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ANALYSIS OF FACTORS AFFECTING THE PARTICIPATION OF SMALLHOLDERS IN THE IMPLEMENTATION OF PALM OIL REPLANTING PROGRAM IN KUD MAKMUR LESTARI

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Abstract

Replanting is an effort to develop plantations by replacing unproductive plants with new plants. Oil palm replanting can work well if there is the participation of smallholders. The age of oil palm plants at KUD Makmur Lestari is no longer productive, but there are still smallholders who have not participated in replanting. This study aims to determine models and procedure for submitting an oil palm replanting program and to analyze factors that influence smallholder participation in implementing oil palm replanting program at KUD Makmur Lestari. Samples were selected using a purposive sampling technique with criteria of farmers who are members of KUD Makmur Lestari. The sample size used were 60 farmers. Data analysis used in this research is descriptive analysis. The results show that the replanting model used by the smallholders at KUD Makmur Lestari is total cutting. The procedure for submitting BPDPKS fund starts from the farmer to the village unit cooperative (KUD) and then proceeds to PT. Ramajaya Pramukti and to the Kampar District Plantation Office. Factors that influence the participation of smallholders in implementing oil palm replanting program at KUD Makmur Lestari include age, land area, number of family dependents, farming experience, land legality, savings, and household income. This study emphasizes that the success of oil palm replanting programs is heavily influenced by farmer socioeconomic conditions, the clarity of land legality, the strength of cooperative institutions, and the effectiveness of inter-stakeholder coordination, rather than just the replanting model or the availability of funds. As a result, a comprehensive, participatory, and inclusive approach is urgently required to inspire more farmers to be daring and prepared to undertake the replanting process in a sustainable manner. Furthermore, the oil palm replanting effort is more than just a technical operation to replace old trees; it is also a strategic intervention to achieve SDGs 1, 2, 8, 12, 13, and 17.

Keywords: Palm Oil, Participant, Replanting Program, SDG's Smallholders

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INTRODUCTION

Oil palm (Elaeis guineensis Jacq) is one of the largest plantation crops in Indonesia. The total area of oil palm plantations in Indonesia in 2021 was 16,833,985 hectares (Badan Pusat Statistik, 2022). The area of Indonesia's oil palm plantations is divided into 0.5 million hectares of state- owned large plantations, 8.04 million hectares of privately-owned large plantations, and 6.02 million hectares of smallholder plantations (Badan Pusat Statistik, 2022). Although Indonesia has vast oil palm plantations, this is not yet matched by good productivity. A common problem faced by smallholder oil palm plantations is their low productivity (Yulistriani et al., 2017). The low productivity of smallholder oil palm is caused by trees that have entered an unproductive age, which is more than 25 years. Oil palm trees older than 25 years will experience a decline in productivity.

Replanting or replacing oil palm trees is supported by the government through the Smallholder Oil Palm Replanting Program (PSR). The PSR aims to increase the productivity of smallholder oil palm plantations (Kusumawati et al., 2019)The government's role in the PSR program, through the Palm Oil Plantation Fund Management Agency (BPDPKS), is to allocate funds of IDR 30 million per hectare, with a maximum plantation area of 4 hectares per farmer. Kampar Regency supports this government program by implementing the PSR program. KUD Makmur Lestari in Kenantan Village is one of the areas that has implemented the PSR program in Kampar Regency.

Koperasi Unit Desa (KUD) Makmur Lestari is a cooperative that has carried out the PSR program. This cooperative is located in Kenantan Village, Tapung District, Kampar Regency. KUD members consist of plasma farmers partnered with Sinar Mas Agribusiness and Food plantations. The partner company of KUD Makmur Lestari is PT Ramajaya Pramukti. The oil palm trees in KUD Makmur Lestari have reached an unproductive age and therefore need to be replanted. The PSR program has been implemented in two phases. The first phase, which began in October 2019, was joined by 143 farmers with a plantation area of 286 hectares, and the second phase, which began in January 2020, was joined by 236 farmers with a plantation area of 472 hectares. In total, 379 farmers have participated in the program, but there are still farmers who have not taken part in the oil palm replanting program.

Strong farmer participation is needed in the implementation of the PSR program to support and achieve its goals. Participation can occur when individuals have the willingness and ability to take part. The objectives of this study are: (1) To analyze the model and procedure for applying for the oil palm replanting program at KUD Makmur Lestari, and (2) To analyze the factors influencing farmer participation in the oil palm replanting program at KUD Makmur Lestari.

RESEARCH METHODS

This research was conducted at KUD Makmur Lestari, Kenantan Village, Tapung District, Kampar Regency. The location was chosen based on the consideration that not all farmers have participated in the PSR program at KUD Makmur Lestari. The research was carried out from February to July 2023, with stages including surveys, observations, direct field research, and data processing, consisting of proposal preparation, data collection, and thesis writing.

The data used in this research are primary and secondary data. Primary data were obtained through field observations, interviews, and questionnaires completed by respondents. Primary data collected included oil palm farmers' identities, the condition of their oil palm plantations, and variables relevant to the research. Secondary data collected included information on total area, boundaries, geographical conditions, topography, and demographics.

This research used the purposive sampling method for sample selection. Purposive sampling is a sampling technique with certain considerations, where the sample is deliberately selected based on specific criteria to represent the population (Siahaan et al., 2023). The sample in this research consisted of 60 farmers selected using purposive sampling. The criteria for sampling were: farmers who are members of KUD Makmur Lestari, farmers who have participated in oil palm replanting (first and second phases), and farmers who are members of KUD Makmur Lestari but have not yet carried out oil palm replanting.

The method used in this research is the survey method. According to Sugiyono (2017), the survey method is research conducted on large or small populations, but the data studied are taken from a sample of that population, allowing the researcher to determine relative occurrences, distribution, and relationships between sociological and psychological variables. The information in this survey research was collected using a questionnaire.

The data analysis method used to address each research problem was qualitative descriptive analysis. According to Sugiyono (2016), qualitative descriptive research is based on post-positivist philosophy, studies natural objects, and considers the researcher as the key instrument. Data collection was carried out through triangulation (combined techniques), and data analysis was inductive or qualitative, with qualitative research results emphasizing meaning rather than generalization. Qualitative descriptive research aims to describe, portray, explain, and answer research problems in more detail by studying as thoroughly as possible an individual, a group, or an event. Qualitative research serves as the research instrument, and the writing results are in the form of words or statements that reflect the actual situation. The first research objective was to analyze the model and procedure for applying for the oil palm replanting program, and the second was to analyze the factors influencing farmers in implementing the oil palm replanting program at KUD Makmur Lestari

RESULTS AND DISCUSSION

General Overview of The Research Area

Kenantan Village is one of the former transmigration villages located in Tapung District, Kampar Regency. The village covers an area of 1,441 hectares. The soil in this village is partly hilly and generally sandy, making it less suitable for growing

vegetables, legumes, and other short-lived crops. Given these soil conditions, oil palm is the most suitable crop to cultivate, although it requires intensive care and fertilization.

Respondents Characteristics

The farmer profile describes the background of the farmers, including age, education, land area, number of dependents, farming experience, income from oil palm, and non-oil palm income (Siahaan et al., 2023). Farmers in Kenantan Village are predominantly in the productive age range of 15–55 years (33.33%). Most farmers have only completed elementary school education (51.67%), while the rest have varying levels of education including junior high school, senior high school, and higher education. The majority have a small number of dependents (1–2 people), making up 58.33% of respondents. The average land ownership for oil palm is 2–4 hectares. Most farmers in the village have more than 20 years of experience in oil palm farming, while very few have less than 10 years of experience. Farmer income from oil palm plantations is considered very high, exceeding IDR 3.5 million per month.

PSR Program at KUD Makmur Lestari

KUD Makmur Lestari is currently focusing its main activities on the flagship PSR (Smallholder Oil Palm Replanting) program to increase the production and productivity of smallholder oil palm plantations. The PSR program is a long-awaited government initiative for KUD Makmur Lestari, as their oil palm trees are already old and unproductive. The oil palm in KUD Makmur Lestari was first planted between 1990–1991, making replanting necessary. The cooperative has implemented the first phase of the PSR program in 2019 and the second phase in 2020. The first phase involved 143 farmers with a total of 286 hectares, and the second phase involved 236 farmers with 472 hectares.

The smallholder replanting partnership scheme at KUD Makmur Lestari follows the *avalist* model with PSR funding support from BPDPKS through Bank BRI. In the *avalist* model, all replanting and plantation management activities, from the immature period (TBM) until the mature period (TM), are fully managed by the partner company. After 48 months, the plantations are handed over to be managed by the farmers. KUD Makmur Lestari partners with PT Ramajaya Pramukti, which holds exclusive rights to purchase fresh fruit bunches (FFB) from the plasma plantations, providing technical guidance to farmers.

KUD Profile

Like every formal organization, KUD Makmur Lestari has its own history. It was officially registered and recognized by the Riau Provincial Cooperative Department under Legal Entity Number 476/BH/PAD/KWK.4/5.1/IX/1996 on September 17, 1996. The cooperative has 500 farmer members organized into 26 farmer groups. It operates in savings and loans, provides and distributes daily necessities and production inputs, processes and markets agricultural products, and offers information, counseling, and training on cooperatives to its members.

Replanting Models

Oil palm replanting can be done individually or in groups. Individual replanting models include : Total Replanting (TUT), Gradual Replanting Underplanting (TUB), Gradua; Replanting Interplanting (TUB), Intercropping replanting with food crops during the vegetative phase and Intercropping replanting with perennial crops throughout the plantation cycle. Group replanting

models include simultaneous planting in one block owned by a farmer group (TUT) and Gradual planting in a contiguous area owned by a farmer group (Pratiwi Manurung et al., 2015)

From the research interviews, not all members of KUD Makmur Lestari have participated in the oil palm replanting program. A total of 143 farmers joined Phase I and 236 farmers joined Phase II, while 87 farmers did not participate. Farmers who joined the program implemented the TUT replanting model, which involves completely cutting down unproductive oil palm trees and replanting new seedlings simultaneously. This model was determined by the partner company, PT Ramajaya Pramukti, and is recommended because it is considered more effective and better than other models. TUT improves land preparation and creates a better growing environment, allowing for more efficient nutrient absorption and resulting in better growth, productivity, and FFB quality (Pangestu et al., 2021)

Some farmers who did not participate in the official program opted for independent replanting using the underplanting model, where new seedlings are planted beneath old oil palm trees. Farmers chose this model because they could still earn income from existing plantations compared to TUT, which temporarily stops production. However, underplanting is not recommended as it requires intensive maintenance. New plant growth is hindered by competition for nutrients with old trees, and without proper care, young plants are vulnerable to pests and diseases. Additionally, having young plants next to old ones complicates harvesting, pruning, and fruit collection. Uncollected loose fruits can germinate, turning the plantation into overgrown scrubland (Pangestu et al., 2021).

Procedure for Applying for The Replanting Program

The procedure for applying to the oil palm replanting program is the process farmers follow to participate in replanting. The partner company, PT Ramajaya Pramukti, first invited farmers to join the program through counseling and socialization activities. According to (Anggreany et al., 2016) counseling is important because it increases farmers' knowledge and fosters a positive perception of oil palm replanting. In the research area, counseling and socialization were conducted by local and district-level agricultural extension officers, the Riau Provincial Plantation Agency, and representatives from PT Ramajaya Pramukti. These activities were carried out over two years to help farmers understand the application procedure and other aspects of replanting, although not all farmers were willing to participate. The procedure for applying to the replanting program in the research area is shown in Figure 1.

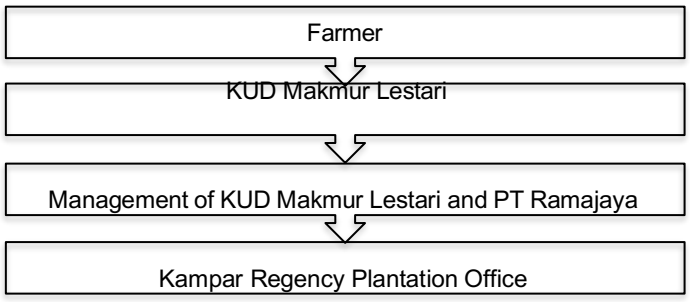

Figure 1. Procedure for Applying to the Oil Palm Replanting Program

Based on Figure 1, the process of applying for the replanting program begins with farmers who agree to participate in the oil palm replanting program preparing the required documents. These documents include the farmer's National Identity Card (KTP), Family Card (KK), Land Certificate (SHM), and a power of attorney to the KUD, signed with a duty stamp, which are then submitted to the KUD and forwarded to PT Ramajaya Pramukti. The KUD management and the partner company then submit the required documents for BPDPKS funding to the Kampar Regency Plantation Office.

The BPDPKS funds are first disbursed to the company, with the company and KUD collaborating with the bank—Bank BRI in this case. A tripartite agreement is made between the company, the bank, and the KUD representing the plasma farmer members. Once the funds are disbursed, replanting is immediately carried out using the TUT model, which involves simultaneously clearing the plasma plantations that have agreed to be replanted. The entire replanting process is managed by the company until the plants reach 48 months of age, after which they are handed back to the farmers. The replanting was carried out in two phases. Phases one in 2019, involving 143 farmers and phase two in 2020, involving 236 farmers.

Factors Influencing Farmer Participation in the Implementation of the Oil Palm Replanting Program

The factors influencing farmer participation in the oil palm replanting program were analyzed using qualitative descriptive analysis. Based on field findings, the following factors were identified:

Age

Age is one factor that can influence farmers in deciding whether to participate in the oil palm replanting program. Generally, the older a person is, the lower their physical ability and work productivity (Sapitri et al., 2014) The Central Statistics Agency (BPS) of Riau Province (2020) classifies people aged 15–64 years as being of productive age, while those over 64 are classified as non-productive.

Field interviews revealed that farmers who have not yet participated in the replanting program mostly fall within the productive age range of 15–64 years, although some are over 64 and therefore considered non-productive. Farmers of productive age tend to still have the ability and energy to work. Since replanting results in a temporary loss of income from plasma oil palm, productive farmers are still able to find alternative sources of income to support their families. Interviews also showed that KUD Makmur Lestari management and its partner company provided opportunities for farmers without other sources of income to work as daily laborers if

they chose to participate in the replanting program. This arrangement benefits productive farmers who still have the energy to work, but non-productive farmers do not have this same capacity.

Older, non-productive farmers tend to lack the ability and energy to find other work. They are often afraid of losing their main source of income if they participate in the program. This finding aligns with previous research by Ambarwati (2021), which showed that age significantly influences a farmer's decision to participate in the oil palm replanting program. The older the farmer, the less likely they are to undertake replanting. Elderly, non-productive farmers often believe replanting requires significant effort, especially in the intensive maintenance of young plants, and they may be unable to supplement their income if their oil palm income is lost.

Land Size

Land size is an important factor in farming operations. Both the size and ownership status of the land influence farmers' decisions in adopting innovations. Land size refers to the area of oil palm plantation currently being managed. The larger the land, the greater the income a farmer can earn (Ramdani et al., 2022).

Field research showed that most respondents have plasma plantations ranging from 2 to 4 hectares. Farmers who participated in the replanting program mostly own other oil palm plantations in addition to their plasma plots, so they are not heavily burdened by replanting their plasma land. This is because they can still earn income from their independent plantations while their plasma land is being replanted.

In contrast, most farmers who have not participated in replanting own only 2 hectares of plasma land and have no other land. If their plasma land is felled for replanting, they lose their main source of income, making it difficult to cover living expenses. This finding supports Murdilawati (2020), who found that oil palm land size has a positive and significant effect on farmers' decisions to undertake replanting

Savings

Savings are funds set aside for future use. They are a form of asset that can be drawn upon when needed—such as during the replanting period, when farmers face difficulties meeting daily needs. Some farmers prepare for replanting by owning other oil palm plantations, while others rely on savings if they have no other plantations.

Field research revealed that farmers in KUD Makmur Lestari initially had savings stored with the KUD, which were later returned to them. Farmers with remaining savings were more prepared to participate in replanting because they could use these funds to cover living expenses or maintenance costs for the replanted trees. On the other hand, most farmers who have not participated had already used their savings for other purposes and no longer had personal funds, leaving them unprepared to meet daily needs during the loss of income from plasma oil palms.

This factor influences farmers' decisions not to participate in the replanting program. This finding aligns with (Saputri Een, 2018) who stated that savings are a form of preparation for farmers to face oil palm replanting and significantly affect farmer participation.

Farming Experience

Farming experience serves as an important benchmark for the potential development of agricultural practices in the future. The longer a farmer is engaged in farming activities, the more experienced and proficient they tend to become. For oil palm farmers, such experience is a key factor in developing the skills required to

effectively manage their plantations. In general, extended farming experience correlates with improved managerial competence. Moreover, an experienced farmer is typically more discerning in decision-making, particularly when adopting agricultural innovations or participating in development programs (Arman & Sembiring, 2018) Field observations revealed that the majority of respondents possessed more than 20 years of farming experience. Despite this extensive background, many farmers chose not to participate in the Oil Palm Replanting Program (Peremajaan Sawit Rakyat – PSR). Initial program introductions were met with skepticism, even among those with substantial farming experience. Furthermore, a considerable proportion of farmers lacked awareness regarding the necessity of replanting prior to joining the program. Amount of Household

The household represents the smallest social unit, typically consisting of a husband, wife, children, and other family members living together under the care of the head of the household. The number of dependents plays a significant role in farm management decisions, as a larger household size inevitably increases the financial demands placed on the farmer (Sapitri et al., 2014)

Interviews indicated that farmers who had yet to participate in the replanting program generally had a relatively high number of dependents. These farmers were still financially supporting family members pursuing education at both school and university levels. The decision to postpone replanting was often influenced by concerns that felling existing oil palm trees would result in the loss of their primary income, thereby jeopardizing the household's daily needs. This observation is consistent with Mukminin et al. (2023), who found that a greater number of household dependents correlates with higher living expenses, leading farmers to maintain their current income levels and delay replanting.

Land Certification

Land certification for smallholder oil palm plantations takes the form of ownership rights, administered by the district or municipal land office for holdings of less than 25 hectares. A land certificate serves as legal proof of ownership and can be used as collateral for obtaining credit facilities, given that financial assistance from the Oil Palm Plantation Fund Management Agency (*Badan Pengelola Dana Perkebunan Kelapa Sawit* – BPDPKS) covers only part of the total cost of replanting (Peraturan Menteri Pertanian Republik Indonesia, 2016)

BPDPKS grant funds are disbursed only to farmers who meet specific documentary requirements, including membership in a recognized farmer organization or cooperative, and possession of a valid plantation land certificate. Field data indicated that participating farmers were generally members of the KUD Makmur Lestari cooperative and held certified land ownership documents.

In contrast, non-participating farmers frequently lacked the necessary certificates, with some having pledged their land titles as collateral for bank loans. This constraint aligns with (Kurniasih et al., 2022) who observed that indebtedness remains a significant barrier to program participation. Many farmers are unable to commit to replanting because of outstanding loan obligations. The fear of losing income during the non-productive replanting phase raises concerns over their capacity to repay debts to creditors, particularly banking institutions.

Income

Income represents the most desired and anticipated outcome of any economic activity. Its magnitude depends on the volume of output generated by the enterprise

in question. In economic terms, income refers to the earnings received over a specified period, where the level of income can serve as an indicator of the enterprise's overall performance. Income plays a crucial role in determining the success of a business venture.

In the context of oil palm farming, replanting activities lead to a significant loss of income for farmers, as their land—their primary means of livelihood—becomes non-productive during the replanting phase. Consequently, farmers face reduced earnings for approximately four years, which poses challenges in meeting household needs (Pambela et al., 2012).

Field findings revealed that oil palm plantations constitute the primary source of income for farmers. The contribution of various household income sources for members of the KUD Makmur Lestari cooperative is presented in Table 1.

Table 1. Contribution of Household Income Sources of Farmers Participating in the Oil Palm Replanting Program

Type of Income	Number of Farmers (persons)	Average Income (IDR/Month)	Percentage (%)
Plasma Oil Palm Plantation Income	30	4.500.000	35,15
Independent Oil Palm Plantation Income	9	5.890.000	46,01
Non Oil-Palm Income	12	2.412.500	18,84
Totaly		12.802.500	100,00

Source: Processed Data, 2023

Table 1 show that farmers who are members of KUD Makmur Lestari and have participated in the oil palm replanting program primarily derive their income from oil palm cultivation, specifically from plasma and independent (swadaya) plantations. Income from plasma plantations was obtained prior to their participation in the replanting program. Household income for these farmers largely originates from independent oil palm plantations. This serves as a key factor motivating their continued participation in the oil palm replanting program.

The loss of plasma oil palm income due to replanting activities does not significantly concern these farmers, as they still generate revenue from independent plantations and supplementary non– oil palm sources. This situation contrasts with that of farmers who have not yet participated in the replanting program. The contribution of household income sources for non-participating farmers is presented in Table 2.

Table 2. Contribution of Household Income Sources of Farmers Not Participating in the Oil Palm Replanting Program

Type of Income	Number of Farmers (person)	Average Income (IDR/Month)	Percentage (%)
Plasma Oil Palm Plantation Income	30	7.100.000	49,76
Independent Oil Palm Plantation Income	8	5.090.900	35,68

Non Oil-Palm Income	7	2.078.571	14,57
Totaly		14.269.471	100,00

Source: Processed Data, 2023

Table 2 show that farmers who have not participated in the oil palm replanting program primarily rely on income from oil palm plantations. Most of these farmers earn income from plasma plantations, while a smaller proportion generates income from independent plantations. This reliance on plasma plantations serves as a major reason for their reluctance to participate in the replanting program, as they fear losing their primary source of income, which could make it difficult to meet their daily household needs.

This finding is consistent with the study by (Arman & Sembiring, 2018) which highlights that income significantly influences farmers' decision-making in relation to the oil palm replanting program. Respondents considered that if their oil palm plantations were replanted, their income from oil palm would cease for approximately four years due to the simultaneous clear-cutting system applied in the replanting process.

This study emphasizes that the success of oil palm replanting programs is heavily influenced by farmer socioeconomic conditions, the clarity of land legality, the strength of cooperative institutions, and the effectiveness of inter-stakeholder coordination, rather than just the replanting model or the availability of funds. As a result, a comprehensive, participatory, and inclusive approach is urgently required to inspire more farmers to be daring and prepared to undertake the replanting process in a sustainable manner. Furthermore, the oil palm replanting effort is more than just a technical operation to replace old trees; it is also a strategic intervention to achieve SDGs 1, 2, 8, 12, 13, and 17.

CONCLUSION

The replanting model implemented by respondent farmers who had already carried out replanting was the TUT model. The procedure for applying for BPDPKS funds in the smallholder oil palm replanting program at KUD Makmur Lestari was mostly handled by the company and the KUD management. The process began with farmers preparing documents such as their Identity Card (KTP), Family Card (KK), and Land Ownership Certificate (SHM), which were collected by KUD and then submitted to PT Ramajaya Pramukti. The KUD management, together with the company, then processed the BPDPKS funding application to the Kampar Regency Plantation Office. The disbursed funds were first transferred to the company through Bank BRI.

Based on field research findings, the factors influencing farmers' participation in the oil palm replanting program at KUD Makmur Lestari included age, land area, number of family dependents, farming experience, land legality, savings, and household income.

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