



<https://ojs.unud.ac.id/index.php/soca>

## Cooperatives as the Strengthening Effort for Oil Palm Replanting Program in Landak Regency

*Husnun Puspa Afifah, Nurliza and Dewi Kurniati*

*Faculty of Agriculture, Tanjungpura University Pontianak, West Kalimantan*

*Email: [puspaafifah@gmail.com](mailto:puspaafifah@gmail.com), [nurliza.spm@gmail.com](mailto:nurliza.spm@gmail.com), [dewiku108@gmail.com](mailto:dewiku108@gmail.com)*

*Submitted : April 6<sup>th</sup>, 2020 ; Revised : May 19<sup>th</sup>, 2020; Accepted: June 4<sup>th</sup>, 2020*

---

### **Abstract**

---

#### **Keywords:**

Palm Oil  
Replanting;  
Cooperative;  
Rapfish

---

Palm oil is one of the important plantation commodities in Indonesia's economic activities. Palm oil plants require rejuvenation (replanting) due to the decreasing productivity that caused by the old age of the plants (more than 25 years). Replanting is an effort to replace old oil palm plantations to maximize the income. The function and role of the cooperative is needed to be involved in the management of oil palm replanting. Cooperatives are a common need for farmers to manage their plantations, especially those related to management, plants, and financial techniques. The objective of this research was to optimize the role of cooperatives in an effort to strengthen the oil palm replanting program in Landak Regency. 22 respondents were taken by purposive sampling. This research used descriptive analysis. Data analysis used was Rap-Rep palm oil (Rapid Appraisal Replanting of palm oil) from the modification of Rapfish with Microsoft Excel software. The results of the research show that the replanting technical dimension, human resource development, and supporting elements are not optimal. Sensitive attributes that influenced the cooperative optimization in oil palm replanting program in Landak Regency are (1) Funding; (2) Institutions (3) Land Requirements ; (4) Training in Financial Management and Administration (5) Post Harvest Processing Tools; (6) Pesticides and Alsintan.

---

How to Cite (APA 6th Style):

Afifah, H. P., Nurliza, & Kurniati, D. (2021). Cooperatives as the Strengthening Effort for Oil Palm Replanting Program in Landak Regency. *SOCA: Jurnal Sosial Ekonomi Pertanian*, 15(1), 29-41.

<https://doi.org/https://doi.org/10.24843/SOCA.2021.v15.i01.p03>

## **INTRODUCTION**

Palm oil is one of the plantation commodities that play an important role in various economic activities in Indonesia. Palm oil is one of the most important industries in Indonesia which contributes between 1.5 - 2.5 percent to the total gross domestic product (GDP). In addition, opportunities for palm oil exports are increasingly open. The domestic palm oil and palm kernel oil market is still quite large (Central Bureau of Statistics, Indonesian Palm Oil Statistics 2017). Oil palm plants need to be replanted because, technically, oil palm needs to be rejuvenated after 25 years of age. Therefore, most of the plasma plantations of the people's core plantation have entered the age of rejuvenation. Although the age of the plant is not 25 years yet, with production of less than 10 tons / ha / year, the handling of plantation risks will also be affected; therefore, the plants need to be rejuvenated. Replanting is an effort to replace old palm oil plants to maximize income (Ministry of Agriculture 2017).

Farmers through cooperatives can apply for funding and conduct replanting activities. Farmers are ready and worthy of financing and following the replanting program for oil palm plantations, yet constraints on financing and regulations that require *avalis* are a barrier to replanting activities (Amalia, et al. 2017). Another problem is the concern of farmers about the funds obtained and coordination between related parties such as other farmers, companies, and related offices. Therefore, the function and role of cooperatives is needed in the management of oil palm replanting. Cooperatives are the joint needs of farmers in managing their plantations, especially those related to crop management and financial techniques. The principle of a cooperative is still lacking benefits for the management and its members, so that the interest of the community to become members of the cooperative is low. The results of the evaluation of the management of the oil palm core plantation from the economic, social and institutional aspects are still of poor status. The main factor is the lack of participation of farmers to farmer groups and become members of cooperatives (Al-Jaktsa 2018).

Cooperatives have a role to build, develop the potential and ability of the community to improve welfare, strengthen the progress of the people, and increase the achievement and develop the national economy (Law of the Republic of Indonesia 1992). In accordance with their role, cooperatives need to do partnerships with other parties. The third parties involved are related agencies in replanting oil palm. Partnership cooperation is also an important factor in cooperative development. Cooperation between cooperatives and companies can make a positive contribution to increasing palm oil production per hectare. The partnership can also facilitate coordination in replanting oil palm. Based on the description, the topic of "Cooperative Program as an Effort to Strengthen Oil Palm Planting in Landak Regency" is considered interesting to be studied. The purpose of this study is to optimize the role of cooperatives in efforts to strengthen the oil palm replanting program in Landak Regency.

## **RESEARCH METHODS**

This research was conducted in November to December 2019. The location of the study was conducted in the Landak Regency, precisely in the Sinar Jempana Cooperative, Titian Sejahtera Cooperative, Harapan Kita Cooperative, Pancur Sawit

Cooperative, Nahaya Indah Permai Cooperative, and Matahari Terbit Cooperative. The location was chosen because the cooperatives had received funding approval from the Directorate General, where the funds had been obtained by cooperative members who carried out replanting.

This research used quantitative descriptive methods. The population of this study was the management and members of cooperatives and related agencies. The sampling technique used in this study was non probability sampling using purposive sampling, which is the determination of the sample technique with special considerations (Sugiyono 2012). The research sample was taken from 5 cooperatives, namely 4 smallholders or cooperative management members for each cooperative, as well as 2 people from related agencies. So, the number of samples taken was 22 respondents. Retrieval of data was using questionnaires with interview techniques.

Analysis of the data in this study uses: (1) Rap-Rep palm oil (Rapid Appraisal Replanting of palm oil), which is a modified technique from the Rapfish program with the Microsoft Excel program; (2) Monte Carlo analysis used to evaluate the effect of random error on the process, the difference between the MDS and Monte Carlo calculation results is less than 1; (3) Determination of sensitive attributes is based on the order of priority in the results of leverage analysis, namely by looking at changes in the shape of the root mean square (RMS). The greater the value of RMS changes, the greater the role of these attributes in increasing the status of sustainability (Kavanagh 2007); (Pitcher and Preikshot 2000).

The variables in this study were mapped in several aspects. These aspects were then made into several dimensions that were considered relevant as a benchmark for achieving the objective of optimizing cooperatives as a strengthening of the replanting program for oil palm. These aspects were (1) Replanting technique; (2) Human Resource Development (HR); (3) Supporting Elements.

## RESULT AND DISCUSSION

### Characteristics of Cooperative Member Respondents

The socio-demographic characteristics used in this study are based on age, sex, occupation, education, religion, ethnicity, income, family type, and geographic location (Kotler and Armstrong 2001) . The characteristics are described in the following table:

**Table 1. Socio-Demographic Characteristics of Respondents**

Characteristics of Respondents	Frequency (Person)	Percentage (%)
Gender		
Male	22	100
Age of Respondents		
<30 years old	1	4.5
31-45 years old	8	36.3
46-55 years old	4	18.1
56-65 years old	8	36.3
> 65 years old	1	4.5
Race		
Dayak	22	100
Religion		

Catholic	19	86.3
Christian	3	13.6
Education		
Elementary school	3	13.6
Middle School	6	27.2
High school	10	45.4
> High school	3	13.6
The number of dependents		
1-3 people	8	36.6
4-6 people	12	54.4
7-10 people	2	9.1
Spending		
1-3 million	12	54.4
3.1-6 million	5	22.7
> 6 million	5	22.7

Source: Primary Data Analysis ( 2020 )

It is shown that oil palm farmers in Landak Regency are male in general. This is due to the culture of men working to support their wives and children. Gender factors also determine the level of participation and productivity of a person at work (Mahendra 2014). The age of farmers in this study is in the productive age, where in terms of health and work ability, farmers of productive age have the ability to work more effectively and have higher activities compared to those who are unproductive. The majority of the populations in the Landak Regency are Dayak Tribe; this is indicated by evidence such as the relics of the Long / *Batang* house in Landak Regency, Saham Village, Sengah Temila District (Central Bureau of Statistics, Statistics of Indonesian Palm Oil 2017). The most widely adopted religion is Catholicism that gives rise to uniformity. Religion etymologically means traditional regulations, teachings, and sets of laws that are hereditary and are determined by customs (Poerdarminta 1982).

In the terms of education, the farmers are generally at the high school level or equivalent. The level of education can be a determining factor in business development and increase productivity and rational mindset in making decisions compared to the low level of education which makes it difficult for farmers to adapt new innovations and is relatively hesitant in making decisions (Mosher 2012). The average dependents of respondents in the family are 4-6 people. The number of dependents in this study is still relatively small, so that the head of the family is still able to manage his household finances to buy daily necessities and finance the education of his children to university (Yulida and Yusri 2015). The most expense is Rp. 1,000,000.00 - Rp.3, 000,000.00. per month. Generally, the only income of farmers in the Landak Regency is obtained from oil palm alone. 76% of people work in the agricultural sector, especially oil palm plantations with a harvested area in Landak Regency of 79,209 hectares with a production of 152,672 tons in 2018 (BPS 2019).

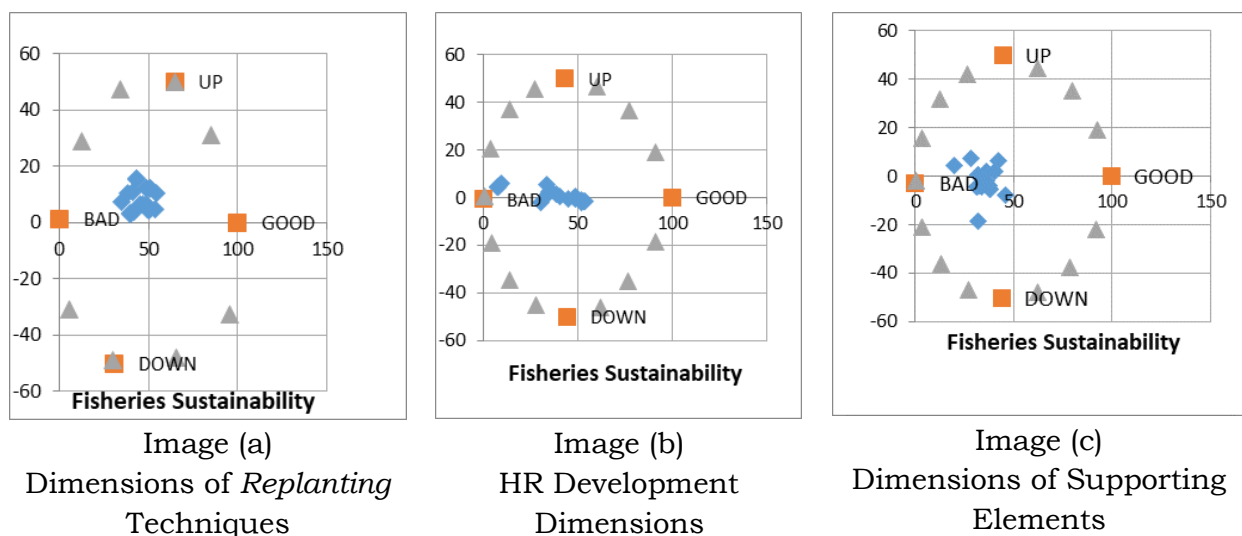
### **Cooperatives in Palm Oil Replanting Activities**

The majority of oil palm plantations of Landak Regency are already aged more than 25 years; therefore the plants are increasingly difficult to harvest and the

productivity begins to decline. The solution to the problem is replanting the oil palm plantations. The process of rejuvenation of oil palm (replanting) in Landak Regency has reached the stage of planting seeds. Replanting the oil palms involved many parties in the implementation, both the smallholders and the government. The Palm Oil Funding Management Agency is a source of funding for the rejuvenation of oil palm plants, human resources (HR), and facilities and infrastructure. The function of oil palm rejuvenation is to increase the productivity and income of oil palm plantations. Therefore, oil palm rejuvenation needs to be done. Through the cooperative, oil palm replanting activities are carried out to help farmers in replanting activities. Decree of the Director General No. 29 / KPTS / KB.120 / 3/2017 states that through oil palm plantations, farmers who are members of farmer groups, cooperatives and other institutional collectors, have the opportunity to be owners and beneficiaries. In such framework, the opportunity for more evenhanded and equitable income distribution is greater, and partnerships with large plantations can be carried out sustainably. Farmers have an obligation to join certain farmer group to withdraw the funds for replanting oil palm activities. In this study, the cooperative became an association of farmers who carry out the oil palm replanting activity in Landak Regency (Director General, 2018).

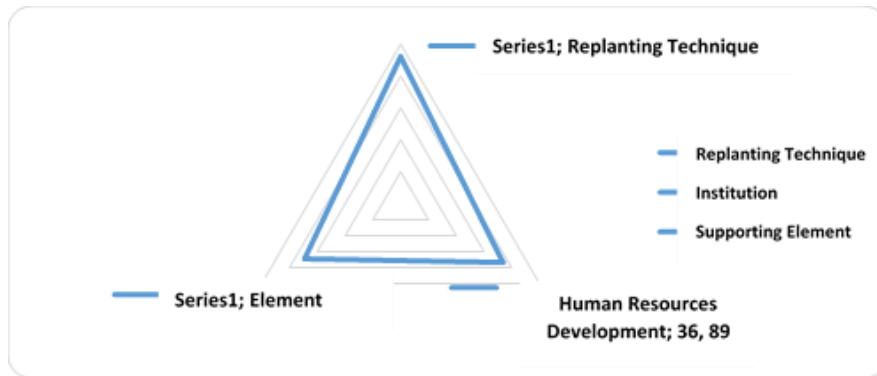
**Results of Rap-Rep Palm Oil (Rapid Appraisal Replanting of Palm Oil)**

Based on the analysis of *Rap-Rep Palm Oil*, it was found that the S-stress value of all dimensions is 0.25 and the value of R2 in all dimensions is close to 1, meaning that both of these statistical parameters indicate that all attributes used in each dimension are good. Furthermore Monte Carlo values on all dimensions show results <1. This means that the *Rep-Rap Palm Oil* research method has been done well, the research results are stable, and the error factor is small so that this study describes the situation as it really is and is not biased / accurate. The figures below show the results of the MDS analysis for the status of each dimension of strengthening the oil palm replanting program in Landak Regency:



**Figure 1. MDS Analysis Results (a) Dimensions of Replanting Techniques; (b) HR Development Dimensions; (c) Dimensions of Supporting Elements**  
 Source: Primary Data Analysis (2020)

Figure (a) shows the optimal value of the cooperative in the replanting technical dimension. These dimensions show value of 46.04, figure (b) shows value in the HR development dimension of 36.89, figure (c) shows value in supporting element dimension of 34.60. These values are at an interval of 25.01-50.00, which means that the replanting technical dimensions, HR development, and supporting elements are in the less optimal category. The distribution is within the boundary circle (anchor) of these dimensions. The closer to the *good* pole, the better the status is.

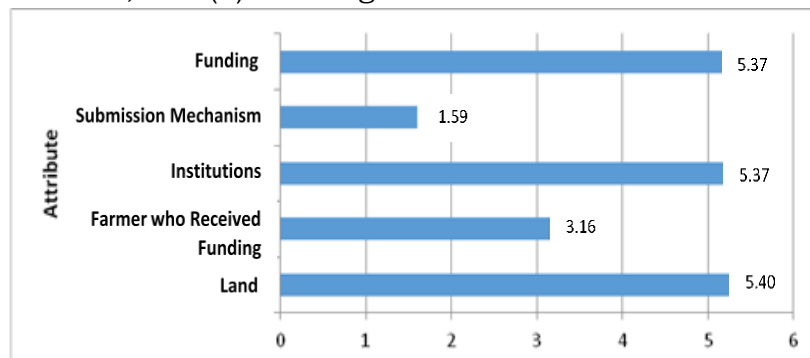


**Figure 2. Rap-Rep Palm Oil Flow Chart**  
 Source: Primary Data Analysis, 2020

The index value of each dimension is shown in figure 1. The Replanting Technical Dimension has the highest index value of 46.04 (less optimal), the next is the Institutional dimension with an index value of 36.89 (less optimal) and the lowest is the Element dimension Supporters with an index value of 34.6 (less than optimal). All of these dimensions are less than optimal, meaning that various improvements need to be made to all dimensions of palm oil replanting management in Landak Regency. The management of oil palm smallholders by cooperatives also needs to be emphasized on the management of sensitive attributes on the three dimensions that exist with low index values or less optimal status.

**Replanting Technical Dimensions**

The results of the analysis on MDS show that the technical dimensions of replanting oil palm in Landak Regency are less than optimal. In addition, the sensitivity analysis (leverage) in Figure 3 shows three sensitive attributes, namely (1) Land; (2) Institutions; and (3) Funding.



**Figure 3. Technical Replanting Leverage**  
 Source: Primary Data Analysis, 2020

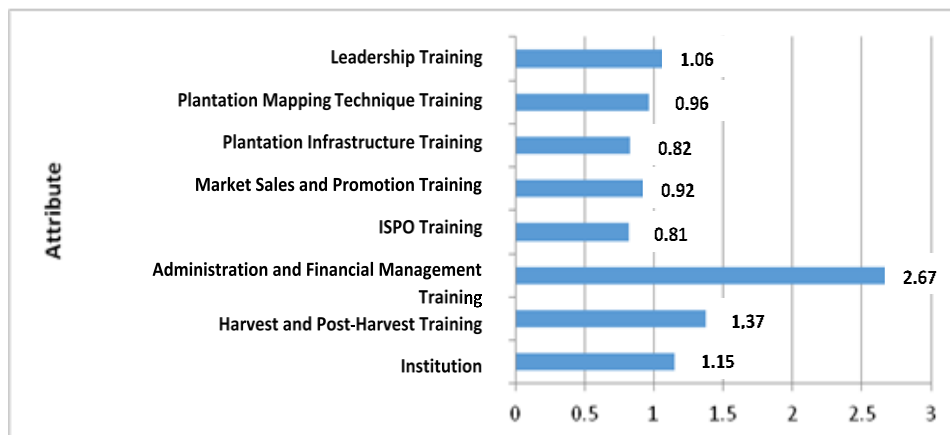
Land requirements for the approach of farmers in the Landak Regency generally follow the guidelines of replanting procedures from the government. The total area of land owned by farmer groups incorporated in cooperatives is 50 ha / farmer group, only a small proportion of farmer groups own land <50 / ha due to the limited number of cooperative members, which is under 30 members (Ministry of Agriculture, 2017).

Institutions that participated in replanting activities were several members of cooperatives in the Landak Regency. An active bank account is necessary for members of the cooperative. Besides savings accounts, cooperative members can also open other financial accounts besides the bank. The average members of a cooperative in Landak Regency usually do not have another financial account because of their inability. Members who have a non-bank financial account usually keep their money in a savings and loan financial institution named CU (Credit Union).

Pre-rejuvenation funding costs some. These costs are the costs of preparing CP / CL (meetings, identification, field visits and verification process, making CP / CL nominative lists) and the costs of issuing Plantation Business Registration Certificates for Cultivation, including location maps. Some farmers do not incur this cost because it is borne by the cooperative's cash, and the plantation is included in the plasma estate. The training costs are borne by the Government of Landak Regency with a budget of IDR 150,000.00 / person / day. Some farmers incurred the cost of procuring seeds amounting to IDR 49, 850.00 / stem, these costs include the cost of loading and unloading of seeds. Funding received by farmers is only sufficient to the planting process, whereas personal costs are used for maintenance until the harvest period.

**Dimensions of Human Resource Development (HR)**

The results of the analysis on MDS show that the dimensions of human resource development in Landak Regency are less than optimal. In the sensitivity analysis (leverage) in Figure 4 shows there are 1 sensitive attributes, namely Administration and Financial Management Training



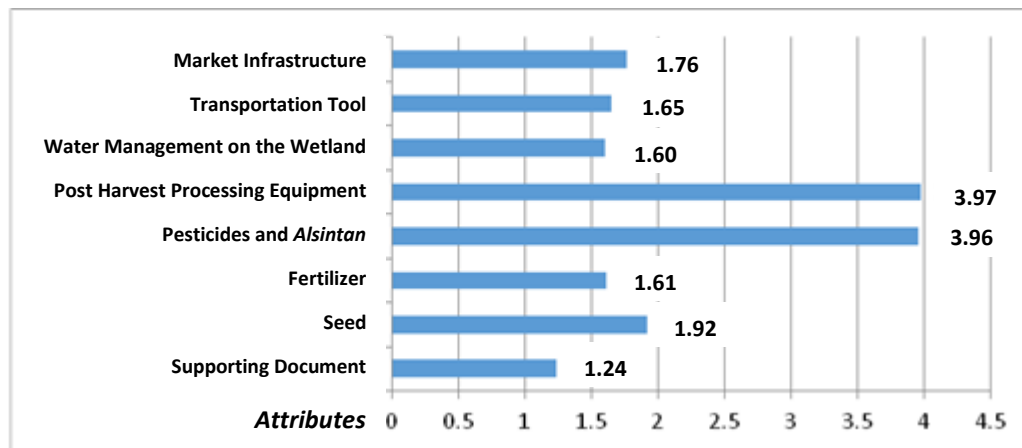
**Figure 4. Leverage on HR Development**  
 Source: Primary Data Analysis (2020)

Support from related institutions is needed for the success of agribusiness undertaken by farmers. The success of an institution is not only determined by the institution itself, but also the active role of the farmers. Farmers do not feel the benefits of the existence of farmer group institutions and cooperatives, that causing their participation in the organization is still low due to their distrust of the management of the farmer groups and cooperative farmer group management (AL-Jaktsa 2018).

The administration and financial training carried out by the government is followed by the farmers who are the members of cooperatives; however, some cooperatives only sent their administration officers as trainees. The trainers assigned are competent personnel. The location of the training was held in adequate places such as the Hall of the Landak Regency Plantation Office or the Provincial Plantation Office. Modules used are regarding bookkeeping, how to administer finances, procedures for filing credit, preparing proposals, and administration of production and prices. The length of training provided, if it is in accordance with the guidelines, is 4 days (2 days for theoretical training and 2 days for practice). However, there are some training participants who undergo training for up to 1 week adjusting to the amount of material delivered.

**Dimensions of Supporting Elements**

The results of the analysis on MDS show that the technical dimensions of oil palm replanting in Landak Regency are less than optimal. The sensitivity analysis (leverage) in Figure 5 shows that there are 2 sensitive attributes, namely (1) Post Harvest Processing Equipment; and (2) Pesticides and *Alsintan*.



**Figure 5. Leverage of Supporting Elements**

Source: Primary Data Analysis (2020)

The support of several elements in replanting activities is needed by the farmer cooperatives in Landak Regency. Adequate support is expected in producing oil palm agricultural products that provide high added value to farmers. The results in the field show that the capacity of the existing processing equipment at the factory has an average capacity of 30 tons of FFB / hour and even the factory can accommodate a capacity of up to 60 tons of FFB / hour in order that harvested FFB can be managed optimally.



Some factories cannot process yields of up to 30 tons of FFB / hour even though the number of 30 tons is standard in the FFB / hour processing capacity. Most of the groups of farmers in cooperatives have a land area of at least 6,000 ha, while some cooperative farmers have only an area of 685 ha to 800 ha. The involvement of the government, especially the local government, is highly needed in the provision of agricultural production facilities, enhancing the skills of farmers in farming activities until handling harvest and post-harvest (AL-Jaktsa 2018).

The condition of the road in the plantations has largely been damaged, making it difficult for farmers to transport their crops. Some activities which will directly have a positive impact due to the development of oil palm plantations such as: 1) Increasing the development of village community activities; 2) Development of infrastructure which can then be utilized by the community, especially roads; 3) Increasing the absorption of local labor (Syahza 2008).

### **Cooperative Optimization as an Effort to Strengthen the Palm Oil Replanting Program**

There are 6 key attributes that greatly affect the optimization of cooperatives in the replanting program for oil palm, namely (1) land; (2) Institutions (3) Funding; (4) Training in Financial Management and Administration (5) Post Harvest Processing Tools; (6) Pesticides and *Alsintan*. Land attributes can be optimized by cutting the file requirements that must be completed by cooperatives (Indarto, 2019). Institutional attributes can be optimized by increasing cooperative activities (Ruslan, et al. 2013).

Attributes of land requirements can be optimized by cooperatives by socializing to members of cooperatives so that the conditions that must exist are immediately completed. The cooperative management should record the members who have not completed the replanting requirements and motivates each other between management and members in completing requirements so that they can immediately receive replanting funds (Mandira 2019). Institutional attributes can be optimized by increasing cooperative activities. Examples of activities that cooperatives should carry out in optimizing their role in palm oil replanting activities such as immediately completing cooperative activity reports at the annual member meeting activities, and together helping each other complete the documents that need to be made for the completeness of the documents of members participating in oil palm replanting activities. Examples of such documents include making statements about the ability to manage plantations and implement institutions (Ruslan, et al. 2013).

Funding attributes issued by farmers will be collected and used to develop human resources (HR), research and development, as well as infrastructure facilities in accordance with Law No.39 of 2014 concerning plantations Article 93 paragraph 4 and Government Regulation No. 24 of 2015 concerning Planting Funds in Article 9 paragraph 1. Cooperatives help optimize these activities by recalculating the funds issued and received so that they are sufficient until the replanting program is completed (Nurfatriani, et al. 2018). The attributes of training and financial administration can be improved by coordinating with the training providers so that the implementation is more timely, according to the needs of each region, and effective and efficient (AL-Jaktsa 2018).

Attributes of post-harvest processing equipment need to maximize their factory capacity so maintenance of heavy equipment is not wasteful. Cooperatives can help manage passing vehicles and heavy equipment so as to reduce road damage quickly. Therefore, the capacity of vehicles such as passing trucks needs to be limited (Anugrah and Wachjar 2018). The attributes of pesticides and *alsintan* are optimized by spraying and providing support for agricultural tools and machinery because most plantations experience endemic problems with plant-disturbing organisms. The application of quality standards for the management of oil palm plantations is given in order to obtain competitive agricultural products so that the products produced can compete in the international market. Interaction between key attributes will be taken into consideration in determining cooperative optimization in the strengthening of oil palm replanting programs in the future (Ministry of Agriculture, 2019).

## CONCLUSION

Based on the results of the Rap-Rep Palm Oil analysis, the cooperative can consider the attributes that have sensitivity to optimizing the strengthening of the replanting program for palm oil in Landak Regency. Priority improvement of attributes with high sensitivity and dimension index is very low, followed by direct research using primary data. It is also recommended to involve all parties, both government and community institutions, and provide support to those involved in the replanting program of oil palm such as farmers and government cooperatives.

## RECOMMENDATION

Efforts that can be made by the government, farmer groups, and other policy makers are to encourage the strengthening of farmer groups to carry out monitoring, recording, joint tracking, increasing the role of extension workers in socialization and training as well as mentoring or monitoring farming activities regularly (at least once a week, conducting Participatory counseling involving farmers and through regular meetings, increasing the added value of products, opening access to partnerships with the private sector, especially modern markets, and making papaya an export commodity that will also have an impact on the stability of papaya prices. that carries out every GAP requirement well by providing agricultural production facilities from the government, but further research is still needed in terms of priorities and policy strategies to motivate farmers to supervise, record, and trace back for strategy analysis and analytic decision approach, effectiveness of training in supervision, recording, and back tracking.

## REFERENCES

- . 2017. *Statistik Kelapa Sawit Indonesia 2017*. Jakarta: CV Dharmaputra.
- Al-Jaktsa , Nurul Lailan Najmi . 2018. "Status keberlanjutan Pengelolaan Perkebunan Inti Rakyat Kelapa Sawit Berkelanjutan di Trumon Kabupaten Aceh Selatan." (IPB University).
- Amalia, Rizki, Ratnawati Nurkhoiry, Zulfi Prima Sani Nasution, dan Ambar Kurniawan . 2017. "Analisis Kesiapan Petani dan Koperasi Dalam Program Peremajaan Perkebunan Rakyat Kelapa Sawit (Studi Kasus Petani Lingkup

- Ophir, Kab. Pasaman Barat, Prov. Sumatera Barat.” *Jurnal Pendidikan Kelapa Sawit* 25(3): 171-181.
- Anugrah, Pangeran T, dan Ade Wachjar. 2018. “Pengelolaan Pemanenan dan Transportasi Kelapa Sawit (*Elaeis guineensis* Jacq.) di Bangun Bandar.” (IPB University) 6 (2): 213-220.
- Central Bureau of Statistics. 2019. *Statistik Daerah Kabupaten Landak 2019*. Landak: Central Bureau of Statistics of Landak Regency.
- Directorate General. 2018. *Peraturan Menteri Koperasi dan Usaha Kecil dan Menengah Republik Indonesia No 9 Tahun 2018 Tentang Penyelenggaraan dan Pembinaan Koperasi*. Jakarta: Ministry of Small and Medium Enterprises.
- Kavanagh, P. 2007. *Rapid Appraisal of Fisheries (Rapfish) Project, Rapfish Software Des Eruption (For Microsoft Excell)*. Vancouver (CA): Fisheries Centre.
- Kotler, P, dan Armstrong. 2001. *Prinsip-Prinsip Pemasaran : Edisi Kedelapan Jilid 1*. Jakarta: Erlangga.
- Laws of The Republic Indonesia. 1992. “Undang-Undang Republik Indonesia Nomer 25 Tahun 1992 Tentang Perkoperasian.”
- Mahendra, A D. 2014. “Analisis Pengaruh Pendidikan, Upah, Jenis Kelamin, Usia dan Pengalaman Kerja Terhadap Produktivitas Tenaga Kerja (Study di Industri Kecil Tempe di Kota Semarang).” *Thesis* (Diponegoro University).
- Mandira, Oki. 2019. 4 April. Diakses April 20, 2020. <https://www.radarsriwijaya.com/2019/04/04/pemkab-oki-sosialisasi-replanting-kelapa-sawit>.
- Ministry of Agriculture. 2017. “Pedoman Peremajaan Tanaman Kelapa Sawit Pekebun, Pengembangan Sumber Daya Manusia dan Bantuan sarana dan Prasarana Badan Pengelola Dana Peremajaan Perkebunan Kelapa Sawit.” Jakarta.
- Ministry of Agriculture. 2019. 30 October. Diakses Februari 27, 2020. <http://cybex.pertanian.go.id/mobile/artikel/78356/PENGENDALIAN-HAMA-TANAMAN-KELAPA-SAWIT/>.
- Mosher, A T. 2012. *Menggerakkan dan Membangun Pertanian*. Jakarta: Rineka Cipta.
- Nurfatriani, F, Ramawati, G K Sari, dan H Komarudin. 2018. *Optimalisasi Dana Sawit dan Pengaturan Instrumen Fiskal Penggunaan Lahan Hutan Untuk Perkebunan dalam Upaya Mengurangi Deforestasi*. Bogor: Cifor. doi:10.17528/cifor/006882.
- Pitcher , T J, dan D Preikshot. 2000. *RAPFISH: A Rapid Apraisall Technique to Evaluate the Sustainability Status of Fisheries*. Vancouver (CA): Fisheries Centre.
- Poerdarminta. 1982. *Kamus Umum Bahasa Indonesia*. Jakarta: Balai Pustaka.
- Ruslan, Supiandi Sabiham, Sumardjo, dan Manuwoto. 2013. “Evaluasi Keberlanjutan Pengelolaan Perkebunan Kelapa Sawit Pola Inti Plasma di PT.Perkebunan Nusantara VII Muara Enim, Sumatera Selatan.” *Ekologia* (IPB University) 13 (1): 33-44.
- Sugiyono. 2012. *Statistika Untuk Penelitian*. Bandung: Alfabeta.
- Syahza, A. 2008. “Pengaruh Pembangunan Perkebunan Kelapa Sawit Terhadap Ekonomi Regional Daerah Riau.” (Lembaga Penelitian Universitas Riau).
- Yulida, R, dan J Yusri. 2015. “Profil Petani Kelapa Sawit Pola Swadaya di Desa

Senama Nenek Kecamatan Tapung Hulu Kabupaten Kampar.” *Jurnal Ilmu Pertanian Indonesia* 12 No.1.