

Farmer's Attitude towards the Implementation of SERASI(Save Swamplands, Program in the Tidal Swampland, Barito Kuala Regency, South Kalimantan Province, Indonesia

Radiah, E.¹, Yanti, N.D.²

^{1,2} Faculty of Agriculture, Lambung Mangkurat University, Banjarbaru, Indonesia

Corresponding author: Nuri Dewi Yanti

Faculty of Agriculture, Lambung Mangkurat University, Banjarbaru, Indonesia, Jln A. Yani, Km 36 Simpang Empat, Banjarbaru, Indonesia

Abstract:

Background: Tidal swampland is one of natural resources which must be utilized wisely. It is considered as marginal land, which is naturally susceptible to disturbances as basically, they are sustained by delicate hydrology. In tidal swampland, rice cultivation method is simple, utilizing energy for intermittently inundating and draining the rice field. The periodical movement of soil water is quite effective in generating soil fertility, however rice cultivation carried out only once a year. In order to increase cropping index to 200 or more, it needs water management technology to overcome the excessive water availability especially in rainy season such as to construct structured barrier with a flip gate that can block and release water throughout the year. The SERASI (save swamps, prosper farmers) program is one of government programs intended to increase rice production by optimizing land use. The program helps in the construction for water management and the provision of production inputs so that farmers are willing to plant rice twice a year. Since, this is considered new practice for farmers, then they faced with a choice of to agree or disagree of the implementation of the SERASI program in the area. The purpose of this study was to describe the characteristics of farmers and to determine the farmer's attitude towards implementing the SERASI program in the tidal swamp area.

Materials and Methods: The place of research was carried out in Mekarsari Sub-District, Barito Kuala Regency where the SERASI program took place. Mekarsari has area with tidal swampland Type A. The total respondents are 60 farmers respondents who were taken by simple random sampling. The data analysis uses a Likert scale with 5 categories and presented in percentage.

Results: The average age of the respondent was at the productive age, which was 45.27 years. The farmer's experience in rice cultivation was more than 10 years. Majority of farmers had land area in between 0.5-1.0 ha) and 83% was their own. The attitude of farmers towards the SERASI program in tidal swampland was categorized as agree with a score value of 70.52%. This attitude was formed by three components, namely the cognitive component (72%), affective component (71.55%) and conative component (68%). The score in conative component was lower than the other components, because when the planting season starts, it turned out that the promised seeds and other production inputs had not been received by the farmers on time. Therefore, rice nurseries could no longer be carried out. Moreover, the construction of structure barrier for water management was not working properly since the tide still inflow into the rice fields, especially during the rainy season. The main objective of the SERASI Program which was increasing the cropping index on tidal land in Type A was unsuccessful. Nevertheless, the attitude score showed a relatively high because farmers agreed with the construction of other infrastructures such as bridges which may facilitate the transportation of inputs and harvested products.

Keyword: Farmer's attitude; SERASI Program; Tidal swampland

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I. Introduction

The Programme of SERASI (*Selamatkan Rawa Sejahterakan Petani*), means Save Swampland and Welfare for Farmers is one of government programs in agriculture to increase food production, especially rice by utilizing land optimization. So far, the increase in national food production still relies on irrigated rice fields, especially on the island of Java, while swamplands (tidal and non-tidal swamplands) and other suboptimal lands have not been fully utilized.

Based on the regulation of the Minister of Agriculture No 40.1/Permentan/RC010/10/2018 regarding the SERASI program, states that the purpose of the SERASI Program is not only to increase rice production and farmers' welfare but also to always pay attention to the function of environmental conservation. Hence, the target of the SERASI program is to increase the index of rice cultivation in tidal swamps/lowlands. The SERASI Program has been running nationally since 2019 and has been implemented in the Province of South Kalimantan, South Sulawesi, and South Sumatera. The potential of tidal swampland in South Kalimantan Province is 186,000 ha, of which only 154,000 ha have been utilized for rice cultivation once a year. In South Kalimantan, tidal swampland is in three regencies namely Barito Kuala, Tapin and Banjar. In 2021, the SERASI program in Barito Kuala District was implemented covering an area of 100 hectares and is the largest implementation area compared to other districts.

Mekarsari sub-district is one of the locations for the implementation of the SERASI program. Mekarsari sub-district is considered as an area of tidal swampland Type A where the land will be flooded by high tides, both at high and low. Traditionally, the farmers only cultivate rice in their lands only once a year. In connection with the SERASI program, where one of the goals is to increase crop index to 200. Farmers receive seeds, fertilizers, and dolomite. Other than that, the government build infrastructure such as watergates for water management, bridge to facilitate transportation of input and output of farmers' crops, and empowered socio-economic institutions to increase farmers' income.

To achieve the target of the SERASI program, farmers are faced with the choice of accepting (agree) or not accepting (disagree) with the SERASI program being implemented in their land area, considering the condition of the tidal swampland type A which is always overflowing with tides. Generally, farmers in accepting an innovation really consider various aspects, such as social, economic, and technical aspects as well as environmental aspects. Social attitudes are formed from the social interactions experienced by individuals. In social interaction, individuals react to form a certain attitude pattern towards the psychological object they face. Furthermore, farmers' attitude is influenced by several factors, including age, education, experience and the mass media.

The objectives of this research are:

1. What are farmer's socio-economic characteristics in tidal swampland Type A where the SERASI program implemented
2. How is farmer's attitude toward the SERASI program in tidal swampland Type A the Barito Kuala Regency area?

II. Material And Method

The research was conducted in Mekarsari sub-district in Barito Kuala Regency from May until November 2021. This research method was a survey method with a quantitative method approach. The data used in this study are primary and secondary data. Primary data was taken from the results of interviews with respondents using a questionnaire that had been prepared in advance. Secondary data was from the literature or journals of previous research results that are related to this research. The type of data needed in this study was cross section data, which was showing a point at a certain time. Sample size was 60 farmers who selected by simple random sampling whereas the population being farmers who cultivate rice in tidal swamp land type A and located in the SERASI program area.

Data analysis: The data that has been collected is processed and calculated, then arranged in the table. To determine the extent of farmer's attitudes, a Likert scale is used, then analyzed descriptively. The Likert score starts from 1 (strongly disagree to 5 (strongly agree), then Likert scale is used to determine Index (%); Interval and Percentage

a.
$$\text{Index \%} = \frac{\text{Total score}}{Y} \times 100$$

Y = highest score x number of respondents

X = lowest score x number of respondents

b.
$$\text{Interval} = \frac{100}{\text{sum of score}}$$

c. Percentage is used to score farmer's attitude based on interval as follows:

No	Interval (%)	Remark
1	0-19.99	Strongly disagree
2	20-39.99	Disagree
3	40-59.99	Neutral
4	60-79.99	Agree
5	80-100.00	Strongly agree

III. Results And Discussion

3.1. Farmers' characteristics involved are age, experience, area of origin, land area, and land ownership

The average age of farmers is 45.27 years old ranged between 27-60 yearsold. Hence, farmers are considered in productive age. The younger the farmers, the more enthusiastic and curious they are about what they don't know, so they try to do or adopt innovationfaster, they tend to be more courageous in making farming decisions.A person's ability to work will increase until a certain age, then it will decrease. The age of the farmer will affect the ability to work and think. Young and healthy farmers have greater physical abilities and longer working hours than older farmers.

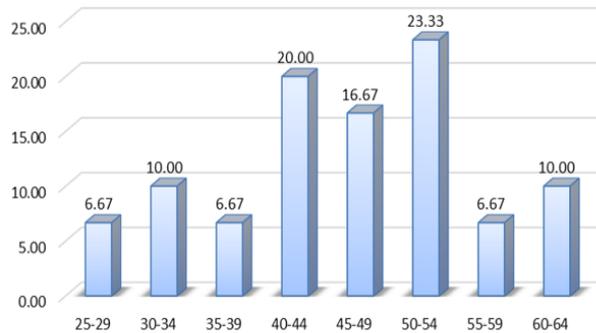


Figure 1. Distribution of farmers' age

A person's experience or length of farming will affect his behavior in managing his farm. Farmers who have farming experience tend to have a lot of farming knowledge compared to people with less experience, so they are more careful in making decisions. The result of the study showed mostly farmer had more than 20years in rice farming in their land, hence they were very good in rice cultivation in tidal swampland Type A. The average experience of farmers was 21 years, more details can be seen in figure below:

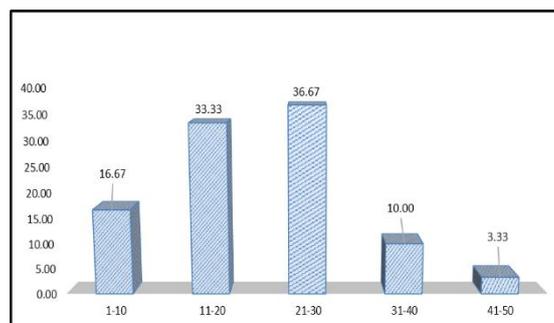


Figure 2. Distribution of farmer's experience

Not all the farmers working in the study area are indigenous people, but some are immigrants. The results showed that there were about 66.67% of farmers who were natives and that of immigrants were around 33.33%. The migrants came from the South Kalimantan area itself, such as from upstream areas or from other villages in Barito Kuala Regency.

In the study area, mostly farmers own the land between 0.5-1.0 ha (Figure 4). For farmers who have land on a large scale, usually they do not cultivate all the land because of limited labor. Therefore, some of the land was leased or worked on by other people with a sharing system.

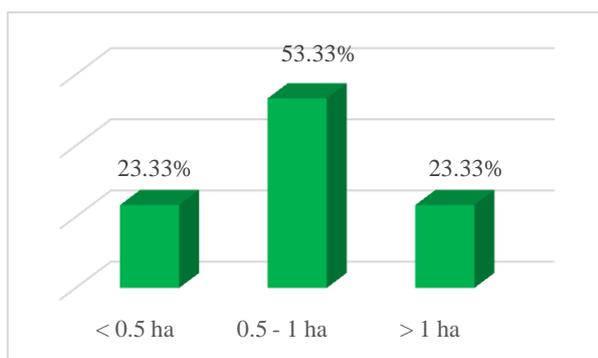


Figure 2. Land ownership of farmers

The majority of farmers (87.33%) have their own land for rice cultivation, while the rest are tenants (6.67%) and sharing-system (10%), as shown in Figure 5. Land tenure status have a major influence on sustainable agricultural systems. Farmers who have a larger area will find it easier to adopt new technology due to the efficiency in the use of production inputs compared to farmers who have a small area.

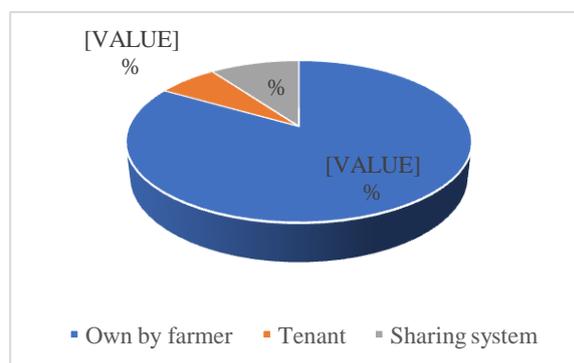


Figure 4. Land tenure system.

3.2 Farmer's attitude toward the implementation of SERASI Program in tidal swampland Type A

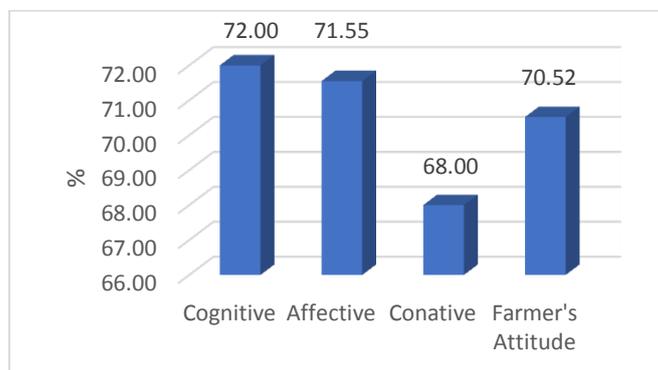
Tidal swamp land is defined as a swamp area that is directly or indirectly affected by the tide of sea water or surrounding river water. The tidal swampland can be classified into 4 types namely Type A, B, C, and Type D. Tidal swampland Type A when the land is always flooded with tidal water, both large and small tides. This type of land is often found in areas near the coast or along rivers, where tidal water still has an influence on the high and low water levels in the area. Tidal swampland Type B, inundated only at high tide; Type C, not flooded but the depth of groundwater at high tide is less from 50 cm; and Type D, not inundated at high tide, the groundwater is more than 50 cm.

The use of this Type A tidal swampland is mostly for agricultural activities, and this is a form of adaptation of farming system to the specific biophysical conditions of tidal swampland. This process has been carried out for generations and has been institutionalized in people's social life. Through experience and various trials (trial and error) in dealing with the constraints and limitations of tidal swampland, the farmers can fulfill their various needs and live-in harmony with nature. Local farmers also develop specific social institutions as a form of adaptation of social systems with ecosystems, especially in an effort to overcome water regulation constraints.

The SERASI Program is an integrated land optimization with efforts to improve the standard of living of farmers through assistance in the development of irrigation systems in swamps and agricultural/livestock commodities. Thus, it is expected that farmers can increase their cropping index to twice a year or more. To so do, farmers must be adopting new technology which different from their (rice) cultivation system so far.

Acceptance of innovation can usually be observed directly or indirectly by others as a reflection of a change in behavior. One of these behavioral changes is the attitude shown by the farmers in this area. Attitude is a view or feeling towards an object that will underlie an action (Gerungan, 2004). Attitudes can be positive and negative. Positive attitudes lead to a tendency to like, approach, accept or even expect the presence of certain objects, meanwhile a negative attitude creates a tendency to stay away from, hate, avoid or dislike the existence of an object. In this case the object is the SERASI program.

The results showed that farmers' attitude towards the implementation of the SERASI program in tidal swampland Type A was 70.52% which classified as Agree. The score was consisted of the three components namely the cognitive, affective and conative. The cognitive component has a value of 72% which is the highest value. The cognitive component is a representation of what an individual believes, and contains the knowledge, belief and understanding of the object (in this case the SERASI program) through the process of seeing, hearing, and feeling.



The other component is affective, which is a feeling involving the emotional aspect. The value of the affective component of 71.55% is included in the agree category. From the cognitive results, the farmers have confidence the SERASI program, will be able to increase their income together with the development of economic institutions in the area. The third component is conative. This component tends to behave, in the sense that there is an intention to carry out the SERASI program in their area. This component has the lowest value compared to other attitude components, which is only 68%, but still in the agree category. The low score of this component because when the planting season starts, it turns out that the promised seeds and other production inputs have not been received by the farmers on time. Farmers received production inputs in December and some even received it in January when the rice field was already flooded. It should be in September or October at the latest before the rainy season arrives. Therefore, rice nurseries could no longer be carried out. It is known that rice cultivation in tidal swampland needs multi transplanting system before the young plants grown in the rice fields. This system is carried out so that the young rice plants are quite tall and strong enough, so they do not sink or fall when exposed to overflowing water in the rice fields. Moreover, the construction of structure barrier for water management is not working properly since the tide still inflow into the rice fields, especially during the rainy season. The main objective of the SERASI Program which is increasing the cropping index on tidal land in Type A was unsuccessful. Nevertheless, the attitude score showed a relatively high because farmers agree with the construction of other infrastructures such as bridges which may facilitate the transportation of inputs and harvested products.

IV. Conclusion And Recommendation

Conclusion

1. Socio-economic characteristics of farmers in tidal swamp land Type A are as follows:

- a. Farmers' age ranged from 27-60 years with an average age of 45 years. Therefore, farmers in the study area were in the productive age.
- b. All farmers have experience in carrying out rice farming in tidal land, especially in Type A, where most of them have more than 20 years of experience.
- c. Most of the farmers in the study area are local residents, and some are migrants which are from other villages in Barito Kuala Regency or from other regencies in South Kalimantan Province.
- d. Mostly farmers in the area study has the land in between 0.5 ha – 1.0 ha
- e. The majority of farmers (83,33%) have their own land for rice cultivation, while 10% is tenant, and 6.67% is based on profit-sharing system

2. a. Farmer's attitude toward the implementation of SERASI Program in tidal swampland Type A showed that

they agree with a value of 70.52%. This attitude is formed by three components, namely the cognitive component (72%), affective (71.55%) and conative (68%).

b. Farmers' attitude towards is positive towards infrastructure development such as bridges and the gate for water management. Nevertheless, farmers do not agree in case of land optimization in the tidal swampland in order to increase the cropping index to twice a year or more as the main objective of SERASI Program.

c. Farmers' disapproval is due to the agro-ecological environment of tidal swampland especially Type A does not suitable for superior ricevarieties. Furthermore, the provision of input production especially seeds are not available on-time. Farmers received the seeds in December/January, so that they did not have time to do the nursery as they should do for rice cultivation in tidal swampland.

d. The construction of the gate for water management is still not optimal because the overflow of water during the rainy season still exceeds the building which causes water to freely enter the rice fields. In other words, the main objective of the SERASI Program, namely increasing the cropping index on tidal land in Type A can be said unsuccessful.

Recommendation

1. Implementation government program such as SERASI Program or other government programs, should consider the conditions of the area locally including technical aspects of plant cultivation, and other aspects so that the program objectives can be achieved according to the target.

2. Provision of input production such seed, fertilizer, and other things should be on time, in the right amount, and in the right place in order to .

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