The impact of ISPO certification on economic, social and environmental aspect in the palm oil plantation

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Abstract. The Indonesian Government requires all Palm Oil Plantation Companies to have an Indonesian Sustainable Palm Oil (ISPO) certificate. Indonesia issued a policy known as ISPO so that Indonesia management of palm oil plantations pay attention to aspects of economy, social, and environment. ISPO certification obligations are financially burdensome for businessmen because large certification costs certainly affect the company's production costs, sales and revenues of palm oil companies. The research objective was to describe the process to get ISPO certification for Palm Oil Plantation Companies, to determine the impact of the application of ISPO certification on the economic, social, and environmental aspects of palm oil companies. Data analysis was carried out by comparing the impact ISPO implementation to PT. Perkebunan Nusantara VI Ophir at the time before (2013, 2014, 2015) and after (2016, 2017) ISPO certification. The results showed that stages of procedures for recognizing PT. Nusantara Plantation Ophir VI's ISPO certification is in accordance with the mechanism as stipulated in Minister of Agriculture Regulation No. 11/Minister of Agriculture Regulation/OT.140/3/2015. The impact of the application of ISPO certification on PT. Perkebunan Nusantara VI Ophir has an effect on increasing production costs, production levels, selling prices, sales, and income. The results of the calculation of the revenue to cost ratio, obtained by the R/C value is greater than one, which means that the application of ISPO is financially efficient over the costs incurred. The impact of ISPO implementation aside from the financial aspects received by the company after obtaining ISPO certification affects the aspects of operational, social community relations, the company's concern for the environment, as well as trading CPO and Kernel. ISPO certification received by PT. Perkebunan Nusantara VI Ophir affect operational aspects, relationships with the social community, the company's concern for the environment, as well as trading CPO and Kernel.

1. Introduction
1.1 Background of the study
The agricultural sector has an important role in Indonesia’s economic activities. One sub-sector that has a large potential is the plantation sub-sector. One of the plantation commodities that has an important role in economic activities in Indonesia is palm oil. Palm oil is one of Indonesia's export commodities which is quite important as a foreign exchange earner in addition to oil and gas. Indonesia is the world's largest producer and exporter of palm oil [1].
The development of the palm oil industry has caused controversy in the international community. On the one hand, the development of palm oil and the palm oil industry provides welfare for the community and the state, on the other hand, it has a social and environmental impact. The growing criticism of the development of palm oil plantations in the world has triggered the emergence of negative campaigns launched by a number of western countries. Several European countries and the United States have boycotted CPO products not being able to enter the EU market under the pretext of palm oil as a cause of an increase in Greenhouse Gases. These problems need to be addressed so that sustainable palm oil development can be realized. The indicator for management that is used in Indonesia at this time is the ownership of ISPO certificate (Indonesian Sustainable Palm Oil) [2].

Through ISPO, the Government of Indonesia wants to protect and promote sustainable palm oil plantation business in accordance with market demands, meet global demands and increase the competitiveness of Indonesian palm oil in the global market, as well as support Indonesia's commitment to reduce greenhouse gas emissions, and pay attention to the preservation of resources natural and environmental power [7]. With the ISPO arrangement, it is expected that all palm oil plantation businessmen in Indonesia can increase awareness of the importance of producing sustainable palm oil which can affect the increase in competitiveness of Indonesian palm oil in the world market [3].

1.2 Problem of the study
Sustainable development should pay attention to 3 aspects (3P), namely profit (economy), people (social), and the planet (environment). However, businessmen tend to only take into account the economic aspect. Palm Oil plantations provide substantial revenues for the central and regional governments as a result of which much forest area is allocated for palm oil development [4]. The consequences of palm oil development include negative impacts on the environment and social conflict [5]. Non-environmentally friendly practices such as land clearing techniques with forest burning and uncontrolled waste disposal have created a bad image for the Indonesian palm oil industry [2].

Indonesia issued a policy known as ISPO so that Indonesia management of palm oil plantations pay attention to aspects of economy, social, and environment. However, businessmen tend to only take into account the economic aspect. The ISPO certification obligation turned out to be a polemic that financially burdened palm oil businessmen due to certification fees and bureaucratic obligations for obtaining ISPO approval. One of the main considerations for plantation companies to obtain an ISPO certificate or not to take care of an ISPO certificate is the high cost both for the fulfilment of the requirements and for the processing of the certificate. The cost of making a large certificate certainly affects the production costs incurred by plantation companies in producing palm oil.

Fulfilment of ISPO certification, in addition to generating costs, can also provide revenues received to plantation companies. And a wider market reach, as well as the level of income received by plantation companies. The impact of implementing ISPO aside from the financial aspects can be seen in terms of operations, social community relations, environmental concerns, and trading of CPO & Kernel products.

Based on the background and problem of the study, it is deemed necessary to conduct a more in-depth study, especially related to the impact of implementing ISPO certification on economic, social and environmental aspects for palm oil plantation companies.

1.3 Purpose of the study
The purpose of this study is:
1. Knowing the process to get ISPO certification for Palm Oil Plantation Companies?
2. Analyzing the impact of implementing ISPO certification on economic aspects for Palm Oil Plantation Companies?
3. Analyzing the impact of implementing ISPO certification on social and environmental aspects for Palm Oil Plantation Companies?
2. Research Method

2.1. Research location

The study area is selected by purposively based on the consideration that out of a total of 346 palm oil businesses in Indonesia that have received the ISPO certificate, 9 (nine) of them are oil palm businesses in West Sumatra, and the majority of them are palm oil plantation businesses located in West Pasaman Regency. Table 1 shows that in West Pasaman District, there are 5 (five) palm oil plantation companies that have received ISPO certificates and have applied ISPO. The research was conducted at PT. Perkebunan Nusantara VI Ophir Business Unit. This research was conducted for 1 (one) month starting from June 1 until June 30, 2018.

Table 1. List of Oil Palm Companies received ISPO certificate in Pasaman Barat

| No | Palm Oil Plantation Companies | The Certified Unit | Certification Period |
|----|--------------------------------|-------------------|---------------------|
| 1  | PT Agrowiratama               | PKS Agrowiratama dan Kebun Sei Aur | 16 Jan 2014 to 15 Jan 2019 |
| 2  | PT Gersindo Minang Plantation | PKS PT GMP, Kebun GMP, Kebun PHP1, Kebun PHP2 | 16 Jan 2014 to 15 Jan 2019 |
| 3  | PT Bakrie Pasaman Plantations | PKS Air Balam, Kebun Air Balam dan Kebun Sei Aur | 17 Jun 2015 to 16 Jun 2020 |
| 4  | PT. Perkebunan Nusantara VI (PKS Ophir) | PKS Ophir, Kebun UU Ophir dan Kebun UU Pangkalan Limapuluh Kota | 5 Feb 2016 to 5 Feb 2021 |
| 5  | PT. Bintara Tani Nusantara | 1 PKS dan 2 Kebun PT. Bintara Tani Nusantara | 6 Dec 2016 to 5 Dec 2021 |

Source: ISPO, 2017.

2.2. Data collection method

Data collected in this research consist of primary and secondary data. Primary data is obtained from direct observations in the fields and through interviews with key informants of plantation companies that responsible for implementing ISPO certification. Secondary data collection is carried out through literature studies, exploration of available literature and data, and reference books and the internet in accordance with the results of research on palm oil, as well as conducting in-depth interviews with officials of relevant agencies/institutions. This approach is carried out by collecting all documents containing secondary data in the relevant agencies such as: Plantation Office, Food Crop Agriculture Office, Industry and Trade Agency, Central Statistics Agency.

Research data covers several years before and after the application of ISPO certification to palm oil plantation companies. This research data is obtained from the data of PT. Perkebunan Nusantara VI Ophir, at the time before obtaining ISPO certification (2013, 2014, 2015) and after the implementation of ISPO certification (2016, 2017). Table 2 below shows the data variables, types of data and data sources.

Table 2. Variables, Data, and Data Sources

| No | Variables | Data | Data Sources |
|----|-----------|------|--------------|
| 1  | Management Process for Obtaining ISPO Certification | - The flow of the submission process and management receives ISPO certification | Key Informant Plantation Company |
|    |           | - Application of ISPO principles & criteria to obtain ISPO certification |   |
| 2  | Impact of the Implementation of ISPO Certification on economic aspects | - Production of FFB, CPO and Kernel (Kg) | Key Informant Plantation Company |
|    |           | - The Productivity of FFB (Kg / Ha) |   |
|    |           | - Selling Price of CPO and Kernel (Within Rp.) | Companies / Trade Offices |
|    |           | - CPO and Kernel (Kg) sales levels |   |
|    |           | - Revenue from sales (In IDR) |   |
| 3  | Impact of the Implementation of ISPO Certification on social | - Completeness of company documents | Key Informant Plantation Company |
|    |           | - Plant maintenance activities |   |
|    |           | - Post Harvest Work |   |


| No | Variables and environmental aspects | Data | Data Sources |
|----|-------------------------------------|------|--------------|
|    | - Total FFB production               |      |              |
|    | - Problems with conflict with the community |      |              |
|    | - Relations with related stakeholders, the community, buyers |      |              |
|    | - Number of accidents and fire cases |      |              |
|    | - Environmental management and monitoring |      |              |
|    | - Concern for the environment        |      |              |

2.3. **Data analysis**

We applied descriptive approach to describe the process to get ISPO certification for Palm Oil Plantation Companies. Information on stages of the ISPO certification process was collected to find out the process of submitting and managing requirements to obtain ISPO certification. It was identified based on ISPO indicator criteria which must be applied by companies to obtain the certification.

The impact of applying ISPO certification at PT. Perkebunan Nusantara VI Ophir on economic aspects is described by comparing production costs, revenues from sales, and income before and after the implementation of ISPO certification. This can be seen by comparing the average amount of production costs that must be issued by the company, the level of revenue from sales, and the amount of income received by the Company at the time before and after the application of ISPO certification.

To calculate the income of palm oil plantation companies before and after the implementation of ISPO, we used the formula below:

\[
\text{Profit} = \text{TR} - \text{TC}
\]

Explanation:

- **Profit** = Plantation profit
- **TR** = Total revenue
- **TC** = Total Cost

Total revenue (TR) is calculated using the formula:

\[
\text{TR} = y \times \text{Py}
\]

Explanation:

- **TR** = Total revenue (Rp)
- **y** = Total sales of CPO (Ton)
- **Py** = Selling price of CPO (IDR/Ton)

To analyze the impact of implementing ISPO certification on the financial aspect of PT. Perkebunan Nusantara VI Ophir, it was conducted by calculating the ratio of revenue to production costs \((R / C \text{ ratio})\) at the time before and after ISPO certification. As a measure of assessment, if the results of the cost-revenue ratio \((R / C \text{ ratio})\) are greater than 1 (one), it means the application of ISPO certification is efficient for the costs incurred. If the \(R / C \text{ ratio}\) is equal to 1 (one), it means that the revenue obtained is only enough to cover the cost so that in terms of financial and economic aspects is not profitable. If the \(R / C \text{ ratio}\) is smaller than 1 (one), it means that the revenue obtained is not enough to cover costs so that the application of ISPO certification is not efficient from its financial aspects.

To find out the impact of implementing PT. Perkebunan Nusantara VI Ophir’s ISPO certification on social and environmental aspects, we describe various data variables resulting from interviews with key informants and direct observations in the field related to following items: company documents; plant maintenance activities; the problem of conflict with the community; relationships with stakeholders, the community, and buyers; cases of fire and work accidents, as well as the company’s concern for environmental management and monitoring. The thought framework that underlies this research can be seen in figure 1 below.
3. Results and discussion

The Ophir Business Unit is one of sixteen business units under the management of PT. Perkebunan Nusantara VI. PT. Perkebunan Nusantara VI is a State-Owned Enterprise (SOE) in the form of a Limited Liability Company with the working area of the Province of West Sumatra and Jambi.

PT. Perkebunan Nusantara VI Ophir is located in Kejorongan Sarik Kenagarian Koto Baru, Luhak Nan Duo District, West Pasaman Regency. The area of plantation and palm oil processing of PT. Nusantara VI Ophir Plantation is an area of Cultivation Rights covering an area of 3,549.16 Ha. Consists of a productive area of palm oil (core area) covering an area of 3,256 ha, and a non-productive area (housing, MCC, river/lowland, etc.) covering an area of 293.16 ha.

3.1. ISPO activities of PT Perkebunan Nusantara VI Ophir

3.1.1. Results

Stages of the ISPO certification process at PT. Perkebunan Nusantara VI Ophir began with the submission of an ISPO certification request to PT. AJA Indonesian certification, one of the certification bodies that has received recognition from the ISPO Commission. PT. Perkebunan Nusantara VI Ophir carried out the ISPO certification process starting in 2014. However, the process of preparing the documents completeness and completeness of the field preparation process for the ISPO certification process has been carried out since 2013.

The certification body, after receiving a certification request from a plantation company, conducts research on the completeness and correctness of the document (review document). Based on the completeness and validity of the company's ISPO certificate submission documents, PT. AJA Indonesian Certification made an ISPO certification work contract with PT. Perkebunan Nusantara VI Ophir, as well as conducting an Audit Stage I, Audit Stage II, and surveillance. Based on the completeness and correctness of the document (document review) for submitting an application for ISPO certification, PT. AJA Certification Indonesia has entered into an ISPO certification work contract dated June 17, 2014, with PT. Nusantara Plantation VI Ophir Unit, consisting of Ophir Area (Planted 3,256 Ha), and Ophir Palm Oil Mill (capacity 40 Tons FFB / hour).

The next ISPO certification process is the implementation of PT. Nusantara VI Plantation's ISPO certification audit for Ophir MCC and Ophir Unit Area by PT. AJA Certification Indonesia, and improvement of audit findings by the Ophir Business Unit and Head Office of PT. Perkebunan Nusantara VI. The implementation of Audit Stage I was conducted on the 8th of September 13, 2014, and Audit Stage II on the 2nd of February 6, 2015.
The results/report of the Phase II audit that fulfilled the ISPO requirements were submitted to the ISPO Commission through the ISPO Commission Secretariat. The ISPO Commission Secretariat verified the audit report submitted by the certification body. If the document is complete and correct, the audit report is forwarded to the ISPO Assessment Team to get an assessment. Furthermore, the ISPO Assessment Team evaluates all documents along with other aspects relating to ISPO requirements. In evaluating audit reports, the ISPO Assessment Team can collect information from various sources, including several relevant stakeholders, such as indigenous peoples, associations, local government officials, local NGOs, and audited company employees. The next process, the Assessment Team provides recommendations to plantation companies to the ISPO Commission for approval.

After that, the ISPO Commission gave recognition to plantation companies that met ISPO requirements and announced to the public. Furthermore, the certification body PT. AJA Indonesian Certification issues ISPO certificate to PT. Perkebunan Nusantara VI Ophir that has received recognition from the ISPO Commission. PT. AJA Certification Indonesia has issued ISPO certificate No. IN-2-AJA-ISPO on February 5, 2016, to PT. Perkebunan Nusantara VI for the Ophir Business Unit. The certified unit is the Ophir Palm Oil Mill (POM) with a capacity of 40 Tons of FFB/hour and the Ophir Area with a total area of 3,256 Hectares. PT. Perkebunan Nusantara VI (LLC) Ophir Unit's ISPO certificate is valid for 5 (five) years, effective from February 5, 2016, until February 5, 2021.

In general, the process carried out by PT. Perkebunan Nusantara VI The Ophir Unit for obtaining ISPO certificates is explained in figure 2 below.

![Flowchart of ISPO implementation process by PT. Perkebunan Nusantara VI Ophir](image)

**Figure 2.** Flowchart of ISPO implementation process by PT. Perkebunan Nusantara VI Ophir

### 3.1.2. Discussion

PT. Nusantara Plantation Ophir VI has carried out the process of preparing the complete document and preparation for completing the ISPO certification process field. Quite a number of requirements must be completed to register until the process of obtaining an ISPO certificate. [6] stated that palm oil plantation businesses that would apply for ISPO certification must complete several documents to fulfil legal aspects. According to [7] ISPO is a stronger system because it is based on legality. The legality aspect in ISPO is one of 7 (seven) principles that are used as references in the application of ISPO certification. ISPO certification has binding legal force and violations of law will be faced with authorities in Indonesia. Violations of the law can result in the cancellation of plantation permits.

Furthermore, [6] stated that the implementation of the ISPO certification system had been considered to be running less optimally because of several factors, including related to the fulfilment.
of the legality aspects and the issue of financing ISPO certification. In addition to having to prepare a number of legal documents, plantation companies who will propose ISPO certification must also prepare a number of certification costs that have been borne by the businessmen themselves. The reality in the field shows that business people sometimes cannot fulfil the required legal documents. In fact, some businessmen complain about the high cost of ISPO certification. For the issue of legality, the Indonesian government and other stakeholders must work harder to find the main problems and solutions related to the slow or non-fulfilment of legality requirements by plantation businessmen. For financing problems, the government must be able to formulate price standards and look for alternative financing for ISPO certification, especially for plasma planters and/or independent smallholders.

Procedures for recognizing PT. Nusantara Plantation Ophir VI's ISPO certification is in accordance with the mechanism as stipulated in Minister of Agriculture Regulation No. 11/Minister of Agriculture Regulation/OT.140/3/2015. The stages of the ISPO certification process begin with an audit conducted by the certification body. The audit results from the certification body were verified again by the ISPO Commission Secretariat. After that, an assessment was carried out at the level of the ISPO Assessment Team. After the Assessment Team gave recommendations, discussions were then carried out at the ISPO Commission level to obtain recognition. Finally, the certification body issues an ISPO certificate.

Reference [7] highlight that the third party ISPO certification procedure is more complicated, the first stage of verification is carried out by an independent auditor, but at a later stage, the ISPO Commission that conducts an assessment before being able to approve the certificate that is issued by the independent certification body. Furthermore, [6] stated that the large role given to the ISPO Commission in the ISPO certification process, namely through the ISPO secretariat which is under the auspices of the Ministry of Agriculture, was considered by some as a practical obstacle for ISPO certification executants and institutions that should be independent. Therefore, there must be improvements to the institutional mechanism in the implementation of ISPO certification. Based on a study conducted by the Coordinating Ministry for the Economy, the fundamental change in the proposed strengthening of the ISPO institutional scheme is that the implementation of ISPO certification will be carried out fully and independently by the ISPO certification body in accordance with a scheme that has been regulated and/or established by the National Accreditation Committee. In addition, there are independent monitors tasked with monitoring the implementation of ISPO certification.

3.2. Impact of PT Perkebunan Nusantara VI Ophir’s ISPO certification application: economic aspects

3.2.1. Results

The impact of the application of ISPO certification from the economic aspect financially influences the increase in production costs, revenue from sales, and income received by PT. Perkebunan Nusantara VI Ophir. To analyze the impact of ISPO implementation on PT. Perkebunan Nusantara VI Ophir on economic aspects, comparing the average level of revenue from sales, production costs, and income received by the company after ISPO certification compared to before the ISPO certification, with the results of the comparison as follows:

- **Production of Fresh Fruit Bunches (FFB)**
  Comparison of FFB production rates and productivity of FFB core area plantations at PT. Perkebunan Nusantara VI Ophir at the time before (2013, 2014, 2015) and after (2016, 2017) ISPO certification, can be seen in table 3 below.

| No. | Description                  | Before the application of ISPO | After the application of ISPO |
|-----|------------------------------|-------------------------------|-------------------------------|
| 1.  | FFB Production (Ton)         | 48.101.613                    | 75.351.955                    |
| 2.  | FFB Productivity (Ton / Ha)  | 24.904.34                     | 25.740.29                     |

Source: FFB Production of PT. Perkebunan Nusantara VI Ophir from 2013 till 2017.
Based on the table above, it can be seen that at the time after ISPO certification compared to before ISPO certification, the average FFB production level was 56.65% and the average level of FFB productivity was 3.36%. So that it can be concluded, the application of ISPO certification affects the increase in FFB production of PT. Perkebunan Nusantara VI Ophir.

- **Production of Palm Oil CPO and Palm Kernel**
  Comparison of the total production of CPO and Kernel from the Palm Oil Mill (POM) processing of PT. Perkebunan Nusantara VI Ophir at the time before (2013, 2014, 2015) and after (2016, 2017) ISPO certification, can be seen in table 4 below.

| No. | Description | Before the application of ISPO | After the application of ISPO |
|-----|-------------|-------------------------------|-----------------------------|
| 1   | CPO Production (Ton) | 11,326,673                   | 16,803,935                  |
| 2   | Kernel Production (Ton) | 2,046,864                   | 2,087,363                  |
| 3   | CPO & Kernel Production | 13,373,537                  | 18,891,298                 |
| 4   | CPO Productivity (Ton / Ha) | 5,917,76                   | 5,219,46                   |
| 5   | Palm Kernel Productivity (Ton / Ha) | 1,076,20                | 649,89                     |

| 6   | CPO & Kernel Productivity (Ton / Ha) | 6,993,959                | 5,869,348                  |

Source: CPO and Palm Kernel Production of PT. Perkebunan Nusantara VI Ophir from 2013 till 2017

Based on the table above, it can be seen that the average level of CPO and Palm Kernel production at the time after ISPO certification was 41.26% higher than before ISPO certification. However, the average productivity of CPO and Palm Kernel of PT. Perkebunan Nusantara VI Ophir at the time after ISPO certification was 16.08% lower than before ISPO certification. So it can be concluded, the application of ISPO certification does not affect the increase in the production of CPO and Palm Kernel from the POM processing of PT. Perkebunan Nusantara VI Ophir.

- **The yield of Crude Palm Oil (CPO) and Palm Kernel**
  Comparison of the yield of CPO and Palm Kernel of PT. Perkebunan Nusantara VI Ophir at the time before (2013, 2014, 2015) and after (2016, 2017) ISPO certification, can be seen in table 5 below.

| No. | Description | Before the application of ISPO | After the application of ISPO |
|-----|-------------|-------------------------------|-----------------------------|
| 1   | CPO Yield (%) | 23,69                       | 22,23                      |
| 2   | Palm Kernel Yield (%) | 4,31               | 2,83                       |

Source: The yield of CPO and Palm Kernek of PT. Perkebunan Nusantara VI Ophir from 2013 till 2017

Based on the table above, it can be seen that after ISPO certification compared to before ISPO certification, the average CPO yield was 2.05% lower and the average Palm kernel yield was 11.48% lower. So it can be concluded, the application of ISPO certification does not affect the increase in the yield of CPO and the yield of Palm Kernel from the MCC processing of PT. Perkebunan Nusantara VI Ophir.

- **Selling Price of Crude Palm Oil (CPO) and Palm Kernel**
  Comparison of the selling prices of CPO and Palm Kernel of PT. Perkebunan Nusantara VI Ophir at the time before (2013, 2014, 2015) and after (2016, 2017) ISPO certification, can be seen in table 6.

| No. | Description | Before the application of ISPO | After the application of ISPO |
|-----|-------------|-------------------------------|-----------------------------|
| 1   | CPO Selling Price | 7381,96                   | 8154,17                    |
| 2   | Kernel Selling Price | 4336,46                   | 6606,90                    |

Source: Selling Price of CPO and Palm Kernel of PT. Perkebunan Nusantara VI Ophir from 2013 till 2017
Based on the table above, it can be seen that at the time after ISPO certification compared to before ISPO certification, the average selling price of CPO was 10.46% higher and the average palm kernel selling price was 52.36% higher. So it can be concluded, the application of ISPO certification affects the selling price of PT. Perkebunan Nusantara VI Ophir’s CPO and Palm Kernel.

- **Sales of PT. Perkebunan Nusantara VI Ophir**
  Comparison of sales volume and revenue from sales of PT. Perkebunan Nusantara VI Ophir’s CPO and Palm Kernel at the time before (2013, 2014, 2015) and after (2016, 2017) ISPO certification, can be seen in table 7 below

  **Table 7.** Comparison in PTPN VI ophir average sales rate at the time before and after ISPO

| No. | Description                                | Before the application of ISPO | After the application of ISPO |
|-----|--------------------------------------------|--------------------------------|-------------------------------|
| 1   | Sales Volume of CPO and Kernel (Ton)       | 13.373.537                     | 18.891.298                    |
| 2   | Acceptance of CPO and Kernel Sales (Rp)    | Rp. 92.650.901.570,-          | Rp.150.892.397.565,-         |
| 3   | Receiving Sales of Rp. / Ton               | Rp. 6927,928,-                | Rp. 7987,4023,-              |

Source: Income Statement of PT. Perkebunan Nusantara VI Ophir from 2013 till 2017

From the table above, it can be seen that at the time after ISPO certification compared to before ISPO certification, the average level of acceptance of PT. Perkebunan Nusantara VI Ophir from the sale of CPO and Palm Kernel is 62.86% larger and the average revenue per Ton is greater by 15.29%. This shows that there is an increase in the amount of revenue from the sale of CPO and Kernel of PT. Perkebunan Nusantara VI Ophir at the time after the adoption of ISPO certification. This is due to an increase in the volume of CPO and Kernel production at the time after ISPO certification. Comparison of the average volume of production of CPO and Kernel at the time after ISPO was 41.26% greater than at the time before ISPO. So it can be concluded, the application of ISPO certification affects the increase in revenue from the sale of PT. Perkebunan Nusantara VI Ophir's CPO and Palm Kernel.

- **Production Costs of PT. Perkebunan Nusantara VI Ophir**
  Comparison of the average production cost of PT. Perkebunan Nusantara VI Ophir at the time before (2013, 2014, 2015) and after (2016, 2017) ISPO certification can be seen in table 8 below

  **Table 8.** Comparison in PTPN VI ophir average production costs at the time before and after ISPO

| No. | Description                        | Before the application of ISPO | After the application of ISPO |
|-----|------------------------------------|--------------------------------|-------------------------------|
| 1   | Garden Production Costs            | Rp. 24.024.819.720             | Rp. 43.757.968.086           |
| 2   | Garden Processing Fees             | Rp. 3.572.997.671              | Rp. 10.034.514.695           |
| 3   | Depreciation Costs                 | Rp. 8.500.245.946              | Rp. 14.095.522.869           |
|     | **Total Production Costs of Areas**| Rp. 27.597.817.392             | Rp. 53.792.482.781           |
| 4   | Plant Cost per Hectare             | Rp. 10.011.421.93              | Rp. 10.428.588.30            |
| 5   | Production Costs per Hectare       | Rp. 13.528.774.39              | Rp. 16.688.669.49            |
| 6   | **Production Costs per Kg**        | Rp. 739.88                     | Rp. 889.00                   |

Source: Production cost in PT. Perkebunan Nusantara VI Ophir, from 2013 till 2017

Based on the table above, it can be seen that at the time after ISPO certification compared to before ISPO certification, the average production cost was 94.92% higher, the average production cost per hectare was 23.36% higher, the average production cost per Kg was 94.92% higher.

This shows that there are additional costs for the production costs of PT. Perkebunan Nusantara VI Ophir at the time after the adoption of ISPO certification. This is due to an increase in the cost of the components of garden production costs by an average of 82.14%, the average cost of gardening is 180.84%, and the average depreciation expense is 65.82% after ISPO certification, compared to before ISPO certification.

To see a comparison of garden production costs that greatly affect the production costs of PT. Perkebunan Nusantara VI Ophir Unit at the time before and after ISPO certification was analyzed by comparing the average cost of production at the time before (2013, 2014, 2015) and after (2016, 2017) ISPO certification, with the results of the analysis that could be seen in table 9 below.
From Table 9 above, it can be seen that the average cost of garden production at the time after ISPO certification was 82.14% greater than at the time before ISPO certification, and the average cost of garden production per hectare was 14.47% higher. This is due to an increase in the components of plantation production costs at the time after ISPO certification compared to before the ISPO certification, including general costs 176.22%; plant maintenance costs produce 70.20%; harvest costs 55.77%; factory transportation costs 59.44%.

To see a comparison of the cost of maintaining a plant that greatly influences the cost of producing PT. Perkebunan Nusantara VI Ophir Unit at the time before and after the ISPO certification was analyzed by comparing the average maintenance costs of the plants before (2013, 2014, 2015) and after (2016, 2017) ISPO certification, with the results of the analysis can be seen in Table 10 below.

From Table 10 above, it can be seen that the average maintenance costs of generating plants for PT. Perkebunan Nusantara VI Ophir at the time after ISPO certification was 70.20% greater than before the ISPO certification. This is due to an increase in the components of plant maintenance costs at the time after ISPO certification compared to before the ISPO certification, including weeding costs 96.27%; fertilizer costs 69.96%; maintenance costs for plants produced 62.51%; the cost of maintaining roads, waterways and drainage is 50.65%; cost of eradicating pests and diseases 33.50%; the cost of staff salaries is 31.73%; other costs of 10.19%.

Based on the description above, it can be seen that there are additional costs for the cost component: weeding; fertilization; maintenance of produce; maintenance of roads, waterways and drainage; and the cost of eradicating pests and diseases, after the ISPO certification. This causes an increase in costs for the cost of garden production at the time after ISPO certification, resulting in production costs of PT. Perkebunan Nusantara VI Ophir at the time after the ISPO certification was greater than before the ISPO certification. This shows that there is an increase in the cost of garden production at the time after the adoption of ISPO certification, which will greatly affect the production costs of PT. Perkebunan Nusantara VI Ophir at the time after the adoption of ISPO certification. So that it can be concluded, the application of ISPO certification affects the increase in production costs of PT. Perkebunan Nusantara VI Ophir at the time after ISPO certification.
• *Revenue of PT. Perkebunan Nusantara VI Ophir*
Comparison of the average revenue of PT. Perkebunan Nusantara VI Ophir at the time before (2013, 2014, 2015) and after (2016, 2017) ISPO certification, can be seen in table 11 below.

| Table 11. Comparison in PTPN VI ophir average revenue level at the time before and after ISPO |
| --- | --- | --- | --- |
| No | Description | Before the application of ISPO | After the application of ISPO |
| 1 | Total Receipt | Rp. 92,650,901,570,- | Rp. 150,892,397,564,- |
| 2 | Total Cost | Rp. 36,098,063,338,- | Rp. 67,888,005,649,- |
| 3 | Revenue (Rp) | Rp. 56,552,838,232,- | Rp. 83,004,391,915,- |
| 4 | Revenue Rp/Ton | Rp. 4,256,- | Rp. 4,422,- |

Source: Income Statement of PT. Perkebunan Nusantara VI Ophir from 2013 till 2017

From the table above, it can be seen that the average revenue level of PT. Perkebunan Nusantara VI Ophir at the time after ISPO certification was greater than before ISPO certification. Although the revenue from the sale of *CPO* and *Palm Kernel* at the time after ISPO certification increased by 62.86%, the production costs incurred by the company in producing *CPO* and *Palm Kernel* also increased by 88.07%, resulting in revenue from *CPO* and *Palm Kernel* sales received by the company only increased by 46.77%.

Likewise, the average income level per Ton received by PT. Nusantara Plantation at 3.92% higher after ISPO certification compared to before ISPO certification. So that it can be concluded, the application of ISPO certification has an effect on increasing the revenue of PT. Perkebunan Nusantara VI Ophir.

• *Analysis of Acceptance Fees Ratios (R / C ratio)*
To find out the financial benefits at the time after the adoption of ISPO certification at PT. Perkebunan Nusantara VI Ophir, explained by conducting a comparison of the average ratio of revenue to costs (R / C ratio) at the time before (2013, 2014, 2015) and after (2016, 2017) the application of ISPO certification, with results that can be seen in table 12 below.

| Table 12. Comparison in PTPN VI ophir average acceptance fees at the time before and after ISPO |
| --- | --- | --- |
| No | Description | (R/C ratio) |
| 1 | Before the application of ISPO | 2.64 |
| 2 | After the application of ISPO | 2.29 |

Source: Ratio of revenue to cost (R / C ratio) of PTPN VI Ophir from 2013 till 2017

From the table above, it can be seen that the average comparison of the calculation of the acceptance fees ratio is seen by the R / C ratio at the time after the ISPO certification is smaller by 13.45% compared to before ISPO certification. Even so, the R / C ratio is greater than one (R / C > 1), meaning that the revenue obtained is greater than the cost. So that it can be concluded, although there is no increase in the ratio of calculation of acceptance fees at the time after the application of ISPO certification, the application of ISPO certification to PT. Perkebunan Nusantara VI Ophir is financially efficient over the costs incurred.

3.2.2. *Discussion*
Judging from the comparison of the selling prices of CPO and Palm kernel of PT. Perkebunan Nusantara VI Ophir, the average selling price of CPO and Palm Kernel at the time after ISPO certification is higher than before ISPO certification. However, this is not influenced by ISPO certification, but the quality of CPO is good, the level of FFA (free fatty acids) is low, and the increase in world CPO prices. The application of ISPO certification does not appear to influence the price of the selling price of Palm Oil (CPO) and Palm Kernel of PT. Perkebunan Nusantara VI Ophir. Thus, it can be concluded that there is no difference in the selling price of CPO between ISPO-certified plantations and non-ISPO certified plantations.

This is in line with the results of research by [9], that there was no difference in the selling price of CPO between RSPO-certified plantations and non-RSPO certified plantations. The results of the
research by [9] related to "Comparative Analysis of Revenue between Certified Plantations and the Non-Certified Plantation Roundtable On Sustainable Palm Oil (RSPO)" shows that before and after PT. Nusantara Plantation III RSPO certified, there is no difference in price both nominal price and real price, sales volume, production costs and income.

The application of ISPO certification at PT. Nusantara Plantation Ophir has provided benefits that have an effect on revenue from sales had increased. Whereas [10] in his research entitled "Analysis of Costs and Benefits of RSPO Certification for Palm Oil Companies" shows that the direct benefits received after RSPO certification has not affected the increase in selling prices, sales volume and market reach of CPO. Likewise with the results of the research by [11] in a study entitled "The Impact of RSPO Implementation on CPO Export Sales Volume and Revenue in State Plantation Companies" shows that there were no significant differences in both the CPO export sales volume differences, production costs, prices and revenues before and after the RSPO implementation.

PT. Nusantara Plantation Ophir VI in obtaining ISPO certification has issued a number of costs for the process of fulfilling the requirements for processing the certificate, as well as the cost of applying 7 principles of 41 criteria and 128 indicators as requirements for implementing ISPO certification. Judging from the number of costs to obtain ISPO certification at PT. Nusantara Plantation Ophir VI, it does not significantly affect production costs because most of the ISPO principles and criteria have been met before obtaining ISPO certification. Besides that, the application of ISPO certification at PT. Nusantara Plantation Ophir VI does not burden the company in terms of finance, because most of the ISPO certification costs are not charged to the Ophir Business Unit but are the cost to the head office of PT. Nusantara Plantation VI. This is in line with the research results of [10], that the production costs before and after RSPO certification are not significantly different because most principles and criteria have been applied before RSPO certification.

From the economic aspect, the application of ISPO certification at PT. Nusantara Plantation Ophir has provided benefits that have an effect on increasing income. Although the average amount of production and the yield percentage of CPO and Palm Kernel decreased, while the production cost increased, revenue from sales had increased so that it had an impact on the increase in income of PT. Nusantara Plantation Ophir VI. Whereas [12] in her research entitled "Impact of RSPO Implementation on Revenue at PT. Bakrie Sumatera Plantation, Inc" shows that the application of the RSPO has no significant effect on profits at PT. Bakrie Sumatera Plantation. Even though the price of CPO and Palm Oil products is increasing, but because the production of CPO and Palm kernel is very declining, so it does not affect the profits of CPO and Palm Oil products of PT. Bakrie Sumatera Plantation, Inc.

The results of the calculation of the acceptance ratio to the costs of implementing ISPO certification at PT. Nusantara Plantation Ophir VI, the value of R/C ratio is greater than 1 (one). Means, the implementation of ISPO certification at PT. Nusantara Plantation Ophir VI is financially efficient for the costs incurred. While the results of the [13] study that identified the benefits and costs of the current scenario of palm oil plantation operations or if the company registered as an RSPO member, indicated that the overall financial benefits obtained from the sale of certified CPO and PKO were not greater than the costs incurred.

3.3. Impact of ISPO certification implementation: non-financial aspects
3.3.1. Results
The impact of implementing ISPO certification aside from the financial aspects that do not directly affect the level of sales and revenues received by PT. Perkebunan Nusantara VI Ophir after obtaining the ISPO certification, it can be seen from the aspect of the operational, environmental and social relations, and trade of CPO and Palm Kernel as follows:

- **Operational Aspects**
  Benefits of implementing ISPO certification in terms of operations received by PT. Perkebunan Nusantara VI Ophir after the implementation of ISPO is as follows:
  a) Repairing and completing existing documents in plantation companies and adjusting and uniformizing operational activities and plantation company documents.
Indicators of fulfilling the ISPO principles and criteria in each article, in large part, are in the form of availability of documents for the implementation of each of the ISPO principles and criteria. In principle, the majority are in the form of SOP documents/work instructions, evidence of documentation of activities, and records of the realization of the implementation of each of the ISPO criteria. Indicators of the availability of documents that fulfill the ISPO criteria, most of which have been met by PT. Perkebunan Nusantara VI Ophir at the time before the adoption of the ISPO.

b) Plant maintenance work is well managed.

Plant maintenance activities by applying Palm Oil Good Agriculture Practice (GAP) according to the Standard Operating Procedure (SOP) have been carried out by PT. Perkebunan Nusantara VI Ophir intensively includes goal maintenance; dish maintenance; fertilization; eradication of pests and diseases; and repayment.

c) Post-harvest work is well managed.

Plantation companies have harvested on time in a good and correct manner and recorded FFB production. The plantation company ensures that harvested FFB is then collected at the harvest collection site then brought to the processing plant as soon as possible to avoid deterioration in quality. Regarding FFB receipts in the Palm Oil Processing Unit, the plantation company ensures that the FFB received is in accordance with the requirements. The company has provided TBS acceptance and inspection/sorting SOPs, records of TBS receipt documentation that are appropriate and not in accordance with the requirements, and documentation of FFB prices.

d) A well managed Manpower Acceptance System.

Workforce recruitment required by PT. Perkebunan Nusantara VI Ophir is carried out by recruiting workers who do not need special expertise based on the needs of the company with the approval of the board of directors, and the recruitment of workers with special expertise based on needs is carried out by the head office of PT. Perkebunan Nusantara VI Jambi. The labour recruitment mechanism set by PT. Perkebunan Nusantara VI Ophir has given local communities the opportunity to seize the available employment opportunities in the company according to the requirements needed. Labour needed by companies can be recruited from communities in the surrounding environment, both casual daily workers and permanent workers.

The wage/payroll system of workers is grouped into two large groups, namely permanent and non-permanent workforce. Permanent Labour, with monthly salaries varying per month. Honorary staff, with salary according to the Regional Minimum Wage. Non-permanent labour, with salary per day. Every overtime job is paid overtime in accordance with applicable regulations.

In managing comfort, safety and health, PT. Perkebunan Nusantara VI Ophir has prepared: polyclinic facilities and infrastructure; cooperation; religious facilities (mosques, prayer rooms, and churches); sports and arts facilities; housing; SPS work unit; kindergarten; an elementary school and car transfer for school students; scholarship for company employees' children.

e) Fire cases can be minimized.

During the past few years, there have been no incidents of land fires in the PT. Perkebunan Nusantara VI Ophir Cultivation Rights area caused by plantation activities. This is because the effectiveness of prevention efforts carried out by officers both through coaching and counselling to workers and the community as well as preventive measures against the sources of land fires. The fire department coordination team is very active not only in the dry season.

f) Work Accident Cases can be minimized.

Based on Reports of Common Problems of PT. Perkebunan Nusantara VI Ophir Unit which has been carried out regularly, it is known that there are no work accidents. Occupational health and safety program at PT. Perkebunan Nusantara VI Ophir has been implemented in accordance with applicable regulations.

g) FFB theft cases can be minimized.

In the core plantation area, there were no incidents of FFB theft, thanks to the readiness of the company security officers and good cooperation with community leaders.
**Environment Aspects**
PT. Perkebunan Nusantara VI Ophir unit has been awarded a blue rank in the assessment of the company's performance in the environmental field. During this time, the company's management has carried out environmental monitoring, especially on environmental management that has been carried out so far, and the results of its implementation have been analyzed based on the standards of environmental quality that have been established so as to obtain a level of decline and level of improvement in the quality of life carried out.

The commitment of the company has been able to provide good results for the environment so that there are not many complaints from the surrounding community. The application of ISPO which regulates the environmental management of plantations and minimizes existing environmental problems, including the following:

a) **Managing the Impact of Water Quality Reduction.**
   Monitoring the quality of wastewater, most of the results of the analysis have met the quality standards of liquid waste in accordance with the decision of the Minister of the Environment number 51 of 1995 concerning the quality standards of wastewater for the palm oil industry, the average value has met quality standards. The results of monitoring the quality of river water are good before and after being mixed with wastewater, almost all parameters have met the water quality standards of Class II rivers in accordance with government regulation number 82 of 2001.

b) **Managing Air and Noise Quality.**
   The results of monitoring the quality of gas emissions and total particles in the boiler chimney of PT. Perkebunan Nusantara VI factory Ophir still meet the air quality standards of emissions in accordance with the regulation of the minister of environment number 7 of 2007 concerning emission quality standards of immovable sources. The results of the analysis of ambient air quality and noise levels around the PT. Perkebunan Nusantara VI Ophir factory both inside the factory and employee housing are still below the threshold value as stipulated in Government Regulation number 41 of 1999 concerning the standard level of noise, vibration and noise.

c) **Managing B3 Waste Management.**
   To avoid the impact of environmental pollution, the used lubricants produced by the palm oil mill activities are put into drums that have been provided and stored in a particular warehouse that is protected from sunlight and waterproof floors. So that spillage of used lubricants does not pollute the environment in temporary storage warehouses equipped with oil traps. Some of these used lubricants are used as engine chain lubricants, but if there is anything left, it will be sold to collectors who already have permits.

d) **Managing Land Use Throughout the Watershed.**
   Land use along the watershed is residential, community fields, religious facilities, planting mahogany trees in the watershed. While the use of river water is for fish prohibition, management of liquid waste that has high potential as a nutrient for plant growth that will provide benefits as nutrients for fish cultivation, as well as maintaining moisture and biogas energy sources.

**Social Community Aspects**
The benefits of applying ISPO certification based on social community relations are as follows:

a) **The company does not experience land problems or land conflicts.**
   PT. Perkebunan Nusantara VI Ophir Unit does not experience the problem of conflicts with the community. The problem of conflict with the community such as problems about land and so on can be minimized and can be overcome due to a system of handling land conflicts that are good, in accordance with the principles and criteria of ISPO which regulates the mechanism for resolving land disputes.

b) **The problem of conflict with community due to pollution can be controlled.**
   In an effort to prevent health problems from local communities due to factory activities, PT. Perkebunan Nusantara VI Ophir has made various efforts by directly contributing funds to the community for the construction of clean water facilities, as well as equipping adequate health
facilities and infrastructure with medical and paramedical personnel so that factory activities do not cause public unrest.

For comfort, safety and health, PT. Perkebunan Nusantara VI Ophir has prepared tools and facilities for polyclinics, cooperatives, religious facilities (Mosques, Musholla, and Churches), sports and arts facilities, housing, Indonesian Workers Union work units, kindergartens, elementary schools and cars for picking up students, scholarships son of a company employee. And to anticipate and overcome public health problems and labour due to company activities, 1 (one) health clinic has been built complete with the provision of doctors, medical/medical personnel and medicine. All health costs are borne by the Social Security Agency of Health.

c) Problems of public unrest as a result of changes in land function to plantation land can be overcome.

In anticipating the impact of changes in the functions of land use on the decline in community welfare income, PT. Perkebunan Nusantara VI Ophir has made the following management efforts:

1) Providing opportunities for local people (local residents) to become workers in companies, both non-permanent workers and permanent workers.

2) Developing a plasma plantation covering 4,800 hectares with a primary cooperative credit pattern for Primary Cooperative Credit Members which has an impact on increasing community income/income (2400 households).

3) Distributing aid funds to 103 fostered partners around the company, related to the development of Small Businesses and SME Development and Cooperation Cooperatives through the utilization of a portion of SOE profits.

In addition to impacting the decline in income and community welfare, the existence of the MCC also has several impacts that can benefit the community around the company's environment. Ophir MCC has helped accommodate community harvests that will support the company's productivity. In addition, it opens up business opportunities for the local community, especially in the transportation services business, namely the provision of FFB transportation equipment from the plantation to the factory, and the loading and unloading of FFB labourers and goods that have implications for people's income.

d) Improve relations with local stakeholders, including government, labour, civil society and buyers.

ISPO certification is a rule and principle that has been made by the Indonesian government by taking into account 3 aspects (3P), namely profit (economy), people (social), planet (environment). Social responsibility is related to the company's commitment to social and environmental problems, enhancing relationships with local stakeholders, including government, labour, civil society and buyers. ISPO criteria are based on social community relations. ISPO requires companies to provide data and information to stakeholders, social and community responsibilities, empowerment of indigenous peoples, addressing problems of public unrest as a result of changes in land functions to plantation land, and problems with conflict with communities as a result of environmental pollution. The socioeconomic aspects contained in the ISPO principles and criteria include the process of facilitating the development of gardens for the surrounding community, land tenure, responsibility for workers in occupational safety and health and in improving the welfare of workers 'ability, the formation of trade unions and workers' cooperatives, economic empowerment of the community.

- Trading of CPO & Palm Kernel Products

Based on the results of the study, it can be seen that the application of ISPO certification at PT. Nusantara Plantation Ophir has provided benefits that have an effect on increasing income. Although the average amount of production and the yield percentage of CPO and Palm Kernel decreased, while the production cost increased, revenue from sales had increased so that it had an impact on the increase in income of PT. Nusantara Plantation Ophir VI.

With the implementation of ISPO, it is expected that the CPO products produced have superior quality and grade as well are environmentally oriented so as to be able to ward off the negative issues.
of managing palm oil plantations and meet market demand for CSPO (*Certified Sustainable Palm Oil*). PT. Nusantara Plantation Ophir VI, whose main target market is the domestic (local) market, is developing not only in the local market but also in the export market.

### 3.3.2 Discussion

The results of research showing that there are still other positive impacts from the application of ISPO certification in addition to the financial aspects of PT. Nusantara Plantation Ophir VI. These benefits can be seen from the operational aspects, social community relations, and the company's concern for the environment. In terms of operations, it affects the completeness of documents and conformity with operational activities; managed plant maintenance activities and labour recruitment systems; minimize fire cases, work accident rates, the incidence of FFB theft. Based on the relationship with the social community, it influences the handling of conflict issues with the community; relations with government, labour, society and buyers. From the environmental aspect, it affects the management of the impact of decreasing water quality, air quality and noise, hazardous and toxic materials waste treatment; and the company received a blue rating in the assessment of the company's performance in the environmental field. The results of the research by [10], shows that the indirect benefits received after the RSPO implementation were decreasing the number of workplace accidents, decreasing cases of land conflicts and decreasing fire cases.

Based on the results of the study, it can be seen that the application of ISPO at PT. Nusantara Plantation Ophir VI has been able to increase the concern of palm oil plantation businesses for the importance of producing sustainable palm oil and ultimately increase the concern of plantation companies in preserving natural resources and the environment. This is in line with the research result of [11] highlighted that although there were no significant differences in both the CPO export sales volume differences, production costs, prices and revenues before and after the RSPO implementation, the application of RSPO at PT. Nusantara Plantation III has a positive impact because it cares more about the environment.

ISPO is a policy taken by the Government of Indonesia in this case the Ministry of Agriculture in positioning palm oil development as an integral part of the Indonesian economy, which aims to meet global demands and improve the competitiveness of Indonesian palm oil in the global market, and support Indonesia's commitment to reduce the contribution of greenhouse gases and support Indonesia's commitment to the preservation of natural resources and the environment. With the ISPO arrangement, it is expected that all palm oil plantation businessmen in Indonesia can raise awareness of the importance of producing sustainable palm oil which can influence the increase in the competitiveness of Indonesian palm oil on the world market [8].

According to [7], with the existence of ISPO which is a principle and rule originating from Indonesia itself, it is expected that in the future Indonesian CPO can be accepted by the world because it has followed the ISPO principles and rules, including compliance with aspects/legal aspects; economy; environment; and social as applicable laws and regulations in Indonesia. With the implementation of ISPO, it is expected that the CPO products produced have superior quality and grade as well are environmentally oriented so as to be able to ward off the negative issues of managing palm oil plantations and meet market demand for CSPO (*Certified Sustainable Palm Oil*). [14] in her research entitled “Interaction of Renewable Energy Directive Policy and Indonesian Sustainable Palm Oil Policy Against Indonesian Palm Oil Exports to the European Union” shows that’s application of the ISPO is a tool for Indonesia to penetrate trade protection issued by the European Union through the Renewable Energy Directive (RED).

However, the study of [15] in the “Six Year ISPO” found that the adoption of ISPO had not been able to respond to the negative impacts caused by palm oil development so far, especially on environmental and social aspects. The ISPO certification system, which is expected to be the entry point for improving plantation and land governance, is felt to be limited to an instrument to gain recognition in the international market and dismiss negative issues related to the management of palm oil plantations in Indonesia.
Although the application of the ISPO certification obligation at PT. Nusantara Plantation Ophir VI has not been able to meet global demands and improve the competitiveness of Indonesian palm oil in the global market but in principle the fulfilment of ISPO certification obligations at PT. Nusantara Plantation Ophir VI has increased the awareness of businessmen about the importance of fulfilling the law, in an effort to encourage palm oil plantation companies to fulfil their obligations in accordance with laws and regulations. This is in line with the results of [16] research which shows that fulfilling ISPO certification obligations despite burdening the Company in terms of finance and fulfilment of bureaucracy, in the end, encourages the quality and productivity of CPO products produced and increases awareness of the importance of legal compliance.

4. Conclusions and suggestions

4.1. Conclusions

The results “Impact of ISPO Implementation on Economic, Social and Environmental Aspect of Palm Oil Plantation” for palm oil companies at PT. Perkebunan Nusantara VI Ophir Business Unit in West Pasaman Regency can be concluded as follows:

1. Stages of procedures for PT. Perkebunan Nusantara VI Ophir to obtain ISPO certification begins with the submission of an ISPO certification application to PT. AJA Certification Indonesia, then audit conducted by the certification body. After that, an assessment was conducted at the level of the ISPO Assessment Team to get recognition to plantation companies that met ISPO requirements and were announced to the public. Finally, PT. AJA Certification Indonesia issued an ISPO certificate to PT. Perkebunan Nusantara VI Ophir.

2. The impact of the application of ISPO certification on economic aspects is proved by an increase in production costs, revenues, and profit received by PT. Perkebunan Nusantara VI Ophir. Application of ISPO certification at PT. Perkebunan Nusantara VI Ophir has been financially efficient at the costs incurred.

3. ISPO certification received by PT. Perkebunan Nusantara VI Ophir affect operational aspects, relationships with the social community, the company's concern for the environment, as well as trading CPO and Kernel. This can be seen from affect the completeness of documents and conformity with operational activities; managing plant maintenance activities and labour recruitment systems; work accident rates; influencing the handling problems of conflict with the community; labour, society and buyers; the management of the impacts of water quality degradation, air and noise quality, B3 waste processing; and the company was awarded a blue rank in the assessment of the company's performance in the environmental field.

4.2. Suggestions

For plantation companies, as businessmen, it is expected to maintain environmental sustainability and preservation in producing palm oil in order to produce sustainable and environmentally friendly products. In addition, the company is also expected to make efforts such as separating certified CPO products from non-ISPO certification, improving marketing management systems, and conducting sales promotions so that the range of market interest is wider.

For the government, as the policymaker, must work harder to find issues and solutions related to the slow implementation of ISPO certification by plantation companies. The government is expected to make improvements to the institutional mechanism in the management of ISPO certification, must be able to formulate and find alternative financing for ISPO certification so that the costs for obtaining ISPO certification are not too large, and to be able to increase the acceptance of ISPO certification in the global market.

For further researchers, further research is needed on the impact of applying ISPO certification, both in palm oil plantation companies and in non-governmental organizations.
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