

Analysis of Farmers' Perceptions Towards Rice Farming for Rice Fields from Gold Mining Without a License (PETI) in Pangkalan Jambu Subdistrict, Merangin District, Jambi Province

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ABSTRACT

Rice is a strategic commodity and is the main priority of the Indonesian people in supporting national food security. Merangin Regency was ranked 5th with a percentage of harvested area of 8.29% while production was 8.47%, and lowland rice productivity in Merangin Regency was 10.21%. Pangkalan Jambu Subdistrict is not the main supplier of lowland rice in Merangin Regency, but research shows that farmers assess the use of ex-PETI rice farming both economically, technically, socially and norms or legally as positive, ex-PETI land is still promising, economically ex-PETI land is profitable and economically. Technically, farmers can carry out activities well on former PETI land, and there are no obstacles from social aspects, applicable norms and regulations. The Farmers' Perception score reached 87.33% for economic aspects, 82.49 percent for technical aspects, 79.41 percent for social aspects and 80 percent for aspects of applicable norms and regulations. The productivity of lowland rice farming on former PETI land reaches 3 to 4 tons per hectare.

Keywords: Perception, lowland rice, PETI

INTRODUCTION

Background

Efforts to increase paddy and rice production can basically be carried out through extensification programs (increasing land area), diversification (crop diversity), rehabilitation of less productive land, and intensification (better application of technology). The use of unproductive land for lowland rice farming (if conditions allow) needs to be realized as an effort to increase national rice production.

Pangkalan Jambu District and Merangin Regency are not the main suppliers of lowland rice in Merangin Regency or in Jambi Province, Pangkalan Jambu subdistrict has the opportunity to increase lowland rice production through the use of former PETI land. Farmers have started to use former PETI land (after PETI activities this land became unproductive) as lowland rice farming land. An overview of the development of land area, production and productivity of lowland rice farming in Pangkalan Jambu District in 2016-2020 can be seen in Table 1.

In Table 1 it can be seen that the figures for harvested area, production and average rice production fluctuate from year to year. In 2013 the harvest area and production were high then the community carried out gold mining and in 2014 they started planting

again but there was a relatively significant decrease in land area but productivity remained the same and in 2019 there was a significant increase in land area and productivity also increased, likewise in 2019

2020 saw another increase in the area of rice fields, this indicates that farmers in this area continue to strive to increase the area of rice fields.

Table 1. Harvest area, production and productivity in Pangkalan Jambu District 2016-2020

No	Year	Harvest Area (ha)	Production (ton)	Productivity (ton/ha)
1	2016	188	908	4.831
2	2017	683	3.333	4.881
3	2018	480	2.312	4.822
4	2019	908	4.893	5.328
5	2020	1.181	5.754	4.873

Pangkalan Jambu sub-district has enormous potential for gold deposits spread across several sub-districts. The problem of environmental pollution that arises as a result of Unlicensed Gold Mining (PETI) is carried out by the community, this results in the community carrying out gold mining which results in damage to the surrounding environment. Many people's rice fields and agricultural land have been damaged due to illegal gold mining carried out by the community.

Research Problems

The conversion of former PETI land into paddy fields was observed from several aspects such as considering the perception of motivation, satisfaction, background, attitudes and perceptions of farmers regarding the conversion activity.

Farmers' perceptions of lowland rice farming on former PETI land by utilizing former PETI land for lowland rice farming are interesting to observe. Perception is the farmer's assessment of lowland rice farming on former PETI land. This aspect is interesting considering that the use of former PETI land for lowland rice requires relatively large financing. This aspect of perception is interesting considering that the continuation of the activities of using former PETI land for lowland rice farming will very much depend on the perception of farmers who have used the former PETI land for lowland rice farming. Based on the description of the problem above, the research problem can be formulated as follows:

1. What is the farmer's perception of rice farming in rice fields affected by unauthorized gold mining in Pangkalan Jambu District?
2. What is the productivity of rice fields from former gold mining without permits in Pangkalan Jambu District?
3. How much does it cost to process used crate land into rice fields

Aims

This research aims to:

1. Analyze farmers' perceptions of rice farming in rice fields that were ex-gold mining without permits in Pangkalan Jambu District?
2. Analyze the productivity of rice fields from former gold mining without permits in Pangkalan Jambu District?
3. Find out the costs of processing former PETI land into paddy farming land in Pangkalan Jambu District?

Benefits

It is hoped that this research on farmers' perceptions of productivity will be useful for determining appropriate policies in ensuring the realization of increased production through the refunction of unproductive land, such as former PETI land.

LITERATURE REVIEW

Farming

Farming is basically the process of organizing nature, land, labor and capital to produce agricultural products. According to Shinta (2011), farming is a science that

studies how to use resources efficiently and effectively in an agricultural business in order to obtain maximum results. These resources are land, labor, capital and management. The success of a farming business can be seen from the amount of income obtained by farmers from managing their farming business. Income itself can be defined as the difference between the deduction of the value of receipts and the costs incurred in the farming process. Analysis of farming income requires two main components, namely income and expenditure over a specified period of time. Farming revenues include all products sold, consumed by farming households, for payment and stored. Revenue is assessed based on the multiplication of the total product with the prevailing market price, while expenses or farming costs are the value of the use of production facilities and others charged to the product concerned. Apart from the cash costs that must be paid, there are also costs that are taken into account, namely the value of using goods and services produced and originating from the farming business itself. The imputed costs are used to calculate how much the farmer's actual labor income will be if capital and the value of family labor are taken into account. Farming income is the total value of farming products in a certain period of time, while farming expenditure is the value of all inputs used up in the production process but does not include family labor costs.

Perception

Perception is the process of understanding or giving meaning to information regarding a stimulus. Stimulus is obtained from the process of sensing objects, events, or relationships between symptoms which are then processed by the brain (Sumanto, 2014). The term perception is usually used to express the experience of an object or an event that is experienced. This perception is defined as a process that combines and organizes our sense data (sensing) to be developed in such a way that we can be

aware of our surroundings, including being aware of ourselves. 3 Perception takes place when a person receives a stimulus from the outside world which is captured by the organs the help then enters the brain. Perception is formed on the basis of data we obtain from the environment which is absorbed by our senses, and some others are obtained from the processing of our memories (reprocessed based on the experiences we have had.

Types of Perception

Perception is divided into two, namely: perception of objects (physical environment) and perceptions of humans or society. Perception of humans is more difficult and complex because humans are dynamic. These two types of perception have differences, namely:

- a. Perception of objects through physical symbols, while towards humans through verbal and nonverbal symbols. Humans are more effective than most objects and more difficult to predict.
- b. Perception of objects responds to external characteristics, while humans respond to external and internal characteristics (feelings, motives, hopes, and so on).
- c. Objects do not react, while humans do. In other words, objects are static, while humans are dynamic. Therefore, perceptions of humans can change over time, more quickly than perceptions of objects.

Human or social perception is the process of capturing the meaning of social objects and the events we experience in our environment. Everyone has a different picture of the reality around them. There are several important principles regarding social perception, namely:

1. Perception based on experience, namely human perception of a person, object, or event and their reactions to those things based on their past experiences and learning relating to similar people, objects or events.

2. Perception is selective. Every human being often experiences sensory stimulation. Our attention to a stimulus is the main factor that determines our selectivity for that stimulus.
3. Perception is conjectural. This occurs because the data we obtain about objects is never complete, so this conjectural perception process allows us to interpret an object with a more complete meaning from any point of view.
4. Perception is evaluative. This means that most of us say that what we perceive is real, however, sometimes our sense organs and perception deceive us so that we also doubt how close our perception is to actual reality.
5. Perception is contextual. When we see a person, an object or an event, the context of the stimulus greatly influences our cognitive structure, expectations and therefore our perception.

Factors that Influence Perception

In the perception process, many stimuli enter the five senses, but not all of these stimuli have the same attraction. According to Rhenal Kasali, perception is determined by the following factors:

- a. Cultural background. This perception is related to culture.
- b. Past experience. Audiences or audiences generally have had a certain experience with the object being discussed.
- c. Values held, Values are the evaluative components of the beliefs held including usefulness, goodness, aesthetics.
- d. Developing news: Developing news is news about products either through mass media or information from other people that can influence a person's perception.

Productivity

Production can be broadly defined as processing raw materials into semi-finished goods or finished goods. Production is an activity that produces a certain amount of output. The production process or better known as cultivating plants or agricultural

commodities is the process of farming to produce fresh materials (raw materials). These fresh ingredients are used as raw materials to produce semi-finished materials (workin process) or finished goods (finished products) in other agricultural industries (Rahim, 2007).

Rice production is the result of cultivation carried out by planting seeds and regular care and fertilization so as to produce rice production that can be utilized. The rice is then processed into rice. Rice is the main source of calories which contains very high carbohydrate elements so it is very useful and makes it a main food ingredient. Productivity is a comparison of the results achieved with the number of production factors used, namely labor, land and other inputs (Nurjanah, 2012). Productivity is the production of each type of commodity per harvested area in hectares.

Agricultural productivity is greatly influenced by input and output from agriculture. Agricultural input includes labor, agricultural materials, technology and capital. Meanwhile, agricultural output includes managed agricultural products, for example rice. Apart from that, productivity in the agricultural sector cannot be separated from the socio-economic factors that exist around it. Productivity is a number of agricultural production outputs per hectare of farmer's land obtained from planting per season. The productivity that will be calculated is lowland rice production per area of land cultivated by farmers. $Productivity = Production / Land Area$. Where production is amount of rice production produced from rice farming on former PETI land (tons/kg) and input is Area of paddy farming land former PETI land (Ha).

MATERIALS & METHODS

The scope of research

This research was conducted in Pangkalan Jambu District, Merangin Regency. The selection of villages was based on the consideration that the refunctioning activities of former PETI land had been

carried out by farmers in this village since 2015. The object of this research was limited to aspects of farmers' perceptions regarding the refunctioning activities of former PETI land into lowland rice fields and productivity. Farmers' perceptions in managing PETI land refunction rice farming activities are measured from several indicators, including economic and social aspects. Rice fields repurposed from PETI activities are the target sample for this research.

The data that will be collected is the planting season data before carrying out this research. The data that will be collected in this research are:

1. Internal factors of farmers which include age, education level, number of family members and farming experience.
2. Land area (ha) and amount of lowland rice farming production on reused land used as PETI lowland rice land (kg/planting season).
3. Productivity of Paddy Farming.
4. Farmers' perceptions of rice farming in former PETI rice fields
5. Data and information relevant to the substance of this research.

Data

The data used in this research includes primary data and secondary data. Primary data was obtained from sample farmers through direct interviews with lowland rice farmer respondents in Pangkalan Jambu District guided by a list of questions or

questionnaires that had been prepared in advance. Meanwhile, secondary data is data obtained from departments or agencies related to research such as the Department of Agriculture, Food Crops and Horticulture, Merangin Regency and so on. The data collection methods used were observation, interviews and documentation techniques.

Sampling Method

This research was carried out in Pangkalan Jambu District, Merangin Regency. The objects of observation were farmers who were members of 6 farmer groups totaling 147 members who worked on ex-mining rice fields. The sample was determined by simple random sampling from each farmer group, that is, each member of the population had the same opportunity to be selected as a sample. The lottery method is a method whose process uses a drawing pattern (Hasan, 2010). The process of the lottery method is (1) by giving numbers to all the sample sizes for each farmer group on small pieces of paper, rolling up the small pieces of paper with the serial numbers of the members then putting them in a box, shaking them evenly and taking them one by one until the number of farmers has been selected. determined successful, (3) the results of the lottery are the selected sample. The following are groups of farmers whose rice farming land was used by PETI in Baru Village and Bukit Perentak, Pangkalan Jambu District.

Table 2. Name of village, farmer group, number of members and number of samples per farmer group

No	Village	Farmer Group	Number of Members	Number of Samples (30%)
1	Baru	Sinar Baru	25	8
		Tunas Baru	27	8
		Cinta Maju	26	8
		Sungai Keramat	9	3
		Pancuran Bambu	5	2
2	Bukit Perentak	Lanjut	53	16
Total			147	45

Source: BP3K Pangkalan Jambu District in 2020

Analysis

The data obtained from the results of this research were analyzed descriptively after being tabulated to determine farmers' perceptions of rice farming on former PETI

land in Pangkalan Jambu District, Merangin Regency. Data analysis uses tabulation of frequencies and percentages (%), in addition to quantitative analysis of the productivity of rice farming at the former PETI location.

Analysis of perceptual attributes is carried out by paying attention to the dominant attributes. Each perception attribute is given a score of 5 to 1 for the strongly agree to disagree categories.

RESULT & DISCUSSION

Research Area

This research was carried out in Pangkalan Jambu District, Merangin Regency. Geographically, Merangin Regency is located at 101°32'39 - 102°38'35 East Longitude and 1°39'23 - 2°46'9 South Latitude with an area of 7,679 Km² or 745,130 Ha consisting of lowlands covering an area of 4,607 Km² and 3,027 km² of highlands, with a height ranging from 46 - 1,206 m above sea level with regional boundaries including the following:

- North: borders Bungo and Tebo Regencies
- South: borders with Kab. Lebong Province
- West: borders Kerinci Regency
- East: borders Sarolangun Regency

Baru Village and Prentak Village are located in Pangkalan Jambu District, Merangin Regency. Until 2014, several people in this village were carrying out gold mining without a permit (PETI) and had damaged relatively fertile rice fields, and starting in 2015 or 2016, several innovators in this village were again trying to restore the function of the former PETI land into productive rice fields and to date, according to information from local extension workers, the area of land that has been repurposed has reached one hundred hectares. There are two villages that have carried out the refuction of the former PETI land in Pangkalan District, namely Baru Village and Bukit Perentak Village.

Pangkalan Jambu is one of the sub-districts that has agricultural potential that can be developed. The majority of the residents of Baru Pangkalan Jambu Village and Bukit Perentak Village are Muslim, with family ties that are still strong and well maintained. The residents of these two villages still use deliberation as a forum for determining their

fate together, besides that there is quite a high spirit of mutual cooperation towards the surrounding environment and they carry out various farming activities which are usually carried out in groups.

Farmer Age

Age can basically describe a person's experience, where the older a person is, the more experienced that person will be. Another aspect that is more important than this aspect of age is related to physical ability, where those at a relatively younger age have relatively stronger physical abilities, but on this occasion what will be revealed is the age condition that is still classified as productive or unproductive. In the productive age group, this means that farmers are still able to produce goods or services, while in the unproductive age group this ability will be relatively small. The description of farmers based on productive and unproductive age is as follows.

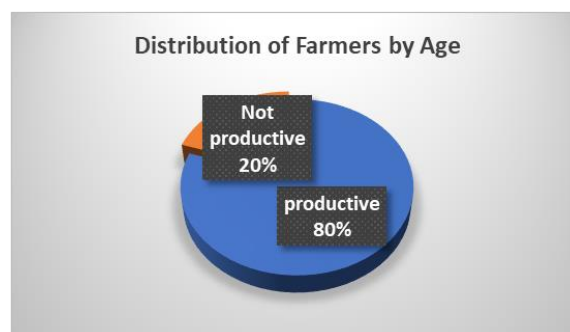


Figure 1. Distribution of productive and unproductive farmers.

The figure shows that the majority of farmers (75%) are still in the productive age group, meaning that farmers in the research area are still able to produce products or services. In connection with the focus of this research, farmers are considered still capable of managing lowland rice farming activities well in accordance with ideal conditions.

Farmer Education

Education is an indicator that can be used to measure the way of thinking and acting to make a choice. The higher a person's

education, the more appropriate their choice, because before making a choice, farmers must consider the advantages and disadvantages of each available alternative. Farmers with a relatively high level of education will find it easier to accept and implement innovation. The education measured in this research is the formal education that farmers have completed from elementary school to tertiary level and those who have never had any formal education at all. An overview of the education of sample farmers can be seen in Figure 2.

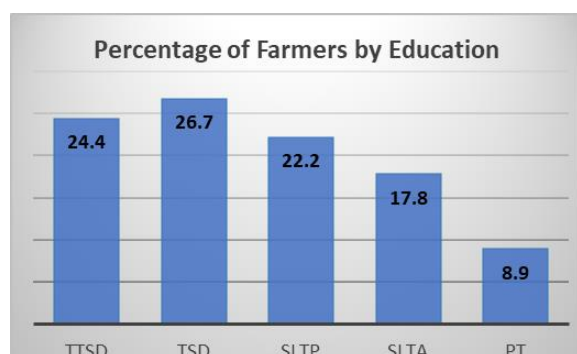


Figure 2. Percentage Distribution of Farmers by Education

The figure shows that there are indications that the percentage of farmers is getting smaller with the higher the level of education, and the dominant level of education is the population with a completed elementary school (TSD) education level, in addition there are 8.9 percent of farmers who have studied at tertiary institutions (PT) and these farmers can be an example for other farmers.

Number of Family Members

The number of family members is all the people living in one house. The number of family members of farmers ranges from 2 to 6 people, an illustration of the number of family members of respondents can be seen in Figure 3. Figure 3 shows that the most dominant number of family members of rice farmers in the research area is 3 to 4 family members (71%) assuming that in each family there are 2 adult men and 1 adult woman and 1 child, then the availability of

labor in the family is 3.3 labor equivalent to men.

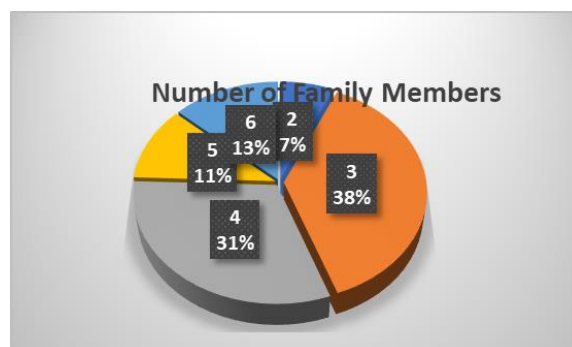


Figure 3. Distribution of the Number of Respondents' Family Members

Farming Experience

Farming experience influences farmers in making decisions, besides that experience is also closely related to the quality of work, as well as the ability to complete the work. Experienced farmers will usually complete a job more quickly than inexperienced farmers (*ceteris paribus*). Respondents' experience varies between 5 and 28 years, and approximately 80 percent of farmers have been carrying out rice farming activities for more than 10 years. An overview of respondents' experience in the research area can be seen in Figure 4.

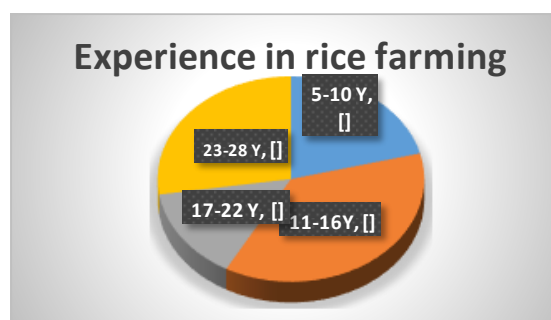


Figure 4. Distribution of respondents' experience in rice farming.

Figure 4 shows that the majority of farmers have more than 10 years of experience cultivating lowland rice (79%). This can be used as an indicator that respondents will be able to manage their lowland rice farming activities well.

Land Refunction Activities

Considering that this research is related to farmers' satisfaction with the re-function of former PETI land, the sample in this research is limited to farmers who have carried out farming activities on re-functional former PETI land at least 3 times, with the consideration that farmers can give the right answer. The sample description based on year of refunction is as follows.

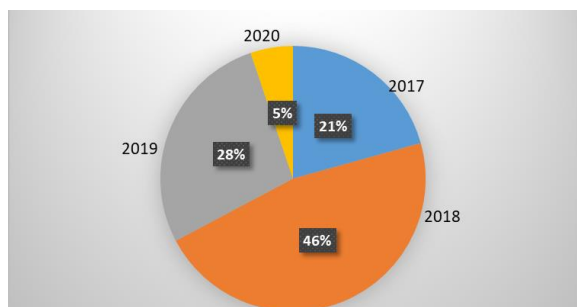


Figure 5. Distribution of respondents based on refunction year.

Farmers' Perceptions

Farmers' perceptions of former PETI land are an important aspect for utilizing former PETI land. If farmers perceive the re-function of former PETI land as positive (from several aspects, for example the land is still productive, the land can still be a source of livelihood, land re-function is easy and cheap), then there is a tendency for farmers to use the former PETI land or will continue to cultivate PETI land for who have carried out land refunction. In general, it is realized that each farmer's perception of the reuse of former PETI land will be different depending on the farmer's background knowledge and experience. Analysis of Farmers' perceptions of the re-function of former PETI land is grouped into 4 categories, namely Economic Perception, Technical Perception, Social Perception and Norm or Regulation Perception. Below is presented farmers' perceptions of the re-function of former PETI land at the research location.

Table 2. Distribution of farmers' perceptions regarding the refunction of former PETI land

No	Category	Maximum Score	Score	%
1	Economic Perception	1.800	1.572	87.33
2	Technical Perception	1125	927	82.40
3	Persepsi Sosial	675	536	79.41
4	Persepsi Norma	675	540	80.00

Based on the table above, farmers' perceptions of the refunction of former PETI land can be explained as follows.

1. Perception analysis from an economic aspect

Economically, perception can be interpreted as the farmer's view of whether the re-function of former PETI land is profitable for the farmer. The table explains that the farmers' perception score reached 87.33 percent, meaning that economically farmers perceive that the re-function of former PETI land is beneficial for farmers. This condition can be used as an indicator that farmers will continue to cultivate lowland rice farming on the former land. Apart from that, this perception will also influence the application of cultivation techniques by farmers, which in turn will affect productivity.

2. Perception analysis from a technical aspect

Technical perception analysis is the farmer's view of the refunction of former PETI land from a technical aspect, in this case regarding the farmer's ability to manage lowland rice farming and based on Figure 4 it is known that the majority of farmers (79 percent) already have more than 10 years of lowland rice farming experience, in addition to the experience aspect of water availability, soil fertility which makes it possible to cultivate several commodities. Farmers also perceive that the former PETI land still has promising potential for the future so that it is still very suitable for farming activities such as lowland rice.

3. Perception analysis from social aspects

Analysis of perceptions from social aspects regarding the origin of the land, as well as togetherness. Farmers assess

that the activity of renovating former PETI land does not result in a breakdown in relations between fellow residents, on the contrary, this activity grows farmer groups that were previously empty when PETI activities took place. After the re-function activities, farmer groups were re-formed and mutual cooperation began to grow again. The achievement score for this social aspect reached 79.41 percent, which means that almost all farmers perceive that refunction has had a positive impact on relationships between farmers.

4. Perception Analysis from the Norms and Regulations aspect

Perception analysis from the aspects of norms and regulations is the farmer's view of the re-function of former PETI land such as norms, customs, government policy or positive law. From the norm aspect, this activity is considered positive by farmers because there are no norms and customs that conflict with the activities of refunctioning former PETI land, even from the positive legal aspect this activity is considered even more positive because PETI activities are basically contrary to the applicable positive law.

PETI Productivity of Rice Farming in Used PETI Land

Productivity is an indicator of the success of farming activities. Productivity is the ratio between output and input, the higher the productivity achieved, it shows that the production of lowland rice farming will provide a sense of satisfaction for farmers. The productivity referred to in this research is land productivity, productivity figures are obtained from the ratio between production (tons) and land area (Ha). The description of the productivity of lowland rice farming on former PETI land in Pangkalan Jambu sub-district varies between 5 tonnes/ha to 6.67 tonnes/ha with an average productivity of 5.96 tonnes/ha. This productivity achievement can be categorized as high

considering that the average production of lowland rice cultivation in Merangin Regency has only reached 5 tons / ha. This productivity achievement is in line with farmers' perceptions, where both economically, technically, socially and in terms of norms, farmers have a positive perception of the refunction of former PETI land in Pangkalan Jambu sub-district.

Land Refunction Costs.

The cost of refunctioning former PETI land is related to the process of refunctioning former PETI land, where after the PETI activities are completed all the expanses are filled with stones of various sizes and relatively large excavation holes, so that refunctioning activities of former PETI land are almost impossible to carry out with human power. The use of heavy equipment (excavators) is the right choice for farmers to restore the function of the land. According to information, the largest cost for refunctioning former PETI land is for renting heavy equipment, Rp. 5,000,000/day, while the ability of the equipment to restore 1 ha of land takes six days, so the cost of heavy equipment is IDR. 30,000,000 /ha.

Declaration by Authors

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