2019). With only a smaller number of growers and plantation being certified by sustainability private schemes as shown in the number of growers by RSPO, remaining growers that tend to be smallholders (40% of all growers) are expected to cause deforestation and add carbon emission by utilising peatland in non-certified areas, driven by economic motives to help them out of poverty. When market failure is present and public policy is not introduced to save global public goods, efforts toward sustainability taken by private schemes in northern markets only could lead to carbon and sustainability leakage to southern markets. ISPO and MSPO intend to certify all growers for palm oil sustainability management, even without southern demand. The policy move can be an investment in the future by Indonesian and Malaysian governments, as well as growers and related producers who bear costs and resources. Sustainability efforts by public policy ISPO and MSPO are worth support from the international community.

Although ISPO and MSPO have been gearing up the effort, certifying all the growers and mills is indeed a tough challenge. Land ownership in some areas has not been clear and consideration for the right of the local community as well as indigenous people is important to fix land titles. Moreover, the capacity building of thousands of smallholders is costly. Consequently, certifying all the growers takes longer than scheduled. Although some procurers, both governments and private entities, are willing to support the effort by procuring ISPO- and MSPO-certified oil, these entities have been under pressure to be responsible consumers, as per the 12th SDG. Recalling that private sustainability schemes have emerged because environmental regulations by producer countries are conceived weaker, implementation of the policy is a key to gain credibility. By utilising third-party certifications, the implementation of the national policy can be verified and more transparent. With the effort of implementation, international cooperation could play roles by supporting producer countries' policies through strengthening the standards and using the certified oil. Proven status of implementation

and effectiveness of certification system is inevitable to convince citizens and international communities by adopting the national certifications.

Recognising that the development of certification schemes is a dynamic process, the first recommendation for the national schemes is to progress further for full implementation of the public schemes. Governments, as well as companies in consumer markets, need to procure SPO with traceability to prove sustainability for nationals and consumers. Correcting issues with claims by consumers and governments through scheme owners and certification companies increases credibility and transparency. For consumers to verify the status of sustainability management on the ground, transparency of information of certified growers and mills is another important aspect. Consumers are an integral part of global value chains.

Sustainability includes diverse concepts and issues covered under it have been historically expanded. Target issues of sustainability started with food safety, water pollution, environmental degradation, GHGs, social issues, human rights, animal welfare, and so on. More specific targets are consolidated in the 17 SDGs with some 200 indicators. An FIT policy working group in Japan has been discussing how to calculate GHG emissions along the global supply chain for palm oil to show the real contribution of renewable energy compared to fossil fuel, while the EU has discussed food safety issues over palm oil. Palm oil might encounter other requirements coming from markets in the future. Moreover, consumers beyond the border need third-party certifications to verify their policy is properly implemented. The national certification schemes can add extra components to the current standards to meet various demands. Traceability also enables different growers to choose between basic standards and those with add-on components. For a vast country such as Indonesia, information as well as blockchain technology, is expected to help achieve traceability across nations as suggested by BAPPENAS (BAPPENAS, 2019).

The other recommendation is about the need to advance benchmarking and harmonisation across certification schemes to further improve the competitiveness of sustainable palm oil. Once MSPO and ISPO gain credibility, the international community could recognise the two schemes together. Then both consumer and producer countries work together to benchmark the schemes, thus reducing market distortion and further aligning them with the SDGs. Finally, harmonisation of standards can offer benefits for countries inside as well as outside of ASEAN to follow sustainable practices that would

succeed in Indonesia and Malaysia. This will show the leadership of Indonesia and Malaysia as the largest vegetable oil-producing countries in international society.

References

3Keel, DGEnvironment EC, and LMC International (2017), '*Study on the Environmental Impact of Palm Oil Consumption and on Existing Sustainability Standards*', https://op.europa.eu/en/publication-detail/-/publication/89c7f3d8-2bf3-11e8-b5fe-01aa75ed71a1/language-en (accessed 30 June 2022).

Anders, S.M. and J.A. Caswell (2009), 'Standards as Barriers versus Standards as Catalysts: Assessing the Impact of HACCP Implementation on US Seafood Imports', *American Journal of Agricultural Economics,* 91(2), pp.310–21.

Aubert, P.M., A. Chakib, and Y. Laurans (2017), 'Implementation and Effectiveness of Sustainability Initiatives in the Palm Oil Sector: A Review', *IDDRI Study*, 11. https://www.iddri.org/sites/default/files/import/publications/st1117_pma-et-al._oil-palm-southeast-asia.pdf (accessed 7 August 2022).

BAPPENAS (2019), *Indonesia Green Growth Program*. http://greengrowth.bappenas.go.id/en/vision-blockchain-technology-for-indonesias-palm-oil-sector/ (accessed 30 June 2022).

Beghin, J.C., M. Maertens, and J. Swinnen (2015), 'Nontariff Measures and Standards in Trade and Global Value Chains', *Annual Review of Resource Economics,* 7(1), pp.425–50.

Bitzer, V. and P. Glasbergen (2015), 'Business–NGO Partnerships in Global Value Chains: Part of the Solution or Part of the Problem of Sustainable Change?', *Current Opinion in Environmental Sustainability,* 12, pp.35–40.

Bozbas, K. (2008), 'Biodiesel as an Alternative Motor Fuel: Production and Policies in the European Union', *Renewable and Sustainable Energy Reviews,* 12(2), pp.542–52.

Brandi, C., T. Cabani, C. Hosang, S. Schirmbeck, L. Westermann, and H. Wiese (2015), 'Sustainability Standards for Palm Oil: Challenges for Smallholder Certification under the RSPO', *The Journal of Environment and Development,* 24(3), pp.292–314.

CPOPC (2019a), *How to Improve the Amsterdam Declaration*. https://www.cpopc.org/how-to-improve-the-amsterdam-declaration/ (accessed 30 June 2022).

CPOPC (2019b), *National Palm Oil Certification Standard*. https://www.cpopc.org/national-palm-oil-certification-standards/ (accessed 30 June 2022).

CPOPC (2020), *Debunking the Myth of Asian Deforestation*. https://www.cpopc.org/debunking-the-myth-of-asian-deforestation/ (accessed 30 June 2022).

Crandall, P.G. et al. (2017), 'Impact of the Global Food Safety Initiative on Food Safety Worldwide: Statistical Analysis of a Survey of International Food Processors', *Journal of Food Protection,* 80(10), pp.1613–22.

Daemeter (2014), *A Comparison of Leading Palm Oil Certification Standards Applied in Indonesia: Towards Defining Emerging Norms of Good Practices.* http://daemeter.org/new/uploads/20140505064302.Daemeter_Comparison_of_Palm_Oil_Certification_Standards_FullReport_Eng.pdf (accessed 30 June 2022).

EFECA (2016), *Comparison of the ISPO, MSPO and RSPO Standards*. http://www.efeca.com/wp-content/uploads/2016/03/Efeca_PO-Standards-Comparison-.pdf (accessed 30 June 2022).

Embassy of Republic of Indonesia (2020), *ISPO*. https://www.meti.go.jp/shingikai/enecho/shoene_shinene/shin_energy/biomass_sus_wg/pdf/007_02_00.pdf (accessed 30 June 2022).

ERIA (2010), *EAS-ERIA Biodiesel Trade Handbook* 2010. https://www.eria.org/EAS-ERIA_Biodiesel%20Fuel%20Trade_Handbook_2010.pdf (accessed 30 June 2022).

ESPO (2019), *Choosing Sustainable Palm Oil: Progress Report on the Import and Use of Sustainable Palm Oil in Europe*. https://www.idhsustainabletrade.com/uploaded/2019/01/EPSO_Vormgeving2019_DEF_31012019.pdf (accessed 30 June 2022).

Fulponi, L. (2006), 'Private Voluntary Standards in the Food System: The Perspective of Major Food Retailers in OECD countries', *Food Policy,* 31(1), pp.1–13.

Garcez, C.A.G., and J.N. de Souza Vianna (2009), 'Brazilian Biodiesel Policy: Social and Environmental Considerations of Sustainability', *Energy,* 34(5), pp.645–54.

Hafizuddin-Syah, B., S. Shahida, and S.H. Fuad (2018), 'Sustainability Certifications and Financial Profitability: An Analysis on Palm Oil Companies in Malaysia', *Jurnal Pengurusan (UKM Journal of Management),* 54, pp.143–54.

Hidayat, N.K., A. Offermans, and P. Glasbergen (2018), 'Sustainable Palm Oil as a Public Responsibility? On the Governance Capacity of Indonesian Standard for Sustainable Palm Oil (ISPO)', *Agriculture and Human Values,* 35(1), pp.223–42.

Higgins, V. and C. Richards (2019), 'Framing Sustainability: Alternative Standards Schemes for Sustainable Palm Oil and South-South trade', *Journal of Rural Studies,* 65, pp.126–34.

Humphrey, J. and E. Michida (2021), 'National Palm Oil Standards in Asia: Motivations and Impacts on Trade and Rural Development', in E. Michida, J. Humphrey, and D. Vogel (Eds.), *Diffusion of Public and Private Sustainability Regulations: The Responses of Follower Countries*, pp. 17–46: Edward Elgar.

ICT (2016), *SME Competitiveness Outlook 2016*: *Meeting the Standard for Trade*. https://www.un-ilibrary.org/content/books/9789210584579 (accessed 30 June 2022).

IDH (2020), 'Latest Data Shows 86% of Imported Palm Oil to Europe Is Sustainable', 2 September, https://www.idhsustainabletrade.com/news/latest-data-shows-86-of-palm-oil-imported-to-europe-sustainable/ (accessed 30 June 2022).

Indonesia Ministry of Agriculture and RSPO (2015), *Joint Study on the Similarities and Differences of the ISPO and the RSPO Certification Systems*. www.rspo.org, www.id.undp.org, www.inpop.id (accessed 30 June 2022).

ITC (2020), *International Trade Centre Standards Map.* https://www.sustainabilitymap.org/standards (accessed 3 December 2020).

ITC (2021), *Standards Map Database* https://www.standardsmap.org/standards_intro (accessed 3 January 2021).

Janor, H., A. Ahmad, A.C. Er, and N. Lyndon (2018), *MPOB-UKM Mini Seminar: Socio-economic Issues in Palm Oil Industries*. Universiti Kebangsaan Malaysia, https://www.ukm.my/ukmysdchair/exhibition-at-mpob-ukm-mini-seminar-socio-economic-issues-in-palm-oil-industry/

JaSPON (2019), Press release on the establishment of JaSPON, https://www.wwf.or.jp/file/20190411_forest01.pdf (accessed 30 June 2022).

Johnston, R.J., C.R. Wessells, H. Donath, and F. Asche (2001), 'Measuring Consumer Preferences for Ecolabeled Seafood: An International Comparison', *Journal of Agricultural and resource Economics*, pp.20–39.

Jones, G. (2017), *Profits and Sustainability: A History of Green Entrepreneurship.* Oxford: Oxford University Press.

Kalfagianni, A. and P. Pattberg (2013), 'Participation and Inclusiveness in Private Rule-Setting Organizations: Does It Matter for Effectiveness?', *Innovation: The European Journal of Social Science Research,* 26(3), pp.231–50.

Kusumaningtyas, R. and J.W. van Gelder (2019), *Setting the Bar for Deforestation-Free Soy in Europe: A Benchmark to Assess the Suitability of Voluntary Standard Systems*. https://www.profundo.nl/download/iucn1906 (accessed 30 June 2022).

Mclnnes, A. (2017), *A Comparison of Leading Palm Oil Cetification Standards*. http://www.forestpeoples.org/sites/default/files/documents/Palm%20Oil%20Certification%20Standards_lowres_spreads.pdf (accessed 30 June 2022).

METI (2019), *バイオマス燃料の持続可能性に関する確認内用・確認手段について.* https://www.meti.go.jp/shingikai/enecho/shoene_shinene/shin_energy/biomass_sus_wg/pdf/003_01_00.pdf (accessed 30 June 2022). (Japanese)

METI (2020), *Discussion on Biomasss Sustainability Working Group 6th*. https://www.meti.go.jp/shingikai/enecho/shoene_shinene/shin_energy/biomass_sus_wg/006.html (accessed 30 June 2022). (Japanese)

Michida, E., J. Humphrey, and K. Nabeshima (2017), *Regulations and International Trade: New Sustainability Challenges for East Asia*. https://doi.org/10.1007/978-3-319-55041-1.

Michida, E., J. Humphrey, and D. Vogel (2021), *Diffusion of Public and Private Sustainability Regulations: The Responses of Follower Countries*. Cheltenham: Edward Elgar.

MPOB (2018), *Malaysian Oil Palm Statistics 2018*. Selangor : Ministry of Plantation Industries and Commodities, Government of Malaysia.

MPOCC (2018), *Combined Audit Checklist*. https://947f1e9a-cdce-49fa-ac6f-bba3863f98eb.filesusr.com/ugd/988faf_48fb282325b74fdbaa8023f6d07cd7b0.pdf (accessed 30 June 2022).

Musdharifah, M. (2021), *ISPO Presidential Degree No.*44/2020, presentation materials for on-line seminar in 2021. ASEAN-Japan Center https://www.asean.or.jp/ja/wp-content/uploads/sites/2/926ae4f7d82dfe17cbe9cafd55c41cf1.pdf (accessed 16 August 2022)

Oosterveer, P., B.E. Adjei, S. Vellema, and M. Slingerland (2014), 'Global Sustainability Standards and Food Security: Exploring Unintended Effects of Voluntary Certification in Palm Oil', *Global Food Security,* 3(3–4), pp.220–26. doi:10.1016/j.gfs.2014.09.006

Pacheco, P., G. Schoneveld, A. Dermawan, H. Komarudin, and M. Djama (2020), 'Governing Sustainable Palm Oil Supply: Disconnects, Complementarities, and Antagonisms between State Regulations and Private Standards', *Regulation and Governance*, 14(3), pp.568–98.

Peraturan Presiden Republic Indonesia Nomor 44 Tahun 2020 (2020), 'Sistem Sertifikasi Perkebunan Kelapa Sawit Berkelanjutan Indonesia', https://peraturan.bpk.go.id/Home/Details/134802/perpres-no-44-tahun-2020 (accessed 30 June 2022).

Ponte, S. (2014), 'Roundtabling' sustainability: Lessons from the biofuel industry', *Geoforum,* 54, pp.261–71.

Qaim, M., K.T. Sibhatu, H. Siregar, and I. Grass, (2020), 'Environmental, Economic, and Social Consequences of the Oil Palm Boom', *Annual Review of Resource Economics,* 12(1), pp.321–44. doi:10.1146/annurev-resource-110119-024922

Renckens, S. (2020), *Private Governance and Public Authority: Regulating Sustainability in a Global Economy*. Cambridge: Cambridge University Press.

Roheim, C.A. and D. Zhang (2018), 'Sustainability Certification and Product Substitutability: Evidence from the Seafood Market', *Food policy*, 79, pp.92–100.

Roozen, N. (2021), 'Changing the Palm Oil Narrative: EU Seems Willing to Turn the Page', *Solidaridad*. 10 February. https://www.solidaridadnetwork.org/news/changing-the-palm-oil-narrative-eu-seems-willing-to-turn-the-page (accessed 30 June 2022).

RSPO (2018), *RSPO P&C 2018: A Renewed Commitment*. https://www.rspo.org/publications/download/299981d18b38c42 (accessed 30 June 2022).

RSPO (2019), '*Impact Update* 2019', https://rspo.org/resources/rspo-reports/impact-reports (accessed 30 June 2022).

RSPO (2020), Homepage. https://rspo.org/about (accessed 7 June 2020).

Schlamann, I., B. Wieler, M. Fleckenstein, and J. Walther-Thoß (2013), *Searching for Sustainability: Comparative Analysis of Certification Schemes for Biomass Used for the Production of Biofuels*. http://awsassets.panda.org/downloads/wwf_searching_for_sustainability_2013_2.pdf (accessed 30 June 2022).

Schleifer, P. and Y. Sun (2018), 'Emerging Markets and Private Governance: The Political Economy of Sustainable Palm Oil in China and India', *Review of International Political Economy,* 25(2), pp.190–214.

Schouten, G. and V. Bitzer (2015), 'The Emergence of Southern Standards in Agricultural Value Chains: A New Trend in Sustainability Governance?', *Ecological Economics,* 120, pp.175–84.

Schouten, G. and P. Glasbergen (2011), 'Creating Legitimacy in Global Private Governance: The Case of the Roundtable on Sustainable Palm Oil', *Ecological Economics,* 70(11), pp.1891–99. doi:10.1016/j.ecolecon.2011.03.012

Senawi, R., N.K. Rahman, N. Mansor, and A. Kuntom (2019), 'Transformation of Oil Palm Independent Smallholders through Malaysian Sustainable Palm Oil', *Journal of Oil Palm Research,* 31(3), pp.496–507.

Subagyono, K. (2021), *ISPO Ministerial Degree* 34/2020 *for Ministry of Agriculture,* ASEAN-Japan Centre seminar presentation material. https://www.asean.or.jp/ja/wp-content/uploads/sites/2/5015496f8573ecaafff73c5ae2d637a9.pdf (accessed 30 June 2022).

Teoh, C.H. (2011), *Spearheading Development and Promotion of Sustainable Palm Oil in China*. http://rt9.rspo.org/ckfinder/userfiles/files/P1_3_Teoh_Cheng_Hai.pdf (accessed 30 June 2022).

Uchida, H., Y. Onozaka, T. Morita, and S. Managi (2014), 'Demand for Ecolabeled Seafood in the Japanese Market: A Conjoint Analysis of the Impact of Information and Interaction with other Labels', *Food Policy,* 44, pp.68–76.

USDA (2019a), *Oilseeds and Products Annual, Jakarta Indonesia*. https://apps.fas.usda.gov/newgainapi/api/report/downloadreportbyfilename?filename=Oilseeds%20and%20Products%20Annual_Jakarta_Indonesia_3-15-2019.pdf (accessed 30 June 2022).

USDA (2019b), *Oilseeds and Products Annual, Kuala Lumpur Malaysia*. https://apps.fas.usda.gov/newgainapi/api/report/downloadreportbyfilename?filename=Oilseeds%20and%20Products%20Annual_Kuala%20Lumpur_Malaysia_3-28-2019.pdf (accessed 30 June 2022).

USDA (2020), *Oilseeds: World Markets and Trade*. https://apps.fas.usda.gov/psdonline/circulars/oilseeds.pdf (accessed 30 June 2022).

Van Dam, J. and M. Junginger (2011), 'Striving to Further Harmonization of Sustainability Criteria for Bioenergy in Europe: Recommendations from a Stakeholder Questionnaire', *Energy Policy*, 39(7), pp.4051–66.

Vogel, D. (2008), 'Private Global Business Regulation', *Annual Review of Political Science*, 11, pp.261–82.

Watts, J.D. and S. Irawan (2018), *Oil Palm in Indonesia*. https://www.semanticscholar.org/paper/Oil-Palm-in-Indonesia-Watts-Irawan/9c9dcbd6d186900c1904df7d338c099d49510856#paper-header (accessed 30 June 2022).

Wijaya, A. and P. Glasbergen (2016), 'Toward a New Scenario in Agricultural Sustainability Certification? The Response of the Indonesian National Government to Private Certification', *The Journal of Environment and Development*, 25(2), pp.219–46.

WWF (2012), *Profitability and Sustainability of Palm Oil Production: Analysis of Incremental Financial Costs and Benefits of RSPO Compliance*. https://wwfeu.awsassets.panda.org/downloads/profitability_and_sustainability_in_palm_oil_production__update_.pdf (accessed 30 June 2022).

Yaap, B. and G. Paoli (2014), *A Comparison of Leading Palm Oil Certification Standards Applied in Indonesia*. http://daemeter.org/new/uploads/20140505064302.Daemeter_Comparison_of_Palm_Oil_Certification_Standards_FullReport_Eng.pdf (accessed 30 June 2022).

Zimmer, Y. (2016), 'Competitiveness of Rapeseed, Soybeans and Palm Oil', *Journal of Oilseed Brassica*, 1(2), pp.84–90.

Appendix

List of Interviews

Number	Name of Interviewee/Presenter	Time	Place
1	Japanese industry association involved in trading palm oil	September 18, 2018	Interview at JETRO
2	Power generating company in Japan under the FIT policy	May, 2019	Interview
3	Expert on RSPO	November 18, 2019	Online meeting
4	Sarawak palm oil estate employee	September 5, 2020	Online interview
5	ISPO, Embassy of Republic of Indonesia, Tokyo MPOB representative	September 17, 2020	FIT Working Group conducted at Conference Room at Ministry of Economy, Trade, Industry, Japan. Made public online.
6	NGO (Solidaridad)	September 27, 2020	Online Seminar by Solidaridad
7	An official from MPOB	September 27, 2020	E-mail communication
8	An official from Ministry of Agriculture, Indonesia	September 27, 2020	Online seminar by Solidaridad
9	GAPKI, Coordinating Minister of Economy, Indonesia	December 3-4, 2020	IPOC, conference organised by GAPKI. Online
10	A quality manager of an EU retailer	September, 2020	E-mail communication
11	Vegetable oil association in Japan	November 13, 2020	E-mail communication
12	Officer from Coordinating Ministry of Economic Affairs	December 2, 2020	IPOC 2020 Conference
13	Officer from Coordinating Ministry of Economic Affairs, Ministry of Agriculture	March 2, 2021	ASEAN-Japan Centre, Virtual Business Forum on Indonesian Sustainable Palm Oil (ISPO)

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