

ASSESSING INDEPENDENT SMALLHOLDER FARMERS' AWARENESS OF ROUNDTABLE ON SUSTAINABLE PALM OIL (RSPO): A STUDY IN OIL PALM EXPORTER NATIONS

MUHAMMAD ASYRAF HASIM^{1*}, WAN FAUZIAH WAN YUSOFF¹, WAN MUHAMMAD IDHAM WAN MAHDI² AND AINI KHALIDA MUSLIM²

¹Johor Business School, Universiti Tun Hussein Onn Malaysia, 86400 Parit Raja, Johor, Malaysia. ²Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia, 86400 Parit Raja, Johor, Malaysia.

*Corresponding author: asyrafh@uthm.edu.my

<http://doi.org/10.46754/jssm.2025.04.001>

Submitted: 20 May 2024

Revised: 24 September 2024

Accepted: 24 October 2024

Published: 15 April 2025

Abstract: Roundtable on Sustainable Palm Oil (RSPO) has gained international recognition for establishing, encouraging, and promoting sustainable practices within the palm oil trading and producing sectors. Nevertheless, there remains uncertainty regarding how much awareness of RSPO exists among independent smallholders from oil palm exporter countries, which will be outlined through a systematic literature review. The PRISMA standard serves as the fundamental framework for conducting systematic literature reviews. This study selects 44 publications from 110 Web of Science, Scopus, and Google Scholar papers. The subjects addressed in this study encompass: (i) The awareness level of RSPO, (ii) the initial stages of RSPO implementation, and (iii) the complete adoption of RSPO practices. This systematic literature analysis indicates that the adoption of RSPO certification among oil palm independent smallholder farmers in countries such as Indonesia, Malaysia, and Thailand were relatively small, in contrast to the progress made in national certification implementation within their respective countries. This study also offers insights into the challenges these smallholders face in implementing RSPO certification and recommendations for future research.

Keywords: Awareness, exporter nations, independent smallholder farmers, palm oil, Roundtable on Sustainable Palm Oil (RSPO), Malaysian Palm Oil Board (MPOB), Malaysian Sustainable Palm Oil (MSPO), Certified Sustainable Palm Oil (CSPO).

Introduction

Sustainability is regarded as an essential element for the growth of social, environmental, and economic development, as stated by the United Nations (UN) (Aziz *et al.*, 2021). Sustainability certification has increasingly become a critical aspect of governance in the palm oil industry, particularly in recent years, especially with the introduction of the European Union Deforestation Regulation (EUDR) by the European Union (EU) in April 2023. This regulation mandates that all phases of the supply chain for products within the EU must be free from deforestation activities (Nadras *et al.*, 2024). Before that, the industry also faced challenges in addressing issues raised by the public and non-governmental organisations regarding environmental and forced labour

concerns. These challenges placed the industry under immense pressure and scrutiny, as key players faced criticism, prompting them to take numerous actions and initiatives to address these issues (Rizal & Nordin, 2022). The Roundtable on Sustainable Palm Oil (RSPO) was established in 2004 to promote and encourage sustainable practices in the trading and production of palm oil (Oosterveer, 2015; Hospes *et al.*, 2017; Hutabarat *et al.*, 2018). According to Saadun *et al.* (2018), access to the global market, particularly in the countries of the European Union is facilitated by RSPO certification. Palm oil appears in commodities marketed in the United States, European Union, and Russia and utilisation is progressively rising in emerging economies like Brazil, Egypt, and Saudi Arabia

(Oliphant & Simon, 2022). According to Aziz *et al.* (2021), India and China currently hold the position of the primary importers of palm oil, with corresponding shares of 22% and 17% in global imports. Furthermore, during the past decade, Indonesia and Malaysia have emerged as the foremost global exporters of palm oil. According to Sylvia *et al.* (2022), apart from Indonesia and Malaysia, several other nations, including Thailand, Colombia, and Nigeria have emerged as significant participants in the global palm oil market.

According to Aziz *et al.* (2021), sustainable development is important in promoting resource and environmental conservation and encouraging social and economic development. Deforestation and subsequent combustion of extensive primary forest regions have resulted in major public demonstrations and rising concerns regarding the ecological and societal consequences of the oil palm cultivation. The growth of palm oil industry is accompanied by various negative consequences, including environmental damage, air pollution, a decline in biodiversity, and heightened conflicts over land usage (Rodthong *et al.*, 2023). The role of RSPO becomes crucial in addressing the aim of smallholder farmers to mitigate the undesirable environmental and social consequences associated with palm oil farming (Saswattecha *et al.*, 2015; Majid *et al.*, 2021).

RSPO is a private, voluntary certification scheme, with stakeholders involved in creating RSPO standards including oil palm producers, processors or traders, consumer goods manufacturers, retailers, banks/investors, and environmental/social non-governmental organisations (NGOs) (RSPO, 2023; Michida, 2023). Typically, the process of obtaining RSPO certification, especially for independent smallholder oil palm farmers is carried out jointly by the smallholders and RSPO members, with RSPO members sponsoring the certification cost, considering smallholders as part of their supply chain. Additionally, there are public certification schemes such as the Indonesian

Sustainable Palm Oil (ISPO) and Malaysian Sustainable Palm Oil (MSPO), established in 2009 and 2013, respectively, which have become mandatory for growers and mills, including smallholders, who tend to be excluded from RSPO and global value chains (Michida, 2023). However, both certifications have not yet been accepted as sustainability standards globally due to various issues such as looser implementation of national standards (Hidayat *et al.*, 2018), lack of representation of NGOs in the process of developing standards (Wijaya & Glasbergen, 2016), and relatively weaker standards (McInnes, 2017).

Apriani *et al.* (2020) highlighted that by obtaining RSPO certification, smallholders receive benefits such as improved technical skills to manage their plantations, premium pricing, and sales benefits from RSPO, as well as the ability to trade their RSPO credits through PalmTrace. The majority of smallholders in their study confirmed that they received benefits from the sale of RSPO credits, reduced oil palm production costs, and higher yields.

Saadun *et al.* (2018) argue that there are still challenges in obtaining access to the certification process for smallholder farmers involved in oil palm production. Hence, promoting broader utilisation of RSPO certification for palm oil could serve as a motivating approach to enhance the sustainability and efficacy of oil palm cultivation. There exist two distinct categories of smallholders, namely independent smallholders and schemed smallholders. The schemes are run by smallholders, who are part of the schemes and they frequently have a well-developed management structure and a methodical organisation (Sutton & Buang, 1995). The notion of RSPO certification remains voluntary and there is ongoing debate regarding its application, particularly among independent smallholders (Mansor *et al.*, 2018). As a result, working with independent smallholders who farm oil palm without direct aid from the government or any corporate organisations presents the true hurdles in adopting sustainability schemes (Siduque, 2015).

Independent smallholders that have already implemented the RSPO must adhere to the RSPO Principles and Criteria (P&C) outlined in Table 1.

Based on the statistical data provided by RSPO (2017), it was observed that as of April 2016, the global area of oil palm plantations certified by RSPO amounted to approximately 2.72 million hectares, which accounted for about 21% of the total global oil palm plantation area (RSPO, 2018). Additionally, the cumulative production capacity of Certified Sustainable Palm Oil (CSPO) reached 12.90 million tonnes. Nonetheless, there was a notable decline of 12% in the quantity of RSPO-certified independent smallholders, which decreased from 2,496 in 2016 to 2,202 in 2017. This loss was observed across 10 distinct group of independent smallholders in several countries, including Indonesia, Malaysia, and Thailand. According to the RSPO (2017), Thailand experienced a 25% reduction in the number of independent smallholders certified by the RSPO, which declined from 1,336 to 1,001. This statistic indicates a lack of widespread adoption of the RSPO certification among independent smallholders. It raises the question of the level of awareness among independent smallholders in oil palm exporting countries regarding the application of RSPO certification.

The existing body of literature has indicated a notable difference in the extent of research

conducted on social studies concerning the sustainability of the oil palm industry as compared to studies focusing on the economy and environment (Siti-Dina *et al.*, 2023). Nevertheless, there is uncertainty about the awareness of independent smallholders to ensure the sustainability of the oil palm business through implementing the RSPO. Hence, this study aims to conduct a systematic literature review of the awareness levels of independent smallholder farmers regarding the RSPO.

Materials and Methods

The technique used to compile prior research articles on the awareness of oil palm smallholder farmers of the RSPO is covered in this part. This Systematic Literature Review (SLR) follows the PRISMA writing criteria appropriate for various SLR analysis types, including integrative, qualitative, and quantitative research (Haddaway *et al.*, 2018). Searches for comparable publications in the database, including WoS, Scopus, and additional information through Google Scholar were part of the identification process. Previous publications on how aware independent smallholder farmers are to apply RSPO were snowballed using Google Scholar. The PRISMA guidelines were followed during the screening, eligibility, and quality appraisal processes (Shaffril *et al.*, 2020).

Table 1: RSPO Principle and Criteria (P&C)

RSPO Principle and Criteria (P&C)	
Principle 1	Openness
Principle 2	Compliance with relevant laws and regulations
Principle 3	Long-term economic and financial sustainability
Principle 4	Best and acceptable practices in plantations and mills
Principle 5	Environmental stewardship and biodiversity conservation
Principle 6	Responsibilities to staff, people, and communities from farms to factories
Principle 7	Responsibilities for the production of new plantation areas
Principle 8	Commitment to quality improvement in key operation areas

Source: Sylvia *et al.* (2022)

Note: RSPO Standard Principle will be revised every five years.

Even though PRISMA is unquestionably well suited for use in medical research, this study uses it as its main methodology because it is suitable for use in the context of social sciences research and allows for the specification of inclusion and exclusion criteria for a given study (Shaffril *et al.*, 2019; Page *et al.*, 2021). The checklist items also apply to mixed-methods systematic reviews because they consider quantitative and qualitative study methodologies (Page *et al.*, 2021).

Developing Research Questions

The awareness of oil palm-independent smallholder farmers to adopt the RSPO is the sole major focus of this SLR. Population, Interest, and Context (PICo) are some of the tools authors can use to develop research questions (Shaffril *et al.*, 2020). “P” stands for the population or people, the group or individual in focus, “I” stands for the interest to be studied, and “Co” stands for the context of the study. As a result, “P” stands for (independent smallholder farmers growing oil palm), “I” (awareness), and “Co” (the setting in countries that export oil palm).

The research topic is “What is the level of the awareness of oil palm independent smallholder farmers of the Roundtable on Sustainable Palm Oil (RSPO) implementation in oil palm exporter countries?”

Strategy for Systematic Search

The five main steps of the systematic search strategy are identification, screening, eligibility, quality appraisal, and data analysis as shown in Table 2.

Identification

The Web of Science and Scopus databases are searched using advanced searching, which uses standard operations like Boolean Operators (AND, OR), relevant particular terms, and essential functions to find articles and references. The method recommended by Shaffril *et al.* is used to create the search string based on the social context by Axelsson *et al.* (2013). As seen in Table 3, they advised looking for similar, associated keywords and variations that might include Malay and English-language concepts.

Table 2: Steps of the Systematic Literature Review (SLR) process

Strategy	Steps
Identification	Databases such as Web of Science (WoS), Scopus, and Google Scholar were used to identify records (<i>n</i> = 110)
Screening	Record screening based on the following criteria: (i) English and Malay languages (ii) Year 2013 to 2023 (iii) Empirical data (iv) Oil palm exporter countries (<i>n</i> = 106)
Eligibility	Eligibility record (<i>n</i> = 106) Record eliminated: (i) Duplicate (<i>n</i> = 45) (ii) Thesis (<i>n</i> = 6) (iii) Not related to awareness (<i>n</i> = 11)
Quality appraisal	Quality appraisal record (<i>n</i> = 44) Quality appraisal by experts (<i>n</i> = 44)
Record abstraction and analysis	SLR analysis record (<i>n</i> = 44)

Adapted from Shaffril *et al.* (2020) and Page *et al.* (2021).

Table 3: Query to search articles and references in the WoS, Scopus, and Google Scholar databases

Database	Search String
WoS	TS=((("kewaspadaan" OR "maklumat" OR "kenalan" OR "pengetahuan" OR "kesungguhan" OR "penghargaan" OR "persepsi" OR "perkenalan" OR "kesedaran" OR "perhatian" OR "keinsafan" OR "kehidupan" OR "kepekaan" OR "pengiktirafan" OR "ketakutan" OR "pencerahan" OR "perasaan" OR "pengalaman" OR "pemahaman" OR "perhatian" OR "keakraban" OR "alertness" OR "information" OR "acquaintance" OR "cognisance" OR "keenness" OR "appreciation" OR "perception" OR "acquaintanceship" OR "mindfulness" OR "attention" OR "realisation" OR "aliveness" OR "sensibility" OR "consciousness" OR "recognition" OR "apprehension" OR "enlightenment" OR "sentience" OR "experience" OR "understanding" OR "attentiveness" OR "familiarity")))) AND TS=((("pekebun kecil sawit" OR "pekebun kecil" OR "smallholder oil palm farmer*" OR "smallholder farmer*"))) AND TS=((("oil palm" OR "palm oil" OR "minyak sawit" OR "kelapa sawit" OR "sawit"))) AND TS=((("RSPO")))
Scopus	(TITLE-ABS-KEY(("kewaspadaan" OR "maklumat" OR "kenalan" OR "pengetahuan" OR "kesungguhan" OR "penghargaan" OR "persepsi" OR "perkenalan" OR "kesedaran" OR "perhatian" OR "keinsafan" OR "kehidupan" OR "kepekaan" OR "pengiktirafan" OR "ketakutan" OR "pencerahan" OR "perasaan" OR "pengalaman" OR "pemahaman" OR "perhatian" OR "keakraban" OR "alertness" OR "information" OR "acquaintance" OR "cognisance" OR "keenness" OR "appreciation" OR "perception" OR "acquaintanceship" OR "mindfulness" OR "attention" OR "realisation" OR "aliveness" OR "sensibility" OR "consciousness" OR "recognition" OR "apprehension" OR "enlightenment" OR "sentience" OR "experience" OR "understanding" OR "attentiveness" OR "familiarity")) AND TS=((("pekebun kecil sawit" OR "pekebun kecil" OR "smallholder oil palm farmer*" OR "smallholder farmer*"))) AND TS=((("oil palm" OR "palm oil" OR "minyak sawit" OR "kelapa sawit" OR "sawit"))) AND TS=((("RSPO")))
Google Scholar	Awareness OR "kesedaran" AND oil palm OR "kelapa sawit" AND independent smallholder OR "pekebun kecil bebas" AND RSPO

Screening

The researchers assessed 110 publications using the selection and exclusion criteria in Table 4. For quality control reasons, the first criterion is only defined for journal articles published in English and Malay. Papers published between 2013 and 2023 are included in the second set of requirements. 10 years period is suitable because OSPF’s societal concerns have reached maturity saturation within the allotted era, are diverse, and dynamic in the current decade.

The third criterion was to choose any studies that were not in the form of reviews, as the researchers conducted this SLR to analyse the studies’ findings. According to the following criterion, 110 papers comprised the 110 papers. The last criterion was only considering research done in oil palm exporter countries. There were 106 articles available for eligibility screening after four items were deleted during the screening step because the paper did not fall within the specified 10 years time frame.

Table 4: Screening criteria

Screening Criterion	Details
Publication type	Articles
Language type	English and Malay
Timeframe	10 years
Type of findings	Empirical data
Focus findings	Data related to the awareness of oil palm independent smallholder farmers in oil palm exporter countries

Eligibility

Currently, 106 articles have been deemed eligible and subsequently subjected to an additional round of screening to determine their suitability. Two reviewers conducted eligibility assessments to ensure they considered pertinent materials for the Systematic Literature Review (SLR) procedure. The titles and abstracts of each paper were examined for validation. If the title and abstract fail to provide adequate information for deciding, the reviewers may comprehensively examine the publication's methodology, findings, and discussion. The content is based on empirical evidence at this point. It is worth noting that the chosen theme revolved around promoting awareness and the early and full implementation of the Roundtable on Sustainable Palm Oil (RSPO). This process eliminated 62 articles, leaving only 44 for the quality appraisal process.

Quality Appraisal

Two reviewers assessed the quality of the papers using the Mixed-Method Appraisal Tool (MMAT) established by Hong *et al.* (2018). The MMAT offers a comprehensive framework for reviewers to assess articles and provides criteria for evaluating the quality of acquired papers, encompassing quantitative and qualitative methodologies. After this process, 44 journal papers were left over, all used in this study.

Results and Discussion

Background of the Selected Studies

There are 44 studies chosen, with one involving random areas (Shukla *et al.*, 2017), four in Thailand (Rodthong *et al.*, 2020; Inocenti & Ootsteveer, 2020; Rodthong *et al.*, 2023; Npueng *et al.*, 2023), two from Africa (Khatun *et al.*, 2020; Dugumu *et al.*, 2021), 11 from Malaysia (Nagiah & Azmi, 2013; Ibrahim *et al.*, 2018; Rahman, 2020; Aziz *et al.*, 2021; Rizal *et al.*, 2021; Samad *et al.*, 2021; Ali *et al.*, 2021; Sidique *et al.*, 2021; Tey *et al.*, 2022; Pahmi *et al.*, 2022; Enh *et al.*, 2022) while the remaining 26 are from Indonesia. Five studies applied the mixed mode method (Martens *et al.*, 2020; Watts *et al.*, 2021; Napitupulu *et al.*, 2021; Sidique *et al.*, 2021; Npueng *et al.*, 2023), seven applied quantitative methods (Ibrahim *et al.*, 2018; Abazue *et al.*, 2019; Inocenti & Ootsteveer, 2020; Rizal *et al.*, 2021; Devos *et al.*, 2021; Samad *et al.*, 2021; Tey *et al.*, 2022) while the remaining 32 used qualitative method, as shown in Table 5.

Figure 1 shows the year of publication; three studies were published in 2013 (Brandi *et al.*, 2013; Chalil, 2013; Nagiah & Azmi, 2013), two studies were published in 2015 (Brandi *et al.*, 2015; Hidayat *et al.*, 2015); four studies were published in 2017 (Jelsma *et al.*, 2017; Brandi *et al.*, 2017; Napitupulu *et al.*, 2017; Shukla *et al.*, 2017), five studies were published in 2018 (Ibrahim *et al.*, 2018; Pramudya *et al.*, 2018;

Table 5: Background of the selected studies

No.	Research	Study Area	Methods	Year of Publication
1	Rodthong <i>et al.</i>	Thailand	Qualitative	2023
2	Npueng <i>et al.</i>	Thailand	Mixed mode	2023
3	deVos <i>et al.</i>	Sumatra Kalimantan, Indonesia	Qualitative	2023
4	Sylvia <i>et al.</i>	Indonesia	Qualitative	2022
5	Tey <i>et al.</i>	West and East, Malaysia	Quantitative	2022
6	Rosyani <i>et al.</i>	Indonesia	Qualitative	2022
7	Ruswaji	Indonesia	Qualitative	2022
8	Pahmi <i>et al.</i>	Malaysia	Qualitative	2022
9	Enh <i>et al.</i>	Malaysia	Qualitative	2022
10	Oliphant and Simon	Indonesia	Qualitative	2022
11	Aziz <i>et al.</i>	Malaysia	Qualitative	2021
12	Rizal <i>et al.</i>	Malaysia	Quantitative	2021
13	Watts <i>et al.</i>	Seruyan, Kotawaringin Barat and Gunung Mas districts, Central Kalimantan, Indonesia	Mixed mode	2021
14	Napitupulu <i>et al.</i>	Jambi Province, Indonesia	Mix mode	2021
15	deVos <i>et al.</i>	Kotawaringin Barat districts and Seruyan districts, Central Kalimantan, Indonesia	Quantitative	2021
16	Samad, Harith and Mohamed	Negeri Sembilan, Malaysia	Quantitative	2021
17	Ichsan, Saputra and Permatasari	Jambi, Indonesia	Qualitative	2021
18	Bakhtary <i>et al.</i>	Indonesia	Qualitative	2021
19	Ali, Mohamed and Omar	Malaysia	Qualitative	2021
20	Sidique <i>et al.</i>	East Malaysia	Mixed mode	2021
21	Duguma <i>et al.</i>	Africa	Qualitative	2021
22	Martens <i>et al.</i>	Jambi, Indonesia	Mixed mode	2020
23	Rodthong <i>et al.</i>	Southern, Thailand	Qualitative	2020
24	Khatun <i>et al.</i>	Ghana, Africa	Qualitative	2020
25	Rahman	Malaysia	Qualitative	2020
26	Apriani <i>et al.</i>	Jambi, Indonesia	Qualitative	2020
27	Inocenti and Ootsteveer	Indonesia and Thailand	Quantitative	2020
28	Hutabarat <i>et al.</i>	Riau, Indonesia	Qualitative	2019
29	Heriyanto	Indonesia	Qualitative	2019

30	Abazue <i>et al.</i>	Indonesia	Quantitative	2019
31	Chalil and Barus	Sumatra, Indonesia	Qualitative	2018
32	Hutabarat <i>et al.</i>	Indonesia	Qualitative	2018
33	Meijaard <i>et al.</i>	Indonesia	Qualitative	2018
34	Pramudya, Prawoto and Hanifa	Indonesia	Qualitative	2018
35	Ibrahim, Awang and Manaf	Sarawak, Malaysia	Quantitative	2018
36	Shukla <i>et al.</i>	Random	Qualitative	2017
37	Napitupulu <i>et al.</i>	Jambi, Indonesia	Qualitative	2017
38	Brandi <i>et al.</i>	Indonesia	Qualitative	2017
39	Jelsma <i>et al.</i>	Riau, Indonesia	Qualitative	2017
40	Hidayat <i>et al.</i>	Indonesia	Qualitative	2015
41	Brandi <i>et al.</i>	Indonesia	Qualitative	2015
42	Nagiah and Azmi	Malaysia	Qualitative	2013
43	Chalil	North Sumatra, Indonesia	Qualitative	2013
44	Brandi <i>et al.</i>	Indonesia	Qualitative	2013

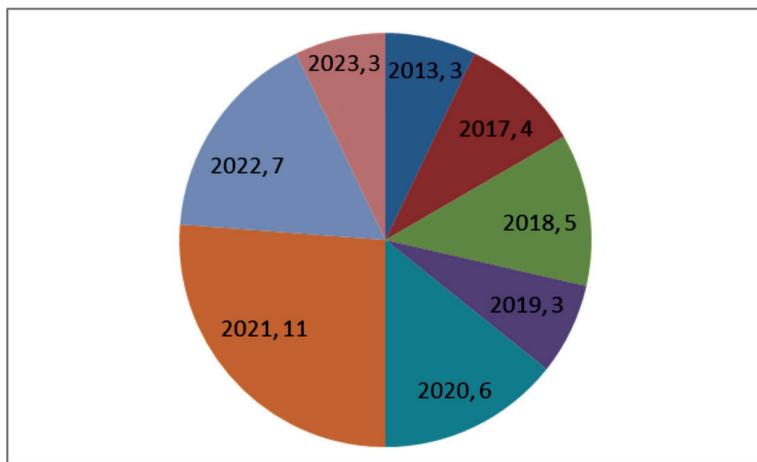


Figure 1: Selected studies based on year of publication

Meijaard *et al.*, 2018; Hutabarat *et al.*, 2018; Chalil & Barus, 2018); three were published in 2019 (Abazue *et al.*, 2019; Heriyanto, 2019; Hutabarat *et al.*, 2019); six studies were published in 2020 (Inocenti & Ootsteveer, 2020; Apriani *et al.*, 2020; Rahman, 2020; Khatun *et al.*, 2020; Rodthong *et al.*, 2020; Martens *et al.*, 2020) while the remaining 11 is published in

2021, seven is published in 2022, and three is published in 2023.

Of the 44 articles listed above, 23 are from the Google Scholar database, primarily focusing on the awareness of oil palm independent smallholder farmers to implement RSPO, 22 are from journals in the Scopus database, and the remaining 19 are from the WoS database.

Theme Formation – Awareness of RSPO, Started to Implement and Fully Implementation

Themes were developed for the 44 chosen articles using the thematic analysis method (Zaifalaila *et al.*, 2022). In response to the SLR study question “What are the levels of RSPO awareness among oil palm independent smallholder farmers from oil palm exporter countries?”, three themes were found. The RSPO was discussed and the themes were awareness, early adoption, and full implementation.

Awareness of RSPO among Oil Palm Independent Smallholder Farmers

At first, certifications were only issued to substantial producers. The RSPO started focusing more on farmer certification due to expanding plasma gardens, which continue to have declining yields. On the other hand, the RSPO membership has fewer representatives from producer countries than it once did (Hutabarat, 2017). Only 190 of the 4,941 members (including regular members, affiliates, and associations) as of November 2020 are palm oil producers. Due to the absence of Indonesia and Malaysia from the top 10 nations according to RSPO membership, there is scepticism (Ruswaji, 2022).

China and India

The RSPO certifies all palm growers, processors, and purchasers, who adhere to these requirements, making their products more marketable. Due to market pressure, additional producers, processors, and consumers are compelled to apply for RSPO certification, which entails meeting specific sustainability standards. Unfortunately, there are significant markets that do not require RSPO certification, including those in China and India (Oliphant & Simon, 2022). As a result, this market pressure is not always present. Consumers’ willingness to pay higher costs is a major factor in the certification program’s success (Wilcove & Koh, 2010). India and China, the two biggest buyers, do not require Certified Palm Oil (CPO) and are not ready to pay higher rates for it

(Ruswaji, 2022). However, China, through the 2020 Green Value Chain Policy Proposal and the 2022 Palm Oil Consumption Guideline and India, through the 2018 Sustainable Palm Oil Coalition for India (India-SPOC) are making efforts to ensure that imported palm oil adheres to high sustainability standards (Karza, 2022). This means that in the medium to long term, the demand for sustainable palm oil supply will increase and stricter regulations will be imposed on these two markets.

Early Adoption of RSPO among Oil Palm Independent Smallholder Farmers

Thailand

With a community of 412 smallholders spread across 2,767.33 hectares of planted land, Thailand is the first nation in the world to have independent smallholders who are RSPO (Roundtable on Sustainable Palm Oil) certified. Now that they can trade approximately 52,000 mt of certified sustainable Fresh Fruit Bundles (FFB), these independent smallholders will have the chance to produce roughly 10,000 mt of CSPO. Approximately 36 million metric tonnes of sustainable FFB can already be produced annually worldwide under RSPO certification (RSPO, 2012).

Low rates of RSPO implementation among oil palm estates pose a challenge for overall sustainable oil palm production, particularly in terms of the advantages to the environment. Even though large corporations like Unilever and Carrefour, along with the Netherlands and Belgium in Europe, want to only buy palm oil products with the 100% RSPO certificate by 2020 (Hutabarat *et al.*, 2018; Vogelgesang *et al.*, 2018), this only accounts for at most 40% of the overall market (Rodthong *et al.*, 2023). Palm oil processors in the USA and Europe only want certified palm oil (Oosterveer, 2015).

According to a study by Hutabarat *et al.* (2018) while RSPO certification increased sales revenue by up to 21%, the average cost of RSPO certification for the farm was 86 Euros/ha or 99 USD/ha, which resulted in the total net income/

ha working out at 8% less for the first year after certification. This situation may be the reason why so few independent smallholders are RSPO certified.

Indonesia

The use of RSPO certification standards is still relatively underutilised in Indonesia in terms of its development (Majid *et al.*, 2021). The preservation of sustainable palm oil production is beyond the scope of the certification system at this time. According to Hidayat *et al.* (2018), RSPO is unsuccessful at mitigating environmental effects. This situation demonstrates that the activities of the palm oil sector continue to pose significant environmental and social issues. Even some businesses believe that the RSPO is challenging to implement, that the standards are constantly changing, that the certification cost is high, particularly for independent smallholder farmers, and that the audit process is drawn out and would take a while (Ruswaji, 2022).

Small-scale independent farmers, referred to as “independent smallholders” in the following, make up a sizable and quickly expanding subset of palm oil smallholders in Indonesia and are mostly excluded from sustainability measures in the industry. One of the most important steps in creating a sustainable palm oil sector is interacting with this group of independent smallholders, as determined by Climate Focus calculations using BPS - Statistics Indonesia (Ali *et al.*, 2021).

Former scheme smallholders, the majority of whom are emigrants can be categorised as the majority of certified independent smallholder groupings. Former scheme smallholders have reasonably unambiguous land rights because they are situated on APL-designated land and obtained official titles after repaying loans. This result is generally consistent with earlier research that shows that smallholders of (former) schemes have better chances of certification because of their clear legal standing. 141,647 scheme smallholders and 23,460 independent smallholders (63 organisations, including 41 from Indonesia) have received RSPO

certification (RSPO.org, April 2022). Just 8% of the land used for smallholder production globally is RSPO-certified and despite being required, just 0.21% of Indonesia’s smallholders were ISPO-certified in 2021 (Soim, 2020; Dharmawan *et al.*, 2021). According to Abazue *et al.* (2019), the majority of Indonesian independent smallholders lack certification due to their ignorance of certifying agencies (RSPO/ISPO) or lack of understanding in general.

The RSPO establishes a new standard that is anticipated to be accepted by independent smallholder farmers in Indonesia to improve the implementation of sustainable palm oil schemes at their level. According to RSPO, the implementation method for certification will be as straightforward as possible to remove any barriers for farmers (Sylvia *et al.*, 2023). The Principles and Criteria (P&C) were also modified to fit the needs of independent farmers. They are not required to discuss issues like the burden of the administrative system, the social impact assessment, or the consequences of GHG. The provision of increased help for independent smallholders to achieve compliance and speedier and easier access to its benefits would follow (Sylvia *et al.*, 2023). In terms of financing availability and land legality, Indonesian palm oil farmers face obstacles to obtaining RSPO accreditation. In order to assist independent smallholders, the government must step in and coordinate funding from multiple sources, including the Palm Oil Plantation Fund Management Agency and other industries.

Independent smallholders’ motivation to participate in certification programs is a proactive risk-reduction strategy rather than a reactive one that could help smallholders overcome their current difficulties or increase sustainability. As a result, smallholders can get stronger and share information to comprehend the significance of the RSPO certificate (Rosyani *et al.*, 2022).

Malaysia

The Malaysian Palm Oil Board (MPOB), according to the New Straits Times, estimates that there are roughly 250,000 registered

smallholders in Malaysia and another 215,000 independent smallholders (Bernama, 25 August 2023). According to RSPO CEO, Joseph D' Cruz, within this figure, smallholder acceptance of the RSPO certification is still relatively low in Malaysia. Only six smallholder groups and 23 grower firms in Malaysia are currently RSPO certified. Even though large and mid-cap plantation firms have adopted RSPO standards, smallholder onboarding is still difficult because of structural problems like costs, skill requirements, and regulatory requirements, which remain a barrier to reaching certification standards. According to Rahman (2020), as of December 2019, there were 260,353 independent smallholder farmers, covering 0.99 million hectares (16.7%) of the total oil palm planted areas. 16.7% of all oil palm producers in Malaysia are independent smallholders, whose daily lives differ considerably from those of oil palm estates owned by giant corporations or plantations (MPOB, 2020). The distribution of independent oil palm farmers across Malaysia is depicted in the following graph.

In Peninsular Malaysia, Johor has the most independent smallholders per square km (Figure 2). According to a survey of independent smallholders in Johor (Ismail *et al.*, 2003), while costs were cheaper and revenues were higher than those of estate outputs, yields were poor,

and many smallholdings had mature crops and elderly owners.

In Johor, farmers frequently struggle with a lack of cash and people to undertake heavy labour, particularly since more and more local children choose to work in surrounding large cities rather than on family farms. While some resourceful people assist elderly landowners in running their farms, many still struggle to meet the new standards for sustainability certification; only 4.2% of Johor's independent smallholders are accredited by MSPO.

In addition, according to data on independent smallholders, only 33.6% of independent smallholders in Malaysia had the RSPO certification as of December 2020 (MPOCC, 2020). Despite the government's extensive efforts and regulations, which have lasted more than seven years, the number is relatively small (Rizal *et al.*, 2021).

Fully Implementation of RSPO among Oil Palm Independent Smallholder Farmers

Several palm oil processors have exclusively sought to acquire palm oil certified by the RSPO. According to Oosterveer's (2015) research, it has been observed that both the United States and Europe exhibit a preference for fully adopting certified palm oil. In addition,

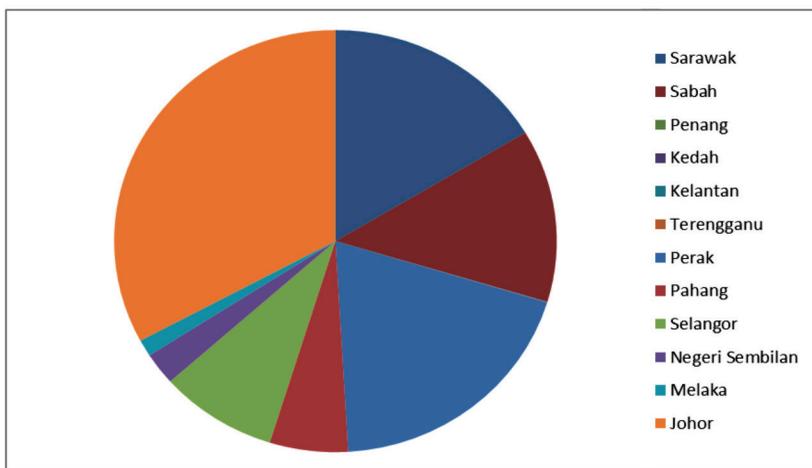


Figure 2: Malaysian oil palm independent smallholder farmers
Source: MPOB (2019)

it has been observed that European countries, including the Netherlands and Belgium, together with prominent corporations like Unilever and Carrefour have expressed their intention to exclusively purchase palm oil products that possess the 100% RSPO certification by the year 2020 (Hutabarat *et al.*, 2018; Vogelgesang *et al.*, 2018).

Surat Thani, Thailand

After Indonesia and Malaysia, Thailand is the third-largest palm oil producer worldwide. In 2012, Thailand became the first nation in the world to have four independent smallholder farmers' groups that were RSPO certified. Six provinces, including Surat Thani, Krabi, Chumphon, Nakhon Si Thammarat, Trang, and Chonburi, currently have over 80 certified smallholder groups. Thailand has given the world valuable lessons and great inspiration for creating smallholder groups worldwide by demonstrating how growing a palm industry with independent smallholder farmers at its centre is possible. Surat Thani, Thailand was already the appropriate location for the debut of its sustainable leadership, said Francisco Narajo, Technical Director at RSPO. Thailand's national sustainable palm oil model city is Surat Thani. Thousands of smallholders working to achieve 100% RSPO certification reside in the province (RSPO, 2023).

Sabah, Malaysia

According to the Malaysian Palm Oil Certification Council (MPOCC), approximately 95.6% or 1.44 million hectares of the land in Sabah, Malaysia has received official recognition as MSPO-certified. The RSPO reports that 425,882 hectares or 26% have already attained RSPO certification. By the year 2025, all of Sabah's oil palm plantations are expected to be fully certified by the RSPO, according to a report published by Bernama on 25 August 2023.

From the results and discussion, RSPO certification implementation among independent smallholders from oil palm exporter countries

such as Thailand, Malaysia, and Indonesia is still low. However, some states such as Surat Thani, Thailand, and Sabah, Malaysia are already focusing on fully implementing the RSPO certification. China and India are aware of the existence of RSPO certification. However, neither country requires Certified Palm Oil (CPO) and is not ready to pay higher rates for it. Independent smallholder farmers face several challenges in implementing RSPO.

From the independent smallholder farmers' perspectives, they do not feel their operations are transparent and are not regarded as significant participants in the governing process. Additionally, the RSPO accreditation process is quite pricey and necessitates numerous audits. For small farmers with two to four hectares of land, one auditor's visit costs roughly Rp100 to 150 million (US\$6,800 to 10,300). An RSPO certificate typically has a five years validity period, during which a major audit is conducted in the first year and an annual monitoring audit in the following years. This situation increases the burden.

Accordingly, the primary difficulties with palm oil certification are as follows: (1) RSPO certification is costly, but not necessarily reimbursed with a premium price. The margin value of certified palm oil and the cost of RSPO certification are not comparable (McCarthy, 2012). The RSPO mediation board is ineffective at resolving community complaints about RSPO principles and criteria violations. Certified growers' capacity to manage environmental and social impacts, including labour rights and forest and peatland protection is also questioned (Chalil & Barus, 2018). RSPO members should pay USD10 for each tonne of palm oil and will receive USD2 for certified palm oil on the market.

National certifications like Malaysia Sustainable Palm Oil were created to bridge the gaps left by the RSPO, which emphasises corporate businesses more (Pahmi *et al.*, 2022). Specific issues have been found, particularly the garden or land ownership without a legal land grant to certify independent smallholder farmers.

This situation concerns the land condition, including its temporary grant status, is messy or has been converted to oil palm crops (Pahmi *et al.*, 2022). This is because smallholders only handle their gardens in a few isolated regions around the nation or pay contractors to manage them, MPOB also has trouble contacting them (Pahmi *et al.*, 2022).

For RSPO certification, the landowner must produce a deed in their name or documents demonstrating that the person identified in the deed sold the property to them. Smallholders, who acquired land through an informal transfer, however, are unable to prove their legal title because those who sell their land and leave can be hard to find (Oliphant & Simon, 2022). Additionally, new palm oil plantings must adhere to the RSPO Procedures for New Plantings (NPP), which, among other things, mandates that the grower hire a company with a close relationship to them to complete a High Conservation Value Assessment (HCV). The RSPO does not typically cover the expense of this assessment. Thus, smallholders are responsible for it. Although major enterprises frequently have the means and cash necessary to adhere to the RSPO's SOP and NPP, the same cannot be valid for smallholders. Smallholder group managers can apply to the RSPO's Smallholder Support Fund (RSSF) to cover certification fees. However, the RSSF can only help a certain number of smallholders yearly (Oliphant & Simon, 2022).

In addition, among independent smallholder oil palm producers in Ghana, there is a significant knowledge and skill gap that prevents them from meeting the certification standards, which include using best practices, maintaining records, assessing High Conservation Value (HCV) approaches, and using digital mapping. The companies intended to employ new criteria established for independent smallholders to be certified in Ghana in order to manage the difficulties of certification processes. Additionally, there is a need to raise knowledge about the RSPO certification procedure and provide small farmer groups with more financial

and technical help so they can become certified (Rietberg & Slingerland, 2016).

Conclusions

This study aimed to investigate the level of RSPO implementation awareness among independent smallholder farmers. The study is founded on a thorough systematic literature review that focuses on understanding the context of awareness of RSPO among independent smallholder farmers. The research discusses the level of awareness towards three criteria, including (i) awareness of RSPO, (ii) early acceptance of RSPO, and (iii) complete implementation of RSPO based on the SLR that was conducted.

According to the research, RSPO accreditation is an effort to assure sustainable products and international trade. However, it is still not widely accepted, particularly among independent smallholder farmers in China and India. In nations like Surat Thani, Thailand and Sabah, Malaysia, independent smallholder farmers are already fully prepared to implement RSPO in the future. However, the level of implementation is relatively small, particularly in Thailand, Indonesia, and Malaysia, from the country perspectives. To ensure that the palm oil industry remains highly competitive and maintains stable market demand in the long term, using internationally recognised certifications like RSPO is the most widely accepted method. This helps ensure that the industry remains robust and its operations are not questioned, particularly at the supply chain level, by the international community, especially regarding environmental issues and the use of forced labour.

RSPO certification is currently accepted globally by the majority of palm oil producers and suppliers as a guarantee of sustainability in palm oil-based products. RSPO also offers a competitive advantage by differentiating products in the market, enhancing brand value, and aligning exporter countries with global expectations, thereby improving their

reputation as responsible producers. In the meantime, government-mandatory sustainability certifications such as MSPO and ISPO need to be strengthened in their implementation until these certifications are recognised by international markets and accepted as guarantees that the palm oil produced is sustainable. Future research advised gathering information directly from respondents in oil palm exporting countries to perform an awareness survey of RSPO among independent smallholder farmers.

Acknowledgements

The authors gratefully acknowledge the support provided by the Asia School of Business in collaboration with Universiti Tun Hussein Onn Malaysia. This study was made possible through the funding and resources offered by the P&G Smallholder Programme and Responsible Sourcing of Palm Policy. Their commitment to advancing research in sustainable agriculture and responsible sourcing has been invaluable to the success of this project.

Conflict of Interest Statement

The authors declare that they have no conflict of interest.

References

- Abazue, C. M., Choy, E. A., & Lydon, N. (2019). Oil palm smallholders and certification: Exploring the knowledge level of independent oil palm smallholders to certification. *Journal of Bioscience and Agriculture Research*, 19(01), 1589-1596.
- Ali, A. N., Mohamed, M. N. A. B., & Omar, S. S. B. (2021). Sustainability certification in oil palm industry: Issues and challenges for independent smallholder farmers in Malaysia. *Asia Proceedings of Social Sciences*, 7(2), 131-134.
- Apriani, E., Kim, Y. S., Fisher, L. A., & Baral, H. (2020). Non-state certification of smallholders for sustainable palm oil in Sumatra, Indonesia. *Land Use Policy*, 99, 105112.
- Axelsson, R., Angelstam, P., Degerman, E., Teitelbaum, S., Andersson, K., Elbakidze, M., & Drotz, M. K. (2013). Social and cultural sustainability: Criteria, indicators, verifier variables for measurement and maps for visualisation to support planning. *Ambio*, 42, 215-228.
- Aziz, N. F., Chamhuri, N., & Batt, P. J. (2021). Barriers and benefits arising from the adoption of sustainable certification for smallholder oil palm producers in Malaysia: A systematic review of literature. *Sustainability*, 13(18), 10009.
- Bakhtary, H., Haupt, F., Luttrell, C., Landholm, D., & Jelsma, I. (2021). Promoting sustainable oil palm production by independent smallholders in Indonesia.
- Bernamea. (2023, August 25). RSPO helps smallholders market sustainable Palm Oil to the global market. *New Straits Times*. <https://www.nst.com.my/news/nation/2023/08/947105/rspo-helps-smallholders-market-sustainable-palm-oil-global-marketII>
- Brandi, C. A. (2017). Sustainability standards and sustainable development–synergies and trade-offs of transnational governance. *Sustainable Development*, 25(1), 25-34.
- Brandi, C., Cabani, T., Hosang, C., Schirmbeck, S., Westermann, L., & Wiese, H. (2013). *Sustainability certification in the Indonesian palm oil sector: Benefits and challenges for smallholders* (No. 74). Studies.
- Brandi, C., Cabani, T., Hosang, C., Schirmbeck, S., Westermann, L., & Wiese, H. (2015). Sustainability standards for palm oil: Challenges for smallholder certification under the RSPO. *The Journal of Environment & Development*, 24(3), 292-314.
- Chalil, D. (2013). Assessment of smallholders' barriers to adopt sustainable practices: Case study on oil palm (*Elaeis Guineensis*)

- smallholders' certification in North Sumatra, Indonesia. In *Cases on the diffusion and adoption of sustainable development practices* (pp. 439-467). IGI Global.
- Chalil, D., & Barus, R. (2018). Analysis of smallholders' progress in implementing sustainable management in North Sumatra, Indonesia. *Indonesian Journal of Agricultural Research*, 1(3), 246-259.
- de Vos, R. D., Suwarno, A., Slingerland, M., & van der Meer, P. J. (2021). Independent oil palm smallholder management practices and yields.
- de Vos, R. E., Suwarno, A., Slingerland, M., van der Meer, P. J., & Lucey, J. M. (2023). Pre-certification conditions of independent oil palm smallholders in Indonesia. Assessing prospects for RSPO certification. *Land Use Policy*, 130, 106660.
- Dharmawan, A. H., Mardiyarningsih, D. I., Rahmadian, F., Yulian, B. E., Komarudin, H., Pacheco, P., Ghaziel, J., & Amalia, R. (2021). The agrarian, structural and cultural constraints of smallholders' readiness for sustainability standards implementation: The case of Indonesian sustainable palm oil in East Kalimantan. *Sustainability*, 13(5), 2611. <https://doi.org/10.3390/su13052611>
- Duguma, L. A., Muthee, K., Minang, P. A., van Noordwijk, M., Duba, D., Bah, A., Piabuo, S. M., & Wainaina, P. (2021). The palm oil sector in Africa: The dynamics, challenges and pathways to sustainability. In Minang, P. A., Duguma, L. A., & van Noordwijk, M. (Eds.), *Tree commodities and resilient green economies in Africa*.
- Enh, A. M., Bustami, M. K., Mustafa, H., Mokhtar, M. S., & Ashri, N. S. M. (2022). Isu sawit Malaysia dalam Laporan Akhbar Kesatuan Eropah. *Jurnal Komunikasi: Malaysian Journal of Communication*, 38(1), 118-142.
- Haddaway, N. R., Macura, B., Whaley, P., & Pullin, A. S. (2018). ROSES reporting standards for systematic evidence syntheses: Pro forma, flow-diagram and descriptive summary of the plan and conduct of environmental systematic reviews and systematic maps. *Environmental Evidence*, 7, 1-8.
- Heriyanto, H. (2019). Konsribusi kelapa sawit dalam pembangunan berkelanjutan.
- Hidayat, K. N., Glasbergen, P., & Offermans, A. (2015). Sustainability certification and palm oil smallholders' livelihood: A comparison between scheme smallholders and independent smallholders in Indonesia. *International Food and Agribusiness Management Review*, 18(1030-2016-83041), 25-48.
- Hidayat, N. K., Offermans, A., & Glasbergen, P. (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, 223-242.
- Hong, Q. N., Gonzalez-Reyes, A., & Pluye, P. (2018). Improving the usefulness of a tool for appraising the quality of qualitative, quantitative and mixed methods studies, the Mixed Methods Appraisal Tool (MMAT). *Journal of Evaluation in Clinical Practice*, 24(3), 459-467.
- Hospes, O., Kroeze, C., Oosterveer, P., Schouten, G., & Slingerland, M. (2017). New generation of knowledge: Towards an inter-and transdisciplinary framework for sustainable pathways of palm oil production. *NJAS-Wageningen Journal of Life Sciences*, 80, 75-84.
- Hutabarat, S., Slingerland, M., & Dries, L. (2019). Explaining the "certification gap" for different types of oil palm smallholders in Riau Province, Indonesia. *The Journal of Environment and Development*, 28(3), 253-281.
- Hutabarat, S., Slingerland, M., Rietberg, P., & Dries, L. (2018). Costs and benefits of certification of independent oil palm smallholders in Indonesia. *International*

- Food and Agribusiness Management Review*, 21(6), 681-700.
- Ibrahim, I., & Manaf, A. A. (2018). Persepsi perkhidmatan pengembangan dan amalan pertanian baik pekebun kecil sawit persendirian. *e-Bangi*, 13(3), 68-83.
- Ichsan, M., Saputra, W., & Permatasari, A. (2021). Pekebun sawit di ujung tanduk: Mengapa kemitraan usaha perlu didefinisikan ulang. *Information Brief*, 1-12.
- Innocenti, E., & Oosterveer, P. (2020). Opportunities and bottlenecks for upstream learning within RSPO certified palm oil value chains: A comparative analysis between Indonesia and Thailand. *Journal of Rural Studies*, 78, 426-437.
- Ismail, A., Simeh, M. A., & Noor, M. M. (2003). The production cost of oil palm fresh fruit bunches: The case of independent smallholders in Johor. *Oil Palm Industry Economic Journal*, 3(1), 1-7.
- Jelsma, I., Schoneveld, G. C., Zoomers, A., & Van Westen, A. C. M. (2017). Unpacking Indonesia's independent oil palm smallholders: An actor-disaggregated approach to identifying environmental and social performance challenges. *Land Use Policy*, 69, 281-297.
- Karyza, D. (2022). Palm oil producers unconcerned as China, India move towards sustainability. Published in pwc on 11 November 2022. Retrieved October 28, 2023, from <https://www.pwc.com/id/en/pwc-publications/industries-publications/consumer-and-industrial-products-and-services/plantation-highlights/november-2022/palm-oilproducers-unconcerned-as-china-india-move-toward-sustainability.html>
- Khatun, K., Maguire-Rajpaul, V. A., Asante, E. A., & McDermott, C. L. (2020). From agroforestry to agroindustry: Smallholder access to benefits from oil palm in Ghana and the implications for sustainability certification. *Frontiers in Sustainable Food Systems*, 4, 29.
- Majid, N., Ramli, Z., Md Sum, S., & Awang, A. H. (2021). Sustainable palm oil certification scheme frameworks and impacts: A systematic literature review. *Sustainability*, 13(6), 3263.
- Mansor, N., Abdullah, W. A., & Bahari, A. (2018). Palm oil sustainability certification and firm performance: Is there a conflict between RSPO and MSPO? *The European Business and Management Conference*.
- Martens, K., Kunz, Y., Rosyani, I., & Faust, H. (2020). Environmental governance meets reality: A micro-scale perspective on sustainability certification schemes for oil palm smallholders in Jambi, Sumatra. *Society & Natural Resources*, 33(5), 634-650.
- McCarthy, J. F. (2012). Certifying in contested spaces: Private regulation in Indonesian forestry and palm oil. *Third World Quarterly*, 33(10), 1871-1888.
- Meijaard, E., Garcia-Ulloa, J., Sheil, D., Wich, S. A., Carlson, K. M., Juffe-Bignoli, D., & Brooks, T. (2018). Kelapa sawit dan keanekaragaman hayati. *Analisis Situasi oleh Satuan Tugas Kelapa Sawit IUCN. IUCN, Gland. Swiss*.
- Michida, E. (2023). Effectiveness of Self-Regulating Sustainability Standards for the Palm Oil Industry. ERIA Discussion Paper Series No 476. 1-57.
- MPOCC (2020). *MSPO Certified Area and Mills*. Putrajaya.
- Nadras, S., Mazlan, R., Hussain, H., & Shah, I. M. (2024). The European Union Deforestation-Free Regulation (EUDR): Assessing impacts and strategies for Malaysian and the global palm oil industry. *Journal of Sustainability Science and Management*, 19(2024), 54-74.
- Nagiah, C., & Azmi, R. (2013). A review of smallholder oil palm production:

- Challenges and opportunities for enhancing sustainability-a Malaysian perspective. *Journal of Oil Palm, Environment and Health (JOPEH)*, 3.
- Napitupulu, D. M., HD, E., & Rafiq, R. (2017). RSPO Certification Impacts on Oil Palm Smallholders' Welfare in Jambi Province.
- Napitupulu, D. M. T., Alamsyah, Z., Ernawati, H., Yanita, M., Elwamendri, E., & Fauzia, G. (2021, June). Impact of oil palm plantation on household welfare in Jambi Province. In *IOP Conference Series: Earth and Environmental Science* (Vol. 782, No. 3, p. 032056). IOP Publishing.
- Npueng, S., Oosterveer, P., & Mol, A. P. (2023). Global and local sustainable certification systems: Factors influencing RSPO and Thai-GAP adoption by oil palm smallholder farmers in Thailand. *Environment, Development and Sustainability*, 25(7), 6337-6362.
- Oliphant, E., & Simon, A. C. (2022). The cost of sustainable palm oil: Should an Indonesian smallholder pursue RSPO-certification? *World Development Perspectives*, 26, 100432.
- Oliphant, O., & Simon, A. C. (2022). The cost of sustainable palm oil: Should an Indonesian smallholder pursue RSPO-certification? *World Development Perspective*, 26(2022), 1-14.
- Oosterveer, P. (2015). Promoting sustainable palm oil: Viewed from a global networks and flows perspective. *Journal of Cleaner Production*, 107, 146-153.
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., McGuinness, L. A., Stewart, L., A., Thomas, J., Tricco, A. C., Welch, V. A., Whiting, P., & Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *International Journal of Surgery*, 88, 105906.
- Pahmi, A. H. B. C., Choy, E. A., Rahmi, A. A. B., & Jamean, E. S. B. (2022). Isu dan cabaran sektor huluan dan hiliran industri sawit. *e-Bangi Journal*, 19(3).
- Pramudya, E. P., Prawoto, A., & Hanifa, R. (2015). *Menghijaukan sektor sawit melalui petani: Lesson-learned hivos untuk isu sawit berkelanjutan*. Hivos.
- Rahman, S. (2020). Malaysian independent oil palm smallholders and their struggle to survive 2020.
- Rietberg, P. I., & Slingerland, M. A. (2016). Cost and benefits of RSPO certification for independent smallholders: A science for policy paper for the RSPO.
- Rizal, A. R., Md Nordin, S., Hussin, S. H., & Hussin, S. R. (2021). Beyond rational choice theory: Multifaceted determinants of participation in palm oil sustainable certification amongst smallholders in Malaysia. *Frontiers in Sustainable Food Systems*, 5, 638296.
- Rizal, A. R. A., & Nordin, S. M. (2022). Smallholders participation in sustainable certification: The mediating impact of deliberative communication and responsible leadership. *Frontiers in Psychology*, 13(978993), 1-12.
- Rodthong, W., Kuwornu, J. K., Datta, A., Anal, A. K., & Tsusaka, T. W. (2020). Factors influencing the intensity of adoption of the roundtable on sustainable palm oil practices by smallholder farmers in Thailand. *Environmental Management*, 66, 377-394.
- Rodthong, W., Kuwornu, J. K., Datta, A., Anal, A. K., & Tsusaka, T. W. (2023). Farmers' perceptions and likelihood of adoption of the roundtable on sustainable palm oil practices in Thailand. *Environmental Development*, 47, 100883.

- Rosyani, Zemp, D. C., Irawan, B., & Nizori, A. (2022, December). Independent smallholders farmers group sustain biodiversity, social and economy after a roundtable on sustainable palm oil certification: Case study sites in Jambi Province, Indonesia. In *IOP Conference Series: Earth and Environmental Science* (Vol. 1111, No. 1, p. 012044). IOP Publishing.
- RSPO. (2012). *First Independent Smallholders in the World to Be RSPO Certified*. http://www.rspo.org/news_details.php?nid%4126
- RSPO. (2017). *RSPO Smallholder Strategy*. Kuala Lumpur.
- RSPO. (2018). *Public Consultation - RSPO Smallholder Standard*. Kuala Lumpur.
- RSPO. (2023). *Homepage*. Retrieved June 7, 2023, from <https://rspo.org/>
- RSPO. (2023). *Standards Review 2022-2023*. <https://rspo.org/as-an-organisation/our-standards/standards-review-2022-2023/>
- Ruswaji, O. (2022). Konsep teoritis roundtable on sustainable palm oil dan Indonesian sustainable palm oil. *Wawasan Bisnis*, 47.
- Saadun, N., Lim, E. A. L., Esa, S. M., Ngu, F., Awang, F., Gimin, A., & Azhar, B. (2018). Socio-ecological perspectives of engaging smallholders in environmental-friendly palm oil certification schemes. *Land Use Policy*, 72, 333-340.
- Samat, Z., Harith, N. H., & Mohammed, N. (2021). Menilai kelestarian pekebun kecil kelapa sawit: Satu kajian di FELDA Wilayah Raja Alias, Jempol, Negeri Sembilan.
- Saswattecha, K., Kroeze, C., Jawjit, W., & Hein, L. (2015). Assessing the environmental impact of palm oil produced in Thailand. *Journal of Cleaner Production*, 100, 150-169.
- Shaffril, H. A. M., Ahmad, N., Samsuddin, S. F., Samah, A. A., & Hamdan, M. E. (2020). Systematic literature review on adaptation towards climate change impacts among indigenous people in the Asia Pacific regions. *Journal of Cleaner Production*, 258, 120595.
- Shaffril, H. A. M., Krauss, S. E., & Samsuddin, S. F. (2018). A systematic review on Asian's farmers' adaptation practices towards climate change. *Science of the Total Environment*, 644, 683-695.
- Shaffril, H. A. M., Samah, A. A., Samsuddin, S. F., & Ali, Z. (2019). Mirror-mirror on the wall, what climate change adaptation strategies are practiced by the Asian's fishermen of all? *Journal of Cleaner Production*, 232, 104-117.
- Shukla, M., & Tiwari, M. K. (2017). Big-data analytics framework for incorporating smallholders in sustainable palm oil production. *Production Planning & Control*, 28(16), 1365-1377.
- Sidique, F. S., Sheng, T. Y., Djama, M., Mohd, C. K. A. R. C. K., Sadili, D. R., & Zainalabidin, S. M. (2021). The impacts of RSPO on the livelihoods of smallholders: Case studies from east Malaysia.
- Siti-Dina, R. P., Er, A. C., & Cheah, W. Y. (2023). Social issues and challenges among oil palm smallholder farmers in Malaysia: Systematic literature review. *Sustainability*, 15(4), 3123.
- Soda, R., & Kato, Y. (2020). The impacts of RSPO Certification on oil palm smallholdings in Sarawak. In Ishikawa, N., & Soda, R. (Eds.), *Anthropogenic tropical forests. Advances in Asian Human-Environmental Research* (pp. 337-356). Singapore: Springer.
- Soim, A. (2020). 'Pemerintah patut bantu petani sawit dapatkan sertifikat ISPO'. Published in Tabloid Sinarani on 16-08-2020. Retrieved October 28, 2023, from [https://tabloidsinarani.com/detail//indeks/kebun/14090-Pemerintah-Patut-Bantu-Petani-Sawit-Dapatkan\[1\]Sertifikat-ISPO](https://tabloidsinarani.com/detail//indeks/kebun/14090-Pemerintah-Patut-Bantu-Petani-Sawit-Dapatkan[1]Sertifikat-ISPO)
- Sutton, K., & Buang, A. (1995). A new role for Malaysia's FELDA: From land settlement agency to plantation company. *Geography*, 125-137.

- Sylvia, N., Rinaldi, W., Muslim, A., & Husin, H. (2022). Challenges and possibilities of implementing a sustainable palm oil industry in Indonesia. In *IOP Conference Series: Earth and Environmental Science* (Vol. 969, No. 1, p. 012011). IOP Publishing.
- Tey, Y. S., Brindal, M., Hadi, A. H. I. A., & Darham, S. (2022). Financial costs and benefits of the roundtable on sustainable palm oil certification among independent smallholders: A probabilistic view of the Monte Carlo approach. *Sustainable Production and Consumption*, 30, 377-386.
- Vogelgesang, F., Kumar, U., & Sundram, K. (2018). Building a sustainable future together: Malaysian palm oil and European consumption. *Journal of Oil Palm, Environment & Health*, 9, 1-49.
- Watts, J. D., Pasaribu, K., Irawan, S., Tacconi, L., Martanila, H., Wiratama, C. G. W., Musthofa, F. K., Sugiarto, B. S., & Manvi, U. P. (2021). Challenges faced by smallholders in achieving sustainable palm oil certification in Indonesia. *World Development*, 146, 105565.
- Wilcove, D. S., & Koh, L. P. (2010). Addressing the threats to biodiversity from oil-palm agriculture. *Biodiversity and Conservation*, 19, 999-1007.
- Zaifalaila, Z., Abdul, R. A. R., & Zaki, A. (2022). The future of oil palm smallholders toward greater sustainability: A systematic literature review. *Pertanika Journal of Social Science and Humanities*, 30, 283-306.