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The Farmer Participation and Income Structure in Swamp Land Optimization Activities in Barito Kuala District, South Kalimantan

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INDEXING

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ABSTRACT

Optimization of agricultural swamp land can have a positive impact on the socio-economic empowerment of communities around the land. This research aimed to scrutinize the farmer participation and income structure in swamp land optimization activities in Barito Kuala District, South Kalimantan. This research was a descriptive study using investigative survey data collection methods. Investigative survey research generates data by interviewing respondents. This research was conducted from March to November 2022. This study covered 4 villages in Barito Kuala Regency, South Kalimantan Province which include Sungai Rasau Village, Cerbon District and Palingkau Village, Bakumpai District, Jelapat II Village, Mekarsari District, and Tamban Sari Baru Village, Tamban District. The conclusion of this study is that farmers' participation in swamp land optimization activities is good, this is evidenced by farmers' ownership of the optimized swamp land ranging from 0.5-1 hectare, with a land ownership rate above 70%. On the other hand, swamp land optimization makes farmers active in seeking their income from on-farm activities, this is evidenced by the level of farmers' income from on-farm activities above 70%. Moreover, it is important to maintain the optimization of the swamp land in ensuring the farmer participation and income structure.

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INTRODUCTION

One of the strategic agendas of the Government of the Republic of Indonesia through the Ministry of Agriculture is to realize food sovereignty. Food sovereignty is translated into the nation's ability to (1) meet food needs from domestic production, (2) regulate food policies independently, and (3) protect and improve the welfare of farmers as the main actors of food agricultural businesses. In other words, food sovereignty must start with food self-sufficiency which is gradually followed by an increase in the added value of agricultural businesses at large to improve the welfare of farmers (Arimbawa, *et al*, 2018).

Indonesia is faced with two main problems, namely the conversion of food crop agricultural land and population growth (Rondhi *et al*, 2018). The conversion of food crop

agricultural land is often difficult to avoid or overcome due to the development of various sectors such as industry, expansion of urban settlement areas with all its supporting facilities, and the continued development of large plantations (Akpoti *et al*, 2019). Thus, efforts to meet food needs, especially rice, come from domestic production by increasing the cropping index and making raw rice fields strategic, as well as described by Chapman and Darby (2016), Firdaus *et al* (2020) and Mohidem *et al* (2022).

Optimization of agricultural swamp land can have a positive impact on the socio-economic empowerment of communities around the land. The positive impact of agricultural swamp land optimization on the socio-economic empowerment of the community is to increase community income because the community can carry out agricultural production activities (Rijswijk *et al*, 2021). Good optimization of swamp land can also reduce poverty levels because, with increased productivity, people can get more income from crops (Monteleone *et al*, 2019). Therefore, research on swampland optimization is needed to convey the progress of agriculture on swampland (Putranto *et al*, 2020). This research aimed to scrutinize the farmer participation and income structure in swamp land optimization activities in Barito Kuala District, South Kalimantan.

LITERATURE REVIEW

Swamp Land

Tidal swamp land has specific characteristics, including different typologies, soil types, and inundation types, these specifications mean that its potential as agricultural land will certainly be different. Therefore, it is necessary to analyze the level of suitability based on the magnitude of the existing limiting factors for the agricultural business system to be developed (Irawati, 2021). Tidal swamp land is located in a flat area so periodic overflow and inundation of water is a characteristic feature (Perillo, 2019). According to its characteristics and potential and associated with its technological readiness, tidal swamp land has very potential to be used as advanced agricultural land, although there are still many obstacles and problems that must be solved (Bohan and Dumbrell, 2013).

According to Gribaldi (2020), the typology of land found in the brackish tidal zone is saline land typology, characterized by a fairly high exchangeable Na element >8 me/100g of soil, and is close to the coast. The land has generally been utilized by farmers for rice farming, and many have also combined rice and coconut plants.

Optimization of Swamp Land

Swamp land is a vast ecosystem unit, so its functional boundaries are difficult to distinguish between one region and another. Therefore, its management must pay the most attention to the sustainability of agroecology as a whole. Utilization of swamp land for agriculture needs to be directed towards sustainable agricultural efforts, which can ensure the sustainability of production and environmental sustainability through optimizing the use of land resources and land suitability (Cahyana *et al*, 2022).

According to Noor and Sulaeman (2022), swamp land optimization policy is the management of swamp land on a large scale to provide economic and social benefits to the community. Swamp land optimization includes various efforts, such as improving soil quality, increasing crop productivity, reducing greenhouse gas emissions, and strengthening the role of communities in swamp land management. In optimizing swamp land, it is necessary to pay attention to the environmental and conservation aspects of land

management. This is done so that swamp land can be utilized sustainably and preserved.

RESEARCH METHOD

Place and Time of Research

This research was conducted from March to November 2022. This study covered 4 villages in Barito Kuala Regency, South Kalimantan Province which include Sungai Rasau Village, Cerbon District and Palingkau Village, Bakumpai District, Jelapat II Village, Mekarsari District, and Tamban Sari Baru Village, Tamban District.

Data Source

The data sources in this research were primary data sources and secondary data sources (Druschke *et al*, 2020). In this study, the primary data are the results of interviews with respondents, namely farmers who are members of farmer groups in each research location village. Secondary data in this study were obtained from literature studies, documentation, books, magazines, newspapers, and written archives related to the object to be studied in the study.

Data Collection Methods

This research was a descriptive study using investigative survey data collection methods. Investigative survey research generates data by interviewing respondents. The aim is to investigate and generate data about a particular event or phenomenon and verify the proposed hypothesis (Ramadhan *et al*., 2022).

As the objectives of carrying out investigative survey activities as previously stated, the data collection steps are (Bakce, 2019):

1. Investigate the socio-economic conditions of the prospective farmers,
2. Investigating the description of the geographical location of the candidate which will be linked to the presence of existing rivers and or channels, related to the position of settlements and their affordability, linked to supporting irrigation systems.
3. Knowing the status of the land being surveyed against the distribution of land that has been determined by its designation, function, or has been determined by management rights equipped with valid management rights documents.

Data Analysis

Data analysis in this study included 4 stages. According to the Noor *et al* (2024), the first stage is the tenant farmer investigation survey. The survey of prospective farmers was accompanied by extension workers and representatives of farmer groups from the village being investigated. The method used was to gather prospective implementers (farmers) who wanted to be involved at the sub-district Agricultural Extension Office and then gather farmer group members at the local village office and also at the sub-district Agricultural Extension Office. The second stage was a survey to measure the boundaries of prospective locations and map the situation. This survey is carried out using limited terrestrial measurements using a theodolite and water pass and assisted by GPS and remote sensing to determine the boundaries of the prospective land and map the situation of the prospective land by recording/photographing the conditions and situation during the survey. The data is then processed in the studio so that both situation maps and topographic maps can be drawn. The third stage is a survey of land utilization conditions. A survey of

the condition of the prospective land is conducted by seeing and observing the condition of the land and other situations such as the movement of water that inundates the prospective land and asking farmers directly to find out the time of tide and ebb and measure the height at high tide. The fourth stage is land status investigation. After completing the measurement or data collection of coordinate points of the prospective land, the investigation is continued by making a polygon map of the prospective land. Using the polygon map, the measurement results are overlaid with other maps to obtain Clear and Clear status.

RESULT AND DISCUSSION

A. Sungai Rasau Village, Cerbon Sub-district

The largest number of respondents in the Sungai Rasau area (Gapoktan Membangun) ranged from 51-60 years, as many as 33.33%. While respondents aged >60 years and <30 years are as many as 10%. Respondents in the Sungai Rasau area (Gapoktan Membangun) are dominated by respondents who have a formal education level of elementary/equivalent 36.67% and high school / equivalent 26.67%. The rest were at the junior high school / equivalent education level and did not graduate from elementary school as much as 13.33%, and did not go to school 3.33%.

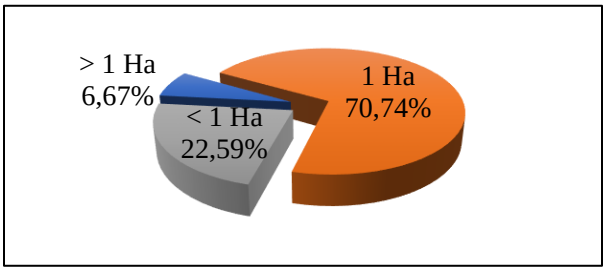

Figure 1. The distribution of farmers' participation in the program of land optimization based on the area of rice farming land in Sungai Rasau Village (Source : Researcher, 2024)

Based on the data presented in Figure 1, shows that the dominant farmers have a rice farming land area of 1 Ha, namely 70.74%. While other farmers each have a rice farming land area of less than 1 Ha as much as 22.59% and more than 1 Ha as much as 6.67%. Milled dry grain production from rice farming land is 70 - 80 kg/bushel. Figure 3 shows that the structure of household income in respondent farmers in the Rasau River area (Gapoktan Membangun) is mostly sourced from on-farm income, which is 74.33%. While income sourced from off-farm activities contributed 15.33%, the remaining 10.33% of household income from non-farm contributions.

Figure 2. The Optimization Land in the Cerbon Sub-district (Source : Researcher, 2024)

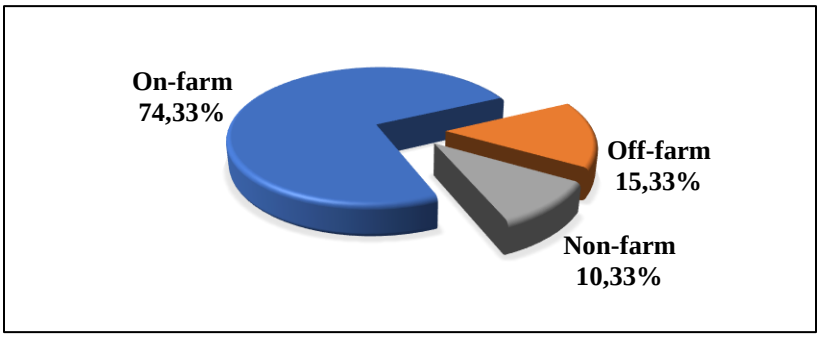

Figure 3. the structure of the respondent's household income in the Sungai Rasau village (Source : Researcher, 2024)

B. Palingkau Village, Bakumpai Sub-district

The largest number of respondents in Palingkau Village (Gapoktan Harapan Palingkau) ranged from 51-60 years old, as many as 30%. Meanwhile, respondents aged >60 years and <30 years were 16.67% and 13.33% respectively. Respondents in the Palingkau area (Gapoktan Harapan Palingkau) are dominated by respondents who have a formal education level of elementary school / equivalent 40%. Only a few respondents have junior high school / equivalent and high school / equivalent education, namely 16.67% and 6.67% respectively. Meanwhile, there were still many respondents who did not graduate from elementary school/equivalent, namely 26.67%, besides that, respondents who did not go to school were also fairly large at 10%.

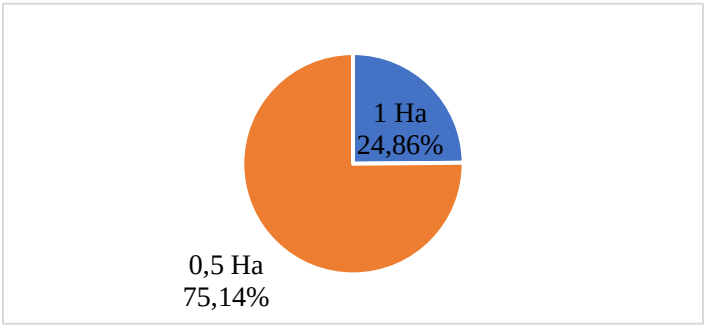

Figure 4. The distribution of farmers' participation in the program of land optimization based on the area of rice farming land in Palingkau Village (Source : Researcher, 2024)

Based on the data presented in Figure 4, shows that the dominant farmers have a rice farming land area of 0.5 Ha, namely 75.14%. While other farmers each have a rice farming land area of 1 Ha as much as 24.86%. The production of milled dry grain from rice farming land is 80 - 90 kg/ha. Figure 5 shows that the household income structure of respondent farmers in the Palingkau area (Gapoktan Harapan Palingkau) is mostly sourced from on-farm income, which is 70.67%. While income sourced from off-farm activities contributed 20.67%, the remaining 8.67% of household income from non-farm activities.

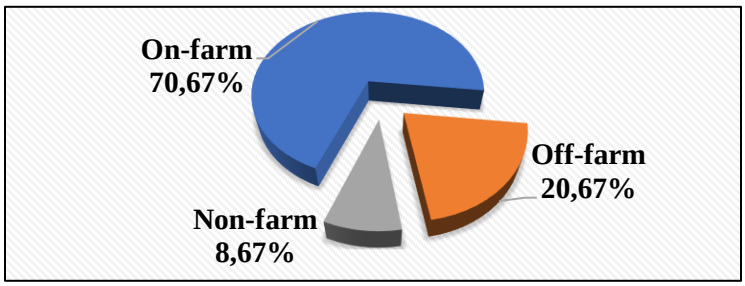

Figure 5. the structure of the respondent's household income in the Palingkau village (Source : Researcher, 2024)

C. Jelapat II Village, Mekarsari Sub-district

The largest number of Gapoktan Jelapat II respondents ranged from 42-50 years, namely 36.67%. Meanwhile, respondents aged >60 and <30 years were both 6.67%. When referring to BPS regarding productive age, which is between 15 - 64 years, it can be said that respondents in Gapoktan Jelapat II are predominantly still included in the productive age group. Respondents of Gapoktan Jelapat II are dominated by respondents with a formal education level of elementary school / equivalent 30%%. There are still quite a lot of respondents who did not graduate from elementary school/equivalent and respondents who did not go to school, namely 23.33% and 10% respectively. At the same time, other respondents were at the junior high school / equivalent education level as much as 23.33%, and respondents who graduated from high school / equivalent as much as 13.33%.

Based on data from the proposed rice farming land optimization activities in the Jelapat II Village area of 219 Ha, the total land area in Jelapat Village based on BPS data of 1,021 Ha. The ownership status of the proposed rice farming land is the farmer's own land. In addition to rice farming land, farmers in Jelapat II Village also use their farmland to grow fruit crops such as pineapples, oranges, and bananas. In addition, there is also the use of farmland for rubber cultivation as a plantation crop.

Figure 6 shows that the household income structure of respondent farmers in the Jelapat II area is mostly sourced from on-farm income, which amounted to 74%. While income sourced from off-farm activities contributed 14%, the remaining 12% of household income was from the contribution of non-farm activities.

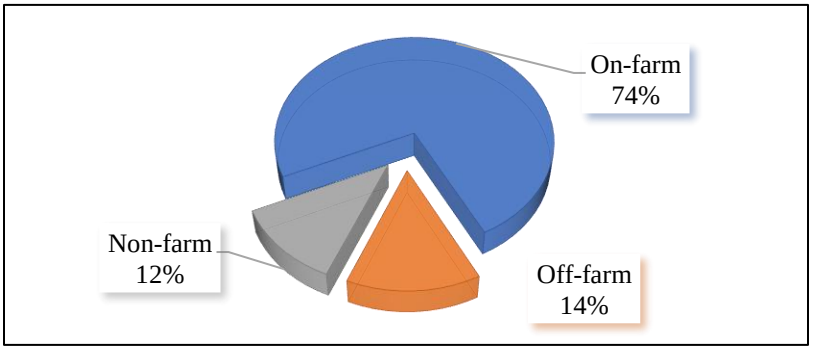

Figure 6. the structure of the respondent's household income in the Jelapat II village (Source : Researcher, 2024)

D. Tamban Sari Baru Village, Tamban Sub-district

The largest number of Gapoktan Jelapat II respondents ranged from 41-50 years, namely 43.33%. Meanwhile, respondents aged >60 years and <30 years were 10% and 3.33% respectively. When referring to BPS regarding productive age, which is between 15 - 64 years, it can be said that respondents in Gapoktan Tamban Sari Baru are predominantly still included in the productive age group. Respondents of Gapoktan Tamban Sari Baru are dominated by respondents who have a formal education level of elementary school / equivalent 36.67%%. There are still quite a lot of respondents who did not graduate from elementary school/equivalent and respondents who did not go to school, namely 20% and 13.33% respectively. In comparison, other respondents are at the junior high school / equivalent education level as much as 20%, and respondents who graduated from high school / equivalent as much as 10%.

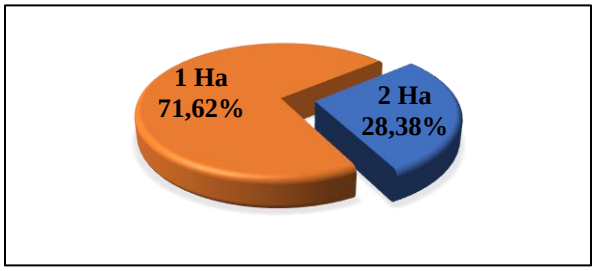

Figure 7. The distribution of farmers' participation in the program of land optimization based on the area of rice farming land in Tamban Sari Baru Village (Source : Researcher, 2024)

Based on the data presented in Figure 7, it shows that the dominant farmers have a rice farming land area of 1 Ha, namely 71.62%. While other farmers have a rice farming land area of 2 hectares as much as 28.38%. The production of milled dry grain from rice farming land is 80 - 90 kg/ha. Figure 8 shows that the household income structure of respondent farmers in the Jelapat II area is mostly sourced from on-farm income, which is 75%. While income sourced from off-farm activities contributed 15%, the remaining 10% of household income was from the contribution of non-farm activities. It is related to Noor et al (2024), who stated that optimization of the swamp land had a beneficial impact on the socio-economic empowerment in Barito Kuala Regency, South Kalimantan.

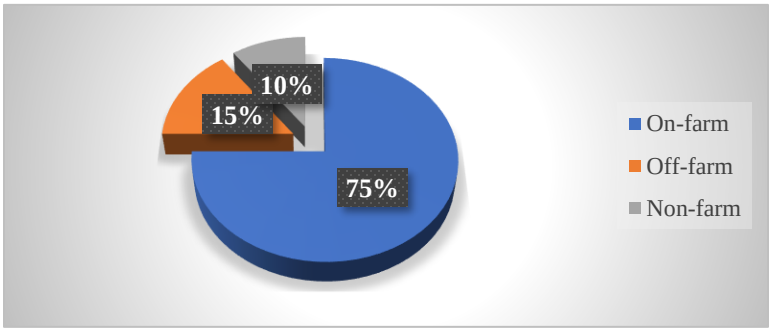

Figure 8. the structure of the respondent's household income in the Tamban Sari Baru village (Source : Researcher, 2024)

CONCLUSION

The conclusion of this study is that farmers' participation in swamp land optimization activities is good, this is evidenced by farmers' ownership of the optimized swamp land ranging from 0.5-1 hectare, with a land ownership rate above 70%. On the other hand, swamp land optimization makes farmers active in seeking their income from on-farm activities, this is evidenced by the level of farmers' income from on-farm activities above 70%. Moreover, it is important to maintain the optimization of the swamp land in ensuring the farmer participation and income structure.

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