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The Participation of the Young Generation as Palm Oil Farmers in Good Practices of Sustainable Palm Oil Plantations in North Sumatra and Aceh

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Abstract:

In this study, it was found that the younger generation plays an important role in the management of palm oil plantations to assist in the inclusivity of sustainable development through positive palm oil campaigns. The urgency of involving the younger generation is necessary to face sustainability challenges. Although sustainability is a primary focus in the palm oil industry, the involvement of the younger generation in the management of plantations is still limited. This research aims to understand the involvement and perceptions of the younger generation as oil palm farmers in the good practices of sustainable oil palm plantations. The implementation of research in the provinces of North Sumatra and Aceh. The research sample consisted of 384 oil palm farmers. The research method is a case study with descriptive qualitative data analysis techniques using SPSS Version 22. The analysis results show that only 37,24% of palm oil farmers are young, under 45 years old, while more than 62,76%, are involved in good palm oil plantation practices, >45 years old. Their perception is also known to fall into the category of poor (score of 54) regarding good practices in palm oil plantations. The main issue is the unfavourable demographic structural changes for the agricultural sector, where the number of elderly farmers (over 55 years old) is increasing, while the workforce of young people is decreasing. The phenomenon of aging farmers and the declining interest of young labor in the agricultural sector is becoming more pronounced.

Keywords: *Good Practices, Oil Palm Plantations, Sustainable, Young Generation*

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1. Introduction

Oil palm plantations located in Indonesia consist of several types based on the size of the land. Companies with land area of less than 25 hectares (ha) are owned by the community and are known as smallholders (40,49%). There are also medium and large-scale companies. (Colchester & et al., 2007) (Investmen, 2024)

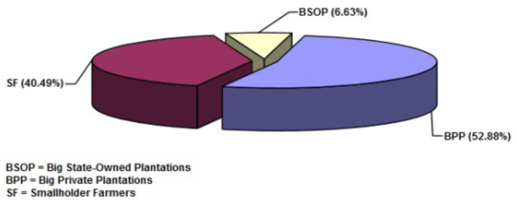


Figure 1. Who Own the Palm Oil Plantations in Indonesia?

The world community has recently become interested in Indonesia's palm oil sector due to its rapid growth, which has altered the worldwide rivalry for vegetable oil, as well as a host of associated social, economic, and environmental challenges. The palm oil business in Indonesia has a lengthy history, dating back to the colonial era. Millions of Indonesians are employed by the oil palm plantation and processing sector, which is vital to the nation's economy. Palm oil exports are a significant source of foreign cash earnings. When it comes to agriculture, Indonesia's most significant industry is palm oil, which accounts for 1.5–2.5 percent of the GDP of the country. Sumatra, where the industry was founded during Dutch colonial times, is home to over 70% of Indonesia's oil palm plantations. (Investmen, 2024) Aceh is one of the first oil palm plantation development areas in Sumatra together with North Sumatra. In terms of geography, Riau (Sumatra) is the leading palm oil producer in Indonesia, followed by North Sumatra, Central Kalimantan, South Sumatra, and West Kalimantan. In the Dutch Colonial period or in 1911 M. Andrian Hallet, a Belgian agronomist, had planted an oil palm plantation in the Liput River in East Aceh(E et al., 2015)

The development of palm oil plantations in Indonesia has had both positive and negative impacts on society. In the regions that are centers for the development of palm oil plantations, such as South Sumatra and Aceh has a various campaign against palm oil plantations worldwide, particularly in Indonesia, have been initiated by taking advantage of social, economic, and environmental difficulties. Numerous social, economic, and environmental problems associated with the growth of the palm oil sector in Indonesia. On the other hand, the development of palm oil in several areas has had a negative impact on the lives of people in Indonesia because it is not carried out sustainably. A greater effort is being made to make the industry more sustainable in response to criticism of the sector from human rights and environmental organizations. RSPO states that this is applicable to palm oils that are produced with the intention of "protecting the environment and wildlife" or "safeguarding social interests, communities, and workers" in addition to increasing the availability of food. The demand needs to be responded to positively through the implementation of ISPO and RSPO standards in palm oil plantations (Ngadi & Noveria,2017)

Independent smallholders are the most vulnerable farmers and face many challenges in being included in the palm oil supply chain. (Rosnita et al., 2022) also state that independent palm oil farmers perceive themselves as less capable of implementing the four ISPO principles, thus requiring support from relevant parties to provide non-formal training so that farmers can develop the ability to apply the ISPO Principles. The adoption of ISPO certification depends on the farmers' knowledge of cultivation practices, the legality of plantation businesses, household income, and the size of land ownership. (Hadi & Baskaran, 2021)

The younger generation represents a significant human resource potential that can support the sustainability of plantations and the palm oil industry. The youth, as agents of change supported by technological advancements, should be able to assist the government in positive campaigns to convince the wider community that Indonesian palm oil is beneficial. The younger generation has a great interest and potential to contribute to sustainable practices, but they are often limited by access to and understanding of those practices. There is an urgency for the involvement of the younger generation with new perspectives, energy, and innovation needed to face sustainability challenges. Although sustainability is a primary focus in the palm oil industry, the involvement of the younger generation in plantation management is still limited. Many of them have not been actively involved in the decision-making process and the implementation of sustainable management practices. Theory of Planned Behavior ((Ajzen, 1991)), behavior is influenced by attitudes, subjective norms, and perceived behavioral control. In the context of sustainability, the theory helps explain why youth may not engage in sustainable palm oil practices if they lack awareness, peer support, or feel that their actions will not make a significant difference. ((Vesalo & Vinnari, 2020)), explores young people's perceptions of business responsibility about sustainability matters. Considering the controversies associated with palm oil production, young involvement in CSR activities may represent a crucial area for development. ((Leijten et al., 2021) et al., 2021) identifies the role of education in promoting sustainable palm oil practices. It points out that a lack of targeted education for youth can lead to limited engagement in sustainability efforts. Youth participation in sustainable palm oil practices is an important area for further research

The provinces of North Sumatra and Aceh, with their vast palm oil plantations, indicate significant involvement of smallholder palm oil farmers contributing to the economic growth of the region. This situation also suggests that palm oil farmers in this area are highly productive, raising the question of who these farmers are, or in other words, whether the region has young palm oil farmers who fall into the productive category. According to Grobler (Shereni et al., 2020) society undergoes social and economic changes over time, which results in shifts in values and perspectives. Therefore, it is necessary to study and understand the perceptions of society in order to design a strategy. In addition, the low social awareness of the community poses a challenge to sustainable agricultural development itself. (Tseng et al., 2019) This research aims to identify the involvement and how the perceptions of young oil palm farmers regarding good practices in sustainable oil palm plantations

2. Theoretical Background

Perception: Perception in psychology relates to the interaction between sensory information such as sight, hearing, touch, and the brain. Perception is the result of a process of organizing and interpreting stimuli received by the senses, allowing the individual to understand those stimuli. Self-perception is influenced by internal as well as external aspects. The internal aspects consist of intelligence, attention, emotions, learning, and sensory capacity. Conversely, the external aspects consist of groups, past experiences, and socio-cultural background (Sudarma & Widyantara, 2016; Sudirman et al., 2020; Virianita et al., 2019)

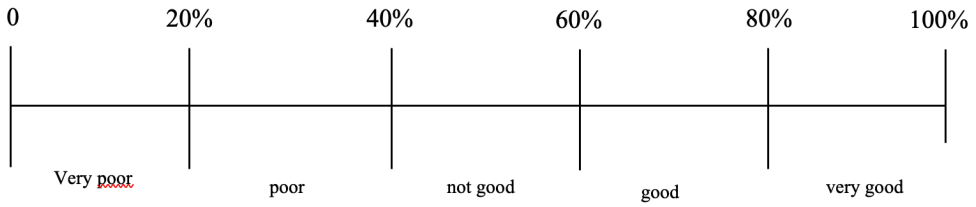
Sustainability: According to (Nurmalina, 2017) sustainability in agriculture, it is simply defined as a condition of food security over time. The principle of sustainability is the economic and social development of society that must not exceed the carrying capacity of the environment and resources, as well as the combination of current and future needs. Sustainable agriculture not only plays a role in increasing or maintaining productivity and aggregate production over time, but it must also be capable of protecting and preserving agricultural resources for long-term economic growth. Essentially, sustainable agriculture is aimed at creating equitable development between the present and the future (Qur'an, 2018). In its implementation, the real challenge of agriculture is to continuously maximize production while minimizing environmental damage, conserving natural resources, and reducing poverty, hunger, and malnutrition (Syuaib, 2016). The success of sustainable agriculture can be achieved if the community is involved.

3. Methodology

This research uses a case study method because it involves direct observation of the object at the research location, adhering to specific time standards and the phenomena encountered at the research site, which may not necessarily be the same as in other areas. The research was conducted from June to September 2024. The research was conducted in North Sumatra Province in the locations of North Labuhan Batu Regency (which includes the villages of Marbau, Aek Natas, Kualuh Hilir, Kualuh Hulu, and Aek Kuo), Asahan Regency (which includes the villages of Bandar Pulau, Mandoge, Aek Kuasan, Pulau Rakyat, and Tinggi Raja), and Langkat Regency. (Desa Rumah Galuh dan Desa Gunung Ambat). The research population consists of independent smallholder oil palm farmers whose exact number cannot be determined. Therefore, the sample was determined using the Lemeshow (Riyanto & Hermawan, 2020)formula with a 5% margin of error, totaling 384 individuals. The sample used is a saturated sample consisting of 384 people who were all made respondents. The sampling technique employed is random sampling, chosen randomly in this research location, which is an area centered on smallholder oil palm plantations. The data used is primary data collected through a questionnaire distributed to oil palm farmers as research respondents. Another source of data is secondary data obtained from local government (village heads) to gather additional information supporting the primary data, as well as literature related to this research. The data analysis technique using

qualitative descriptive methods aims to provide clear and in-depth information supported by theory and previous research. The data obtained was processed using SPSS version 22 to identify the level of participation of the younger generation as oil palm farmers in good practices and their perceptions of good practices in sustainable oil palm plantations. The data analysis used is descriptive analysis, analyzed using the Likert scale, as stated by (Riduwan, 2008) in the book "Formulas and Data in Statistical Analysis" as follows:

$$\text{Farmers'Perception Level} = \frac{Total\ Score\ from\ Data\ Collection\ Results}{Ideal\ Score\ Amount\ (highes\ score)} x100\%$$



Explanation:
Criteria for score interpretation
The range of 0%-20% = Very poor
The range of 21%-40% = Poor
The range of 41%-60% = Not good.
A score of 61%-80% = Good
Scores of 81%-100% = Very good

4. Empirical Findings/Result

Instrument Test

Validity test

Based on the results of the validity test using SPSS, it was found that all indicators that constitute the participatory management variable in the good practices of sustainable palm oil plantations are declared valid or are assessed to accurately measure each of the research variables, as the calculated r value for each variable meets the standard construct validity value of 0 > 0.30

Reliability Test

Next, after the validity test, a reliability test is conducted to assess the level of trust in the indicators of each variable to measure the research variable they represent. Below are the results of the reliability test using SPSS, which can be seen in Table 3.

Table 1. Reliability Test Results

Variable	Reliability Value	Standard	Information
Participation level	0,948	0,6	Reliable
Initiation of the participation process	0,947		Reliable
Control	0,947		Reliable
The strength to achieve goals	0,946		Reliable
The role of practitioners/experts	0,948		Reliable
Stakeholder	0,948		Reliable
Commitment	0,947		Reliable
Ownership	0,948		Reliable
Confidence in facing risks up to decision-making	0,947		Reliable

Source: 2024 processed original data

Based on the results of the reliability test using SPSS, the data presented in Table 3 shows that all indicators that constitute the participatory management variable are deemed reliable, meaning they are trusted to accurately measure all the represented variables. It can be seen that the alpha values for all items are greater than 0.60.

Analysis of Participation and Level of Perception

The identification obtained from this research indicates that the involvement of the younger generation in oil palm plantation practices is still very limited.

Table 2. The Involvement of Young Farmers in Palm Oil Plantations

Kategori	Frekuensi	Persentase (%)
25 – 35 years old	31	8,07
36 – 45 years old	143	37,24
>45 tahun	210	54,69
Total	**384**	**100**

This data shows that in the research location, which is known to have the largest area of oil palm plantations in North Sumatra and Aceh, the adult oil palm farmers aged over 45 years make up more than 50% of the respondents, totaling 210 individuals (54,69%). Meanwhile, the younger (productive) farmers aged 25 to 35 years account for 8,07%, and those aged 36 to 45 years represent 37.24%

Next, the results were obtained from measurements of the perceptions of young oil palm farmers in the provinces of North Sumatra and Aceh regarding good practices in sustainable oil palm plantations. It can be seen in Table 2.

Table 3 Young Farmers' Perceptions of Good Practices in Sustainable Oil Palm Cultivation in North Sumatra and Aceh Provinces

Information: 0%-20% (very poor), 21%-40% (poor), 41%-60% (not good), 61%-80% (good), 81%-100% (very good)

No.	Research Variable	Perception Index (%)	Category
1	Planning		
	a. Effective management of plantations	85	Very good
	b. Participate in institutions/legal entities/farmer groups	30	Poor
	c. The commitment of farmers to good practices in sustainable plantation management	45	Not good
2	Technical application of cultivation		
	a. Technical land preparation	90	Very good
	b. Pest control techniques and fertilization	65	Good
	c. Riverbank area	45	Not good
3	Processing of results		
	a. Increase in farmers' income	50	Good
	b. Determination of CPO price	50	Good
	c. Processing of products other than Fresh Fruit Bunches (FFB)	45	Good
4	Institutional organization		
	a. Forming farmer groups	45	Not good
	b. Transparent information	30	Poor
5	Management Techniques		
	a. Utilization of labor	30	Poor
	b. Standard salary for garden workers	30	Poor
	c. Work facilities/infrastructure	75	Good
	d. Land management techniques with high conservation value	95	Very good
	Average	**54**	**Not good**
Sumber : Hasil Olah Data (2024)			

5. Discussion

Data shows that the participation of the younger generation in oil palm farming is less than 50% (37,24%) resulting in their involvement in supporting good practices for sustainable palm oil plantations being very low as well. The choice to become an oil palm farmer is no longer very appealing to the younger generation because it is seen as not being able to generate a lot of money quickly, exhausting, and considered an unprestigious job. As a result, oil palm farmers are currently dominated by older individuals whose skills are limited to farming, while their children migrate in search of jobs that are deemed more prestigious and provide higher income but do not require much physical effort. The agricultural sector for the younger generation is generally often perceived as merely on-farm activities that are less appealing, where individuals must work under the scorching sun and in dirty conditions with limited land resources. Publications about agriculture often highlight news about agricultural failures such as floods, droughts, pest attacks, and crop failures, which indirectly serve as a black campaign against agricultural students. That perspective needs to be corrected, and

there is a need to change the perception of agriculture as dirty, difficult, and high-risk into a technologically advanced and prestigious field.(Susilowati, 2016)

Young farmers in North Sumatra and Aceh fall into the millennial generation, which currently includes those aged up to a maximum of 40-45 years. As a millennial generation, they are not very active as palm oil farmers. The reason is that this generation is fonder of technology, relying on open information that can influence their lifestyle and mindset, which in turn affects the communication process and the way they receive information. Millennials are known for having a humanistic and realistic work style.(Sutisna et al., 2024) Information on good practices in palm oil plantations is not receiving attention because farming has become a job that is not in line with current life trends and is seen as unrealistic for earning a high income. Educating young people on sustainability can increase their awareness and participation in sustainable palm oil efforts(Leijten et al., 2021) Education about sustainable palm oil plantations has not been optimally provided directly to the community, especially the younger generation, particularly in North Sumatra and Aceh, based on the researchers' findings.

Even adult farmers today are known not to want their children to work in the village and become farmers. It is also known that the labor force migrating to the city is mostly young people, with 84.5% having never been involved in agricultural activities and the plantation sub-sector, and now 93.6% live in the city (Susilowati, 2016) The family is one of the factors that can influence a child's development.(Yudhi Ari Wijaya, 2023) Parents should be able to educate their children about the opportunities and potential of the plantation subsector from the household environment. Becoming an oil palm farmer is not an unpromising job. Even parents can educate about the good practices of sustainable oil palm cultivation. There is a direct influence that will be received through interactions with others, such as family, community, and colleagues. Meanwhile, the indirect influence can occur through social media, radio, television, reading books, magazines, newspapers, and similar platforms (Yudhi Ari Wijaya, 2023)

It is known that out of 384 oil palm farmers, 86% have been oil palm farmers for a long time (>10 years) because the land they own is inherited, while 14% of respondents stated that they chose to become oil palm farmers due to peer influence, as their residential area or district is a center for oil palm plantations, with many oil palm plantation companies. The plantation practices carried out so far do not fall into the category of good practices; in fact, it is known that only 30% have ever heard of ISPO/RSPO but do not understand it specifically. It is merely a standard of knowledge that serves as a certification requirement, which can help them produce Fresh Fruit Bunches (FFB) that can be sold globally at a high and fair price. However, they also stated that the certification is difficult to obtain due to the numerous requirements that must be met, as it relates to land legality, seed types, cultivation techniques, harvesting processes, and post-harvest practices, which are considered to have too many regulations. In fact, ISPO/RSPO is part of the good practices of sustainable palm oil plantations. The principal strategies for enhancing the sustainability of palm oil

production, especially via certification systems such as the Roundtable on Sustainable Palm Oil (RSPO). The text addresses environmental concerns and the involvement of numerous stakeholders, while highlighting deficiencies in young engagement. (Meijaard et al., 2020)

The involvement in good practices of sustainable plantation management is also seen as potentially leading to a loss of farmers' income, environmental damage, and social issues due to perceived restrictions and challenges imposed on oil palm farmers to enhance the productivity of their plantations. Good agricultural practice standards are not applied to independent oil palm farmers. The low productivity of palm oil coincides with the expansion of cultivation areas into protected zones that have high conservation value, while palm oil cultivation is also being expanded. This situation creates a perception among the public that independent farmers are unable to implement sustainable agricultural practices that positively impact the environment.(Aleksander et al., 2019)

The perception of young oil palm farmers regarding good practices in sustainable oil palm plantation management falls into the category of poor, meaning they have a casual attitude towards these good practices. They understand that they should not harm the environment, but the challenges they face include limited access to information, production factors that support good practices, and a lack of capital to implement these good practices. The negative perception of good practices in sustainable oil palm plantation management is supported by many challenges, including a decline in interest among young workers in the agricultural sector, primarily due to the less prestigious image of the agricultural sector and its inability to provide adequate rewards. One of the issues is the lack of participation from the younger generation in the industrial and agricultural sectors due to negative perceptions related to risks, weaknesses, costs, and the labour-intensive nature of the agricultural/plantation sector (Stapa et al., 2021)

The youth are considered one of the factors that could jeopardize the sustainability of this industry in the long term if their involvement in palm oil plantations remains very low. (Stapa et al., 2019) Several studies indicate that many young generations are unwilling to work in the palm oil industry due to negative perceptions, such as the job being heavy, dirty, low job satisfaction, and unpleasant working conditions (Hashim et al., 2020) Currently, efforts are being made to provide new and suitable facilities so that future generations have the opportunity to improve their socio-economic status and well-being through the potential of products such as palm oil.

6. Conclusions

The provinces of North Sumatra and Aceh are regions with extensive oil palm plantations. However, it is known that the involvement of the younger generation as oil palm farmers is very low due to negative perceptions of oil palm plantations. It is noted that only 37% of the productive age group are involved in oil palm farming, and even only 30% have heard about good practices in sustainable oil palm plantations,

yet those good practices are not implemented. As a result, palm oil farmers are currently dominated by older individuals whose skills are limited to farming, while their children migrate in search of jobs that are considered more prestigious and offer higher incomes, but do not require much physical labor. The perception of poor practices in sustainable palm oil plantation management is supported by many challenges, including a decline in interest among young workers in the agricultural sector, primarily due to the less prestigious image of the agricultural sector and its inability to provide adequate rewards. This study's findings will establish a framework for the regulation of palm oil waste in Indonesia, facilitating youth generation as the construction of a more effective legal and regulatory structure in this domain. Propose future research that could investigate interventions aimed at enhancing young engagement in sustainable practices or extend the study to further regions.

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