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Factors affecting the conversion of cocoa land to rice field at West Sulawesi

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Abstract. Batupanga Village is one of the largest cocoa contributor areas in Polewali Mandar, West Sulawesi. But in recent years many cocoa farmers have chosen to turn their cocoa fields into rice fields. One of the government's free rice field printing programs encourages farmers to join the program. Changes in livelihoods are closely related to changes in economic aspects. Changes in economic aspects will also affect the social condition of the community, so that the switch of agricultural land also has an impact on the socioeconomic aspects of the community, especially farmers. This research aims to know what factors influence cocoa farmers in transferring their land from cocoa land to rice fields. Data analysis techniques used are descriptive analysis. The results of this study are factors that influence farmers in converting cocoa land into rice fields in Batupanga Village, Luyo District is an economic factor (production, income), ecology (land area, environmental degradation), technical (water sources, alsintan), and social (number of family dependents, interaction).

1. Introduction

One of the largest cocoa producing regions in Indonesia is West Sulawesi Province and 80% of the population has a livelihood as a farmer of food crops and cocoa plantations. Cocoa is one of the leading commodities of plantation subsectors in Indonesia. In 2015, cocoa exports were the third largest contributor to income and foreign exchange in Indonesia. Although in the last 20 years the development of cocoa plantation area is quite rapid, in 2012-2017 there was a decrease in cocoa area in Indonesia, this is shown in table 1 [1].

Table 1. Area and Cocoa Production 2012-2017

Year	Area (Ha)	Production (Tons)
2012	1.774.464	740.513
2013	1.740.612	720.862
2014	1.727.437	728.414
2015	1.709.284	593.331
2016	1.701.351	656.817
2017	1.691.334	688.345

One of the causes of the decline in cocoa plantation area is the transfer of land functions that began to occur frequently on agricultural land. The transfer of this function, in addition to the development of the population that demands the construction of various infrastructures, is also caused by the lack of incentives in the agricultural sector (Mustofa 2011). Based on the results of a survey in Batupanga



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Village, Luyo District, Polewali Mandar Regency, West Sulawesi Province obtained information from PPL that many farmers are participating in government programs where cocoa land is used as new rice fields. Prior to the new rice field printing program, the majority of people in Batupanga Village worked as cocoa farmers [2].

Based on research conducted by Ahmad Affandi (2018), factors that influence land transfer are narrow land, declining production, environmental degradation, lack of technology, and lack of government and community concern. As for other additional factors from previous research conducted by Syarifah Hanum (2018) that the experience of cocoa farming is a negative and significant factor in transfer of land functions, which means the longer the experience of farmers in farming cocoa, the farmers will tend to maintain their cocoa land [3,[4].

Cocoa farmers in Batupanga Village divert their agricultural land from cocoa to rice fields because it is based on several things. Based on preliminary studies that have been done the cause of cocoa farmers turning into rice farmers is caused by economic, social and ecological factors. In addition, cocoa farmers also have a specific purpose by choosing to turn their agricultural land into rice fields. The transition of agricultural land in Batupanga Village from cocoa to rice fields was followed by the shift of cocoa farmers' livelihoods in the village to rice farmers. Changes in livelihoods are closely related to changes in economic aspects. Changes in economic aspects will also affect the social condition of the community, so that the switch to agricultural land also has an impact on the socioeconomic aspects of the community, especially farmers. Based on the background that has been presented, researchers are interested in conducting research entitled Factors that affect land transfer in Batupanga Village, Polewali Mandar Regency, West Sulawesi.

2. Research Method

The research was conducted in Batupanga Village, Luyo District, Polewali Mandar Regency, West Sulawesi Province. The determination of the research area was done deliberately with the consideration that the location is one of the areas that experienced the transfer of land functions from cocoa to rice fields. The research time was conducted in May-June 2019. The method used in sample withdrawal in this study was Random Sampling with the total number of respondents taken was 30 people. The data used are primary data and secondary data. Descriptive analysis is used by the authors to determine the factors that influence cocoa farmers in diverting their land from cocoa to rice fields. Descriptive analysis is an analysis used to analyze data by describing or describing the collected data as it is without intending to make conclusions that apply to the public or generalizations. Descriptive analysis aims to turn raw data sets into easier-to-understand forms of information that are more concise.

3. Results and Discussion

In 2016 Batupanga Village has participated in a rice field printing program that turns cocoa land into rice fields. Printing of new rice fields has been done twice in Batupanga Village, namely in 2016 covering an area of 71.77 ha and then held again in 2018 covering an area of 17.82 ha. Economic, ecological, technical, and social factors are the underlying reasons for many cocoa farming communities following the rice field printing program.

3.1 Economic Factor

Economic factors that affect farmers in transfer of land functions in Batupanga Village, Luyo District, Polewali Mandar Regency are described in table 2 below.

Table 2. Economic Factors Affecting Farmers to Convert Cacao Land to Rice Field in Batupanga Village, Luyo District, Polewali Mandar, 2019

Description	Cacao (kg)	Rice (ton)	Total Respondent	Percentage (%)
Production	238	5.36	30	100
Income (Rp)	3,621,000	20,995,000	30	100

Table 2 shows that the economic factors that influence farmers to turn their cocoa fields into rice fields in Batupanga Village are production and income. From the table above explained that as many as 30 farmers respondents or 100% of the number of respondents converted their cocoa land due to production factors. Cocoa production that no longer promises cocoa farmers is the reason farmers switch from cocoa to rice fields, this is because many cocoa plants are affected by fruit rot. Rotten fruit disease can result in a decrease in production of as much as 44% of its normal production, this is in line with the opinion of Rubiyo and Widi Amaria (2013) who said the main disease of cocoa plants both in Indonesia and other countries is rotten fruit. Attacks of cocoa fruit rot can reduce cocoa production by up to 44% [5].

3.2 Ecological Factors

Ecological factors that influence farmers in transfer of land functions in Batupanga Village, Luyo District, Polewali Mandar Regency are described in table 3 below.

Table 3. Ecologic Factors Affecting Farmers to Convert Cacao Land to Rice Field in Batupanga Village, Luyo District, Polewali Mandar, 2019

Description	Cacao (Ha)	Rice (Ha)	Total Respondent	Percentage (%)
Area	1.05	1.05	9	30
Environmental Degradation	Unproductive	Productive	30	100

From table 3 above shows that 9 out of 30 farmers respondents or as much as 30% of the total number of respondents converted their cocoa land due to land area factors. The average area of converted farmer land area of 1.05 ha, meaning the wider the area of salak pondoh land, the lower to switch. This is supported by the opinion of Munir (2008) who said that land transfer is very potential for farmers who have narrow land. The wider the land of farmers, namely farmers classified as broad-scale will require time, physical energy, and considerable agricultural capital in dismantling land to other crops. The results showed that, the harvest from narrow land management is not comparable to agricultural capital (fertilizers, pesticides) issued by farmers that will indirectly affect the needs of families. According to farmers, the narrow land that farmers have cannot meet the needs of families [6].

3.3 Technical Factors

Technical factors that affect farmers in transfer of land functions in Batupanga Village, Luyo District, Polewali Mandar Regency are described in table 4 below.

Table 4. Technical Factors Affecting Farmers to Convert Cacao Land to Rice Field in Batupanga Village, Luyo District, Polewali Mandar, 2019

Description	Cacao	Rice	Total Respondent	Percentage (%)
Water Source	-	Water Pump	30	100
Tools and Machinery	- Sprayer	- Combain	12	40
	- Parang	Harvester		
	- Gunting	- Traktor		
	- Sabit	- Sprayer		

From table 4 above, it can be seen that as many as 30 farmers or 100% of the total number of farmers converted their cocoa fields into rice fields on the basis of the availability of water that is easily accessed by farmers in batupanga village luyo subdistrict. the availability of water that is easily accessible to farmers makes farmers able to meet the terms and conditions in participating in the rice field printing program. 12 farmers or 40% of the total number of farmers respondents converted their cocoa fields into rice fields because of the use of very simple agricultural tools and machinery such as cocoa cut scissors, machetes, and sickles that require a long time of work and a lot of labor. Compared with alsintan (Agricultural Equipment and Machinery) used in rice farming is greater in terms of rental costs but efficient in terms of time and labor. Farmers respondents also explained that the condition of cocoa land that is often overgrown by wild plants and plants makes cocoa land dirty and requires a large amount of energy in the process while the tools used are still very simple. This is the reason for the switch of cocoa farmers to rice fields.

3.4 Sosial Factors

Social factors that affect farmers in transfer of land functions in Batupanga Village, Luyo District, Polewali Mandar Regency are described in table 5 below.

Table 5. Social Factors Affecting Farmers to Convert Cacao Land to Rice Field in Batupanga Village, Luyo District, Polewali Mandar, 2019

Description	Cacao	Rice	Total Respondent	Percentage (%)
Number of Dependents	-	-	17	56
Interaction	-	-	7	23

From the table above 5 above, it can be seen that as many as 7 respondent farmers or 56% of the total number of farmers converted their cocoa fields into rice fields due to the number of family dependents. Munir (2008) in his research said that land transfer is more likely to be done by farmers whose family dependents number or more than four people. This is because the more family members are covered, the more daily needs, this will trigger food needs the higher also accompanied by a decrease in the selling price of salak pondoh. Eventually, this problem will put pressure on farmers to switch to other crops. Furthermore, it can be seen that as many as 7 farmers or 23% of the total number of farmers converted their cocoa fields into rice fields due to interaction factors. The interaction that is defined in this research is the interaction between cocoa farmers who have not received rice field printing and farmers who have received rice fields so that it attracts farmers to participate in the rice field printing program[6].

4. Conclusion

From the results of the research described in the discussion chapter can be concluded that economic factors (production, income), ecology (land area, environmental degradation), technical (water sources, alsintan), and social factors (number of family dependents, interactions) are influential factors in the transfer of functions carried out by farmers from cocoa land to rice fields.

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