Study of sustainability status of the implementation of ISPO (Indonesian Sustainable Palm Oil) in plasma farmers oil palm plantation

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Abstract. ISPO (Indonesia Sustainable Palm Oil) is a mandatory certification policy issued by the Indonesian government. ISPO is aimed at private oil palm plantation businesses and smallholder groups. Plasma farmers are farmers who partner with companies. It is appropriate for ISPO certified companies, and smallholders will be the same in implementing ISPO. This study aims to determine the role of companies in plasma farmers in implementing the ISPO principles for plasma farmers, then to find out the implementation of the ISPO principles by plasma smallholders and to analyze the sustainability status of the implementation of the ISPO principles carried out by plasma farmers. The study used the RAP-Palm method and sampling of plasma farmers in three companies in the West, East, and Central regions of Jambi Province. The results showed that companies that have received ISPO certificates have not been optimal for plasma farmers in applying the ISPO principles. Companies that partner with plasma farmers have not encouraged plasma farmers to implement the ISPO principles. At the same time, the plasma smallholders have not optimally applied the ISPO principles. The MDS analysis results showed that the plasma farmers’ sustainability status in implementing the principles is in the medium category (56.02). A new regulation is recommended that encourages companies to help empower plasma farmers in implementing ISPO principles and needs to empower the knowledge and education of smallholders in implementing the ISPO principle. As well as rewards for plasma farmers who implemented ISPO to get a premium price.

1. Introduction
The role of oil palm plantations as a source of foreign exchange for the Republic of Indonesia started in 1980 - and grew rapidly in the 1990s - especially outside Java [1]. This role has increased farmers' income and is able to absorb much labor in Indonesia. The agricultural sector's contribution to national GDP from 2010-2015 and 2015-2018 continued to increase [2]. The contribution was dominated by oil palm plantations, recorded in 1990 covering an area of 1.10 million, 2008 7.36 million hectares, 2010 8.39 million hectares, 2012 covering 9.08 million hectares, and in 2016 to 11.67 hectares [3].

In September 2018, Presidential Instruction (INPRES) Number 8 of 2018 concerning Delay and Evaluation of Oil Palm Plantation Licensing and Increasing Productivity of Oil Palm Plantations was issued (19 September 2018). The Indonesian government is following up on developing oil palm
plantations and improving oil palm plants' management. One of the regulations carried out by the government of the Republic of Indonesia is to encourage the implementation of the ISPO Certification policy for oil palm companies and farmer groups in Indonesia. Management that considers social, economic, and environmental aspects.

ISPO is legally established according to the Regulation of the Minister of Agriculture of the Republic of Indonesia Number: 11/Permentan/OT.140/3/2015 concerning the Indonesian Sustainable Palm Oil Certification System (ISPO). This means that ISPO is important to be implemented by all oil palm farmers in Indonesia, including farmer groups. Because the number of smallholder oil palm farmers in Indonesia is quite high, around 44%, and Jambi Province at 66.6%. [2].

Oil palm plantations develop in Indonesia and are spread across Kalimantan and Sumatra. One of them is in Jambi Province (Central Sumatra). The location is as in the following map:

Figure 1. Research location.

The area of oil palm plantations in Jambi Province, a total of 791,025 hectares, is managed by the private sector (323,452 hectares) and by community plantations (467,573 hectares including plasma farmers). Plasma farmers are farmers who partner with companies [2].

Most of the private plantations are ISPO certified. In contrast, farmer groups (plasma are not yet certified). However, because they are partners, it is suspected that there is a policy from the company to provide guidance. Because the raw material for CPO comes from the farmers. Therefore, the guidance carried out by the company to plasma farmers is important. Simultaneously, companies that partner with smallholders who receive ISPO, plasma smallholders carry out implementing the ISPO principles with the company's help. There are 7 ISPO principles that must be implemented, namely: Company ISPO indicators: (1) Licensing system and plantation management, (2) Implementation of guidelines oil palm cultivation and processing techniques, (3) Environmental management and monitoring (4) Responsibility towards workers, (5) Social and community responsibility, (6) Empowerment of community economic activities, (7) Increasing business in a sustainable manner [3].

The research objectives were to: describe the role of the company (farmer partners) in plasma smallholders, to find out about plasma farmers in applying the ISPO principles, then to analyze the sustainability status of smallholders in applying ISPO principles.

2. Method
The sampling method used was simple random sampling. At a location that represents hilly, lowland, and coastal areas. Farmers who partner with the company are Tanjung Bananak Village (PT. IIS), Rawa Jaya Village (PT. SAL), and Tanah Abang Village (PT. KDA). The number of respondents is determined using the Slovin formula [4] as follows:

\[ n = \frac{N}{N_d^2 + 1} \]  

(1)

Where:
n = Number of Samples, N = Number of Population, d2 = Precision (Set as 10%)
Based on the formula above, the number of samples in the plasma plantation at the stage is as follows:

\[ n = \frac{N}{N.d^2+1} = \frac{1505}{1505(0.1)^2+1} = 93 = 93 \text{ respondents} \]

(2)

To answer the first objective, it is done descriptively, and to answer the second objective, the role of the company and the implementation of the ISPO Principles by smallholders using the following categories:

| No | Percentage | Criteria |
|----|------------|----------|
| 1. | 89% - 100% | Very High |
| 2. | 61% - 88% | High |
| 3. | 41% - 60% | Moderate |
| 4. | 12% - 40% | Low |
| 5. | < 12%     | Very Low |

Table 1. Category Level of Role and Implementation by Farmers.

To answer the third objective, which is about sustainability status, it is analyzed using the Multi Dimensional Scaling (MDS) approach, with the Rapfish (Rapid Assessment Technique for Fisheries) program technique developed by the Fisheries Centre, University of British Columbia [6]. Based on the Rapfish modification of the technique adopted in this study, it is called the Rap-palm. The data used include attributes related to smallholder oil palm management's sustainability, including ecological, economic, social, technological, and institutional dimensions, and is modified based on ISPO principles (economic, social, and environmental dimensions). The score, which is the index value/sustainability status of each dimension, can be seen in Table 2.

Table 2. Category Level of Role and Implementation by Farmers [5].

| No | Percentage | Criteria |
|----|------------|----------|
| 1. | 89% - 100% | Very High |
| 2. | 61% - 88% | High |
| 3. | 41% - 60% | Moderate |
| 4. | 12% - 40% | Low |
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To answer the third objective, which is about sustainability status, it is analyzed using the Multi Dimensional Scaling (MDS) approach, with the Rapfish (Rapid Assessment Technique for Fisheries) program technique developed by the Fisheries Centre, University of British Columbia [6]. Based on the Rapfish modification of the technique adopted in this study, it is called the Rap-palm. The data used include attributes related to smallholder oil palm management's sustainability, including ecological, economic, social, technological, and institutional dimensions, and is modified based on ISPO principles (economic, social, and environmental dimensions). The score, which is the index value/sustainability status of each dimension, can be seen in Table 2.

Table 3. Category of Community Plantation Oil Palm Sustainability Status.

| Category | Sustainability Status |
|----------|-----------------------|
| 0,00 – 25,00 | Bad (unsustainable) |
| 25,01 – 50,00 | Less (less sustainable) |
| 50,01 – 75,00 | Sufficient (sustainable enough) |
| 75,01 – 100,00 | Good (ongoing) |

MDS is a multivariate analysis method that can be used to analyze metric data (ordinal or nominal scales). This method is also known as ordination in reduced space. The ordination itself is a process in the form of plotting object points along the axes arranged according to a point relationship (ordered
relationship) or in a graph consisting of two or more axes. Through the MDS method, the position of the sustainability point can be visualized in the form of a kite diagram, as shown in the following figure:

![Figure 2. Illustration of the sustainability index for each dimension [7].](image)

The leverage analysis is to determine the sensitive attributes of each dimension. Leverage analysis is indicated by the value of Root Mean Square (RMS). The greater the RMS value change, the more sensitive these attributes' role will be to the sustainability status in the dimension concerned.

3. Results and discussion

3.1. Role of Companies (Partners) in Implementing ISPO Principles for Plasma Smallholders

![Figure 3. Principal and criteria ISPO.](image)

Figure 3 shows seven principles and criteria of ISPO. The company's role in providing empowerment to plasma smallholders in implementing the ISPO principles and criteria is still diverse in the seven ISPO principles. The seven principles that must be implemented by plasma smallholders, only the first ISPO principle.

1. The first ISPO has been implemented very well by plasma farmers. Concerns land certificates, no land conflicts, land certificates in a safe condition, or not pledged by farmers as collateral.
Farmers' awareness is related to land certificates, and there is a strong role in encouraging farmers to obtain legal land certificates or freehold titles (SHM).

2. The second ISPO principle, namely the application of technical guidelines for oil palm cultivation and management. The company has not played a role in encouraging plasma farmers to implement the second principle. With several reasons mentioned by the plasma farmers concerned;

3. The third ISPO principle, namely, the responsibility to workers, should be the company's role in protecting plasma farmers. The plasma farmers only use boat shoes and protective hats. The rest do not use protective equipment such as masks for spraying. Companies have never carried out empowerment on plasma farmers related to PPE (Personal Protective Equipment).

4. The fourth ISPO principle, namely, environmental management and monitoring of farmers not to burn when clearing land, this knowledge is obtained by farmers because there is news that most of the farmers arrested are affected by legal cases.

5. The fifth ISPO principle is community social responsibility. The company has played a role in carrying out CSR to plasma farmers in the (medium) category.

6. The sixth ISPO principle, namely empowerment activities with the community's economy having a high category role. The company provides a group principle in marketing the produce, a group in purchasing seeds and medicines and fertilizers. Plasma farmers in groups implement economic principles to reduce costs and increase farmer income.

7. The seventh ISPO principle, sustainable business improvement, the role of companies in plasma smallholders is in the medium category. The company has empowered how to manage land and how to get quality palm fruit and carry out business sustainability as a group. The plasma farmers have received empowerment to carry out group business management in a sustainable manner, but it has not been implemented optimally.

An overview of the results of the implementation of the ISPO principles carried out by plasma smallholders can be seen in Table 4:

| ISPO Principle | Indicator of Activities | Percentage of role categories | Category | Status |
|----------------|-------------------------|-------------------------------|----------|--------|
| 1              | Plantation management and licensing systems | 85% (80) | High | Role |
| 2              | Application of technical guidelines for oil palm plantation and management | 59,57(56) | Moderate | Not yet |
| 3              | Responsibility towards workers | 31,91 (30) | Low | Less role |
| 4              | Environmental management and monitoring | 36,17(34) | Low | Less Role |
| 5              | Community social responsibility | 59,57(56) | Moderate | Not yet |
| 6              | Empowerment of community economic activities | 59,57 (56) | Moderate | Not yet |
| 7              | Continuous business improvement | 58,51 (55) | Moderate | Not yet |
3.2. Implementation of the Principles of ISPO Indicators by Smallholders

3.2.1 Plantation licensing and management system. This plantation permit and management system involves permits and certificates. Plantation managers must obtain permits and land certificates from the competent authority, except for western conversion plantations (erfpahct). The first indicator is high (76.75%). In the implementation of the first ISPO indicator, namely the permit system and plantation management. The plasma smallholders have implemented several licensing and plantation management systems such as having land certificates, having photocopies of land ownership documents, and having STD-B. The land is not in dispute. Plasma farmers have a Certificate of Plantation Business Registration. Most plasma farmers have a photocopy of land ownership proof, while all farmers have land certificates, and the land is not in dispute.

3.2.2 Application of technical guidelines for cultivation and processing of oil palm. For technical guidelines for cultivation, land clearing meets soil and water conservation principles, conservation of water sources, and quality. Plantations in producing superior quality seeds must refer to the applicable laws and regulations and seed technical standards. Implementation of Technical Guidelines for Oil Palm Cultivation and Processing in plasma plantations in the medium category. This is because plasma farmers do not cultivate oil palm according to what is recommended, such as providing fertilizers that are not in the right dose, on time, and in the right type. This is because there are no empowerment activities regarding fertilization recommended by extension agents or the company (Partners). In addition, these plasma smallholders also do not carry out sanitation activities on time. Disposal of oil palm fronds is only carried out when harvesting. In plasma plantations, some use organic fertilizers in the form of Empty Bunches obtained from palm oil mills owned by companies (partners). It is just that the application is not comprehensive, only a few parts of the garden are close, because of the distance and the means of transportation is far, the farmers prefer not to use tankos anymore. Fire caterpillar control for mustard palm plants is carried out biologically by using Turnera ulmifolia, which is planted intentionally between the Turnera ulmifolia plant's oil palms, which is a natural enemy of the fire caterpillar pest (Limacodidae). Even so, some farmers still use chemical fertilizers and chemical pesticides. Tiong also reported that the presence of ground cover could reduce the population of caterpillars because the population of natural enemies will increase [8].

3.2.3 Environmental management and monitoring. Oil palm plantation companies and smallholder groups have an obligation to carry out environmental management and monitoring in accordance with applicable regulations. Plantation managers must carry out their obligations related to AMDAL, UKL-UPL, or SPPL in accordance with the prevailing laws and regulations. Plantation managers must carry out fire prevention and control. Plantation managers must maintain and conserve biodiversity in areas managed in accordance with their plantation business permits. However, in the plantation location, it is not entirely implemented by farmers. have not implemented all the ISPO indicators. The plasma plantation group does not yet have an environmental document (SPPL) of a Statement of Environmental Management and Monitoring.

3.2.4 Responsibility towards workers. Plantation managers are required to have occupational safety and health (K3) management system. Plantation managers must pay attention to the welfare of workers and improve their abilities. Plantation managers must not employ minors and discriminate. Plantation managers must facilitate the formation of a trade union to fight for employee/labor rights. Companies encourage and facilitate the formation of workers' cooperatives. The 4th ISPO Principle is in the high category, all sample farmers from plasma plantations have not carried out their responsibilities to workers with a moderate percentage. Plasma farmers have not implemented K3. Smallholders rarely use PPE (Personal Protective Equipment). The company has not optimally helped change the way farmers perceive the use of personal protective equipment. On the other hand, it is not easy to change farmers' changes in terms of changing behavior. The plasma farmers do not yet have a BPJS for employment.
3.2.5 Community Social Responsibility. Plantation managers must have social, community commitment and develop the potential for local wisdom. In this case, there are two indicators, first, there is a commitment to social responsibility and the community environment in accordance with the prevailing norms in the local community. Second, there is a record of the realization of the commitment to social and community environmental responsibility.

The plasma smallholders have not implemented the 5th ISPO indicator, namely social and community responsibility, with a high percentage. The plasma smallholders commit to the local community in managing their plantations by paying attention to the local environment so that they do not harm the community. However, they do not have recorded proof of the realization of social responsibility commitments in the form of a letter of agreement between the community and the plasma smallholders. Some members of the plasma farmers participate in farmer groups. This is because plasma members are domiciled in the location. If they are not domiciled, it will be difficult to communicate. Pay more for the wages of workers in managing the plasma plantation.

3.2.6 Empowerment of community economic activities. Plantation managers prioritize providing opportunities for purchasing/procurement of goods and services to communities around the plantation. Records of local transactions are available, including local purchases, use of local contractors, etc., as indicators. The plasma plantation management implements the empowerment of community economic activities in the medium category. This is because there is no purchase of goods or services to the surrounding community. There is no use of local contractors or other goods for the surrounding community. The economic conditions of the household are sometimes fulfilled in clothing, food, and shelter. Some plasma farmers receive income from other side jobs such as working as civil servants, cooperative staff, and village staff and selling in shops as traders.

In totality, the status of plasma smallholders in implementing sustainable ISPO is still in moderate status with a multidimensional calculation value of 56.02: some of the ISPO indicator items as shown in the following results are not entirely applicable:

1. Plantation permit and management system, ISPO principles relating to plantation permit and management systems. Almost all plasma farmers have implemented it. This is what almost all farmers have implemented.
2. Most of the farmers have understood the application of technical guidelines for oil palm cultivation and processing, and most have implemented it.
3. Environmental management and monitoring; fraction; of the plasma farmers who do. Basically, farmers have naturally managed and monitored the environment. This is in line with; Rival, A and Patrice Levang [9]that Indonesian oil palm farmers use much lower pesticides, 0.4 kg per hectare per year. Compared to soybean (Brazil), 5.8 kg per hectare per year. This means that plasma smallholders can be directed by companies with an understanding of management and monitoring.
4. Responsibilities to workers; the company has not optimally provided empowerment to plasma farmers to carry out matters related to the ISPO indicator's requirements.
5. Social and community responsibility; This indicator is partly the plasma farmers have implemented it.
6. Empowerment of community economic activities; Plasma farmers have been able to increase household income by increasing production in the plantation and managing with economic groups and have their local transportation to be able to sell farmer businesses collectively. This research results in line with those stated by Gato et al., 2017), that coconut cultivation by conducting contract farming between companies and plasma farmers have increased plasma farmers' income.
7. Continuous business improvement: This indicator cannot be fully implemented by implementing farmers. When asked, farmers face many obstacles, especially the use of organic fertilizers, and the organic fertilizer market is not available at the village level.
Plantation and mill managers must continuously improve performance (social, economic, and environmental) by developing and implementing action plans that support increased sustainable production. There is a record of the results of the implementation of business improvements/enhancements made by plasma farmers.

This research uses many assumptions, so the validity of this research’s results needs to be studied further. The CO concentration used in this research is limited to estimates based on calculation results based on Traffic Volume data and other parameters so that the validity of this value is necessary. The COVID-19 pandemic condition resulting in government regulations to minimize human movement allows a lower traffic volume value than non-pandemic conditions (normal conditions).

The spatial distribution patterns in the north and southwest regions have invalid interpolation values because there are no data on CO concentration in those regions. This spatial distribution also ignores the possibility of other pollutant sources, absorption or loss of levels, the influence of wind direction, and building height resistance. This research will be more accurate if the value of CO concentration is spread over each road segment. However, this is constrained by the large number of roads leading to Daan Mogot Street as arterial roads. Therefore the researchers chose roads that have a hierarchical function below them, namely the collector road (Pembangunan Street, Maulana Hasanudin Street, and Halim Perdanakusumah Street).

Plasma farmers carry out sustainable business improvements that are not yet optimal because plasma farmers do not carry out evaluations in the context of continuous improvement/enhancement of business. Farmers are not entirely in groups in understanding agricultural cultivation business, including efforts to rejuvenate. Farmers do not understand the right time, what considerations and techniques can be carried out when replanting. The calculation results of the ISPO 7 principle implementation are in the 58.51% (moderate) category. The recapitulation of the results of the implementation of the ISPO principles by plasma smallholders can be seen in the table 5:

| ISPO Principle | Indicator of Activities | Percentage role category | Category | Status |
|----------------|-------------------------|--------------------------|----------|--------|
| 1              | Plantation management and licensing systems | 85% (80) | High | Role |
| 2              | Application of technical guidelines for oil palm plantation and management | 59.57(56) | Moderate | No Role |
| 3              | Responsibility towards workers | 31.91 (30) | Low | Less Role |
| 4              | Environmental management and monitoring | 36.17(34) | Low | Less |
| 5              | Community social responsibility | 59.57(56) | Moderate | No Role |
| 6              | Empowerment of community economic activities | 59.57 (56) | Moderate | No Role |
| 7              | Continuous improvement business | 58.51 (55) | Moderate | No Role |
The results of the MDS calculation, partially regarding the sustainability status of the implementation of the ISPO principles by plasma farmers, are described in the ecological dimension model as follows:

3.3. Ecological Dimensions

The results of the study show that the attributes that play a role in the sustainability of plasma smallholders as partners of companies that are ISPO certified show that the attributes that act as leverage are attributes related to (Figure 4):

1. Ownership of transportation for the purchase of seeds and fertilizers, collectively as a group,
2. Support for infrastructure in good condition,
3. TBS weighing can be done together and can be used transparently by the plasma group,
4. Direct sales to factories,
5. Partner relationship with the company,
6. Commitment to environmental management,
7. Fire prevention, available tools that can help farmers, clear land without burning
8. Knowledge of the availability of rare animals/plants,
9. Having a map of the location of the plasma smallholders
10. Clearing land without burning,
11. Joint evaluation of the group situation for environmental improvement,
12. Ownership of agreement documents between members of farmer groups,
13. Knowledge of what is meant by "replanting,"
14. Knowledge of the correct time to do "replanting,"
15. Knowledge of "replanting" decisions / considerations
16. Knowledge of oil palm "replanting" techniques
17. Preparation of farmers and efforts to "replanting"
18. Preparation of knowledge and capital when facing "replanting"
19. The economic preparation of farmers while the plants are being "replanted"
20. The application of various plants for the sustainability of farming

![Leverage of Attributes](image)

**Figure 4.** Root Mean Square Change % in Ordination when Selected Attribute Removed (on Status scale 0 to 100)
The attributes above can assist plasma smallholders in resolving ISPO principal issues—relating to the ecological dimension. The attributes that have been carried out by the farmers above are attributes that are able to encourage farmers to carry out sustainable palm oil farming practices from the ecological dimension.

3.4. Economic Dimension

In the economic dimension (Figure 5), the attributes that act as leverage factors are attributes; is the 7th, 10th, 12th and 14th attributes, namely:

1. Farmers have legal land ownership status. Other people are not collateralizing land certificates owned by farmers.
2. Land owned by plasma farmers is not in a dispute process.
3. Plasma farmers use the services of workers in their villages in joint land management.
4. There is an increase in plasma farmers' income during coconut management. Plasma farmers can send their children to tertiary institutions and senior high school. Farmers can save the sales proceeds from the oil palm plantations.

Plasma farmers can implement most of the attributes contained in the economic dimension. What seems excellent is plasma farmers’ interest to save, which means that this interest can be channeled to finance family education and replant oil palm plants.

3.5. Social Dimension

The results of the calculation of "Leverage" analysis (Figure 6) show that the attributes as leverage factors are on the 4th, 7th, 12th and 14th attributes, namely:

1. Vehicle/transportation assistance from the company within the power of farmer groups in marketing and buying seeds and fertilizers.
2. Proof of realization of the company's commitment to plasma farmers.
3. Family involvement in oil palm farming activities.
4. The existence of microfinance institutions that help plasma farmers build a healthy economy.

Plasma farmers can implement most of the four attributes discussed in the social dimension. This driving attribute is thought to help farmers encourage other dimensions that are still lacking. Integration of empowerment from the company, plasma farmer assistance, and encouragement or support from the local government is important.
3.6. Multidimensional Sustainability Status

**Leverage of Attributes**

![Leverage of Attributes](image)

*Figure 6. Root Mean Square Change % in Ordination when Selected Attribute Removed (on Status scale 0 to 100)*

**RAPPALM Ordination**

![RAPPALM Ordination](image)

*Figure 7. RAPPALM Status*
In total, the status of plasma smallholders in implementing sustainable ISPO is still in moderate status with a multidimensional calculation value of 56.02 (Figure 7): some of the ISPO indicator items as shown in the following results are not entirely applicable:

1. Plantation permit and management system, ISPO principles relating to plantation permit and management systems. Almost all plasma farmers have implemented it. This is almost all farmers have implemented it.
2. Most of the farmers have understood the application of technical guidelines for oil palm cultivation and processing, and most have implemented it.
3. Environmental management and monitoring; fraction; of the plasma farmers who do. Basically, farmers have naturally managed and monitored the environment. This is in line with; Rival, A and Patrice Levang [9] that Indonesian oil palm farmers use much lower pesticides, 0.4 kg per hectare per year. Compared to soybean (Brazil), 5.8 kg per hectare per year. This means that plasma smallholders can be directed by companies with an understanding of management and monitoring.
4. Responsibilities to workers; the company has not optimally provided empowerment to plasma farmers to carry out matters related to the requirements of the ISPO indicator.
5. Social and community responsibility; This indicator is partly the plasma farmers have implemented it.
6. Empowerment of community economic activities; Plasma farmers have been able to increase household income by increasing production in the plantation and managing with economic groups and have their local transportation to be able to sell farmer businesses collectively. This research results in line with those stated by Gato et al., 2017), that coconut cultivation by conducting contract farming between companies and plasma farmers have increased plasma farmers' income.
7. Continuous business improvement: This indicator cannot be fully implemented by implementing farmers. When asked, farmers face many obstacles, especially the use of organic fertilizers, and the organic fertilizer market is not available at the village level.

The results of implementing the ISPO principles and criteria carried out by plasma farmers, in total, the farmers could implement them. It takes assistance and empowerment to the power plasma farmers in the plasma farmer group because, according to Kawulur et al. (2017), social capital is a series of informal values and norms shared among community members that allow cooperation between them. Although compared with the oil palm plantation management strategy with the Malaysian Barometer [10], there are differences, but the indicators are almost the same. Barometer emphasizes seven principles, namely: (1) achieving high levels of productivity, (2) fulfilling the availability of human resources, (3) improving facilities for companies to invest, (4) institutional systems that support the palm oil industry, (5) policies and support government towards research and development, (6) agility in marketing and (7) consolidation and development. It appears that there are similarities in substance and definition between the barometer certification of Malaysia, RSPO, and ISPO in Indonesia. This means that the ISPO principles and criteria have fulfilled the meaning of sustainable oil palm plants' management.

In the ISPO Principles and Criteria, it is stated that plantation management aims to improve the quality of fruit, which means that it is not much different from the principles of sustainable plantation management in Malaysia. Basically, a sustainable palm oil management strategy at the plasma farmer level implies integration and commitment between the parties, namely the company as a partner and the plasma farmers. Plasma farmers as producers of the raw material for oil palm fruit. Companies that partner are companies that have obtained ISPO certification. Smallholders, as suppliers of oil palm fruit, should also implement the ISPO principles and criteria.

In fact, Merten et al., 2019. They were using a mixed-method. Each with independent oil-palm smallholders in Jambi, Sumatra, this paper has identified key shortcomings that may explain the currently poor outcomes associated with the RSPO there. Our results show that smallholders targeted by the Smallholder Standard neither perceive themselves as part of the vertical palm-oil supply chain nor link RSPO to any particular stakeholders whom they may consider to be important. Meanwhile, they suffer from high uncertainty regarding price development and increasing standards within the world market.

Consequently, independent smallholders' motivation to participate in certification schemes seems a proactive risk-reduction approach rather than a reactive one that could help mitigate current challenges smallholders face or improve sustainability.
Therefore, the researcher believes that it would be better to review the ISPO principles and criteria intended for companies, then differentiate those for the people or plasma farmers. The scheme that is built for smallholders is better focused partially, starting with management technology with the concept of best management practice (BMP), that increasing land and plant productivity will have implications for increased income and welfare of plasma farmers, besides that the best practice approach has included a social and environment in it.

Comparison of Indonesian oil palm plantations' potential strength is high, which can reach 5 tonnes of crude palm oil (CPO) per hectare compared to soybean, rapeseeds, and corn. Sunflower produces 1.5 tonnes of oil per hectare per commodity [1]. Implementing the ISPO principles and criteria currently carried out by plasma farmers has not received any rewards. The price level offered to plasma farmers who implement the ISPO principles and criteria is the same as other farmers. Supposedly, smallholders who excel in sustainably managing oil palm plantations and produce quality palm oil should be rewarded with premium prices by the company.

4. Conclusion
The company's role towards plasma farmers in implementing ISPO in the seven ISPO principles and indicators shows the high category in principles 1 and 6. The medium category is on the ISPO principles and criteria points 2, 5, and 7, and in the low category on implementing the ISPO principles and criteria points 3 and 4. The role results are in line with implementing the ISPO principles and criteria implemented by the plasma farmers. This means that communication between companies and plasma farmers is not good. This is in line with the MDS analysis results, which show that smallholders' sustainability status in the implementation of ISPO is in the medium category (56.02, see Figure 4). However, the attributes of leveraging sustainability in the ecological, economic, and social dimensions can be encouraged to improve the implementation of the principle. 2,3,4,5 and 7 in the direction of sustainable palm oil development in Jambi Province, considering that 66.6% of oil palm farmers in Jambi Province come from smallholders. To fulfill ISPO objectives, namely; Positioning the development of oil palm as an integral part of Indonesia's economic development, strengthening the basic attitude of the Indonesian nation to produce sustainable palm oil according to the demands of the global community and supporting Indonesia's commitment to preserving natural resources and environmental functions. The study results recommend the commitment of ISPO certified companies and plasma partner companies to commit to implementing the seven points of ISPO principles and criteria in accordance with the mandatory Indonesian palm oil management program.

For plasma farmers, the introduction to the implementation of the ISPO Principles and Criteria should be accompanied by field facilitators, improve the implementation of the ISPO principles and criteria towards sustainable oil palm smallholder plantations, need to be integrated with oil palm field extension agents and empowerment managed by partner companies. Partners to empower plasma farmers regarding the principles and criteria of ISPO. The determining factor for achieving ISPO standard implementation is the commitment of plantation companies as business actors [11] to obtain good quality palm oil and sustainable oil palm smallholders [15]. Another point that is also more important is that the ISPO Principles and Criteria should be developed through a reward or price policy for smallholders who have applied ISPO in groups. The company should provide the optimal price in accordance with the quality, not the prevailing average price. This section will motivate farmers to cultivate well and with quality and ultimately be sustainable.

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