



## The Impact of Converting Cocoa Land to Rice Field on the Economic Welfare of Farmers in Katimbang Village, Matangga District, Polewali Mandar Regency

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Received : June 11, 2025

Revised : June 25, 2025

Published: June 30, 2025

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### ABSTRACT

*This study aims to determine the impact of land conversion on farmers' income in Katimbang Village, Matangga District, Polewali Mandar Regency. Agricultural land previously used for cocoa plants was converted into rice fields in response to the decline in cocoa agricultural yields due to pests and diseases, as well as low farmer income. This study uses a qualitative method with data collection techniques in the form of interviews, observations, and documentation. This method can provide in-depth understanding and easy-to-understand context. The study population consisted of 150 farmers who carried out land conversion, and 30 samples were taken. The results showed that farmers' income after land conversion increased significantly compared to before land conversion. Farmers who previously only received low incomes now receive higher incomes after converting land into rice fields. Land conversion has positive impacts, such as increasing employment and the economic quality of the community, although there are negative impacts such as increasing irrigation needs and reducing cocoa land. Therefore, it is important to consider the sustainability aspect in agricultural land management to support food security and farmer welfare.*

**Keywords:** Land Function Transfer, Farmer Income, Agriculture

### INTRODUCTION

Indonesia is an agricultural country where most of its population depends on the agricultural sector for their livelihood. Therefore, the government pays greater attention to the development of the agricultural sector with the aim of making agriculture a mainstay sector in order to improve the welfare of Indonesian farmers Mangare et al (2021). In addition, Indonesia is located in the astronomical equatorial zone, has diverse forests, including tropical forests, and fertile soil, and the use of agricultural land is increasing to meet daily needs. Land itself has a different meaning in the business world than in the agricultural world. The term land includes all natural resources available in a geographic area below or on the surface of the earth. Soil can be considered as a system consisting of structural elements, called soil characteristics, and functional elements, called soil quality.

Land conversion is a change in the original function or the entire area (as planned) and to another function that has the potential to have a negative impact (problem) on the environment and the country itself, Ningsih & Rismawati (2022). The method of agricultural processing can determine the impact of land conversion carried out by farmers. Land conversion carried out by farmers is usually caused by basic needs that must be met first before the previous land yields experience a decline in quality. This land conversion is a strategy carried out by farmers to increase production and meet daily living needs. Thus, farmers can find new ways to optimize their land and

ensure the sustainability of their agricultural businesses.

The impact of land conversion can have positive and negative impacts. For example, a positive impact, converting cocoa land to rice fields can increase rice or rice income for farmers. While the negative impact, converting cocoa plant land to rice fields can reduce income from cocoa plants for farmers.

Indonesia has various regions that are sources of agricultural products from rice fields, one of which is the West Sulawesi region. West Sulawesi is located in the western part of the island of Sulawesi, known as one of the regions that has quite extensive and abundant rice fields. This area has very good agricultural potential, especially in rice production, which is one of the main commodities for the local population. The geographical conditions dominated by lowlands and rivers that support irrigation systems, allow rice farming to develop rapidly in this region. In addition, natural wealth and local wisdom in managing agriculture make West Sulawesi one of the important areas in national food security. One of the areas producing wet rice in West Sulawesi is Polewali Mandar Regency.

Rice farming is one of the main activities in the Polewali andar area, and has very good potential in rice production. With the geographical conditions of lowlands and rivers that support irrigation systems, rice farming is developing rapidly here. Natural wealth and local wisdom in managing agriculture make an important contribution to national food security. The use of land in Polewali Mandar Regency can be seen in table below:

**Table 1.** Land Use Before and After Land Conversion

Kecamatan	Penggunaan Lahan 2023				Penggunaan Lahan 2024			
	Sawah	Pertanian bukan sawah	Bukan pertanian	Total luas lahan	Sawah	Pertanian bukan sawah	Bukan lahan pertanian	Total luas
Tinambung	186.0	1,776	237	1,989.0	186.00	1,776.00	249.00	2,211.00
Balanipa	-	2,971	329	3,300.0	-	2,973.00	329.00	3,302.00
Limboro	49.0	4,629	1,827	6,505.0	49.00	5,074.00	1,827.00	6,950.00
Tubbi Taramanu	164.0	42,126	700	42,900.0	164.00	42,808.00	800.00	43,772.00
Alu	3.5	16,710	716	17,429.5	3.50	15,548.00	716.00	16,267.50
Campalagian	2,347.0	8,144	1,093	11,584.0	2,347.00	8,016.00	1,093.00	11,456.00
Luyo	1,215.9	10,392	751	12,358.9	1,220.00	10,407.00	751.00	12,378.00
Wonomulyo	3,705.7	2,388	1,547	7,640.7	3,693.00	2,448.00	1,560.00	7,701.00
Mapilli	2,654.3	6,616	1,019	10,289.3	2,654.00	6,616.00	1,019.00	10,289.00
Tapango	1,639.6	10,020	1,090	12,749.6	1,641.00	10,020.00	1,287.00	12,948.00
Matakali	2,100.0	4,440	733	7,273.0	2,100.00	4,434.00	733.00	7,267.00
Bulo	38.8	22,580	220	22,838.8	24.50	22,579.00	297.44	22,900.94
Polewali	1,030.3	1,304	706	3,040.3	1,030.30	1,324.00	886.00	3,240.00
Binuang	1,231.0	11,311	2,063	14,605.0	1,231.00	11,311.00	2,066.00	14,608.00
Anreapi	306.20	8,282	521	9,109.20	306.20	8,084.00	521.00	8,911.20
Matangnga	220.0	22,896	464	23,580.0	270.00	22,675.00	514.00	23,459.00
<b>Total</b>	<b>16,891.3</b>	<b>176,584</b>	<b>14,015</b>	<b>207,188.61</b>	<b>16,919.50</b>	<b>176,094.90</b>	<b>14,649.14</b>	<b>227,659.164</b>

Source: Polewali Mandar Regency Agriculture Service 2025

From the table above, we can see that the total area of rice fields in 2023 is 16,891.3 ha and in 2024 it is 16,919.50 ha. The increase in rice fields is expected to increase rice production so that it will have an impact on improving the economy for the community. This needs to be a shared concern because if it continues to happen it will have an impact on the adequacy of food stocks from rice fields.

Land conversion or land conversion is a change in the function of part or all of a land area, from its original function to another function. Matangnga District is one of the districts in West Sulawesi where many farmers have converted their land from cocoa land to rice fields. The land conversion is expected to have a good impact on the community. What is the impact on community income after converting cocoa land to rice fields?

Based on the above, the author is interested in conducting research related to the impact of land conversion that occurred in the Matangnga District. So the title that will be studied is " Analysis of the Impact of Converting Cocoa Land to Rice Fields on the Economic Welfare of Farmers in Katimbang Village, Matangnga District, Polewali Mandar Regency ".

## RESEARCH METHODS

### Location Determination Method

This research was conducted in Katimbang Village, Matangnga District, Polewali Mandar Regency in 2025. The determination of the research area was carried out intentionally because in Katimbang Village, one of the areas where farmers are converting land from cocoa land to rice fields.

### Respondent Determination Method

The sample determination was carried out using the random sampling method. The population in this study was 150 farmers who carried out land conversion in Katimbang Village, Matangnga District. The sample determination used a random sampling technique. The number of samples taken was 30 farmers in this study. Farmers who converted cocoa land to rice fields were used as samples in this study. The samples taken represented various ages and genders of farmers.

### Data Collection Method

The data collection techniques used in the land conversion study are as follows:

1. Interview

Interviews are data collection techniques carried out through meetings and direct questions and answers between researchers or data collectors and land conversion actors or data sources. The purpose of the interview is to find out clear information about the land conversion.

2. Observation

Observation is one of the techniques used to find out the actual situation and conditions at the research location that will be carried out.

3. Documentation

Documentation is a data collection technique regarding recorded matters, transcripts, books, magazines and so on. This technique is used to obtain data regarding the things needed in the study.



Figure 1. Observation



Figure 2. Interview

### Data Analysis Methods

The collected data will be analyzed using qualitative techniques such as content analysis and narrative analysis. Factors influencing farmers' decisions to change land use are identified and explained in detail. Although qualitative methods provide an in-depth understanding of the factors influencing farmers' decisions. This method is useful when context and nuance are important to understand.

## RESULTS AND DISCUSSION

### Cost Structure and Revenue Before Land Conversion

The costs incurred before carrying out the land conversion can be seen in the table below:

**Table 1.** Use of Costs Before Land Conversion in 2023 (Ha)

No	Cost	Price (Rp)	Amount	Total (Rp)
1	NPK Fertilizer 50 kg	160.000	6	960.000
2	Fungicide poison for fruit rot pests	65.000	3	195.000
3	Noxon Poison 1 Liter	70.000	4	280.000
<b>Total Amount</b>				<b>1.395.000</b>

Source: Farmer Interview Results

Based on the table above, it shows that the costs used before the land was converted to rice fields: first, the purchase of 50 kg NPK fertilizer in 1 sack at a price of Rp 160,000 was used for 6 sacks, so the total price was Rp 960,000. Second, fungicide for fruit rot pests at a price of Rp 65,000 for 3 bottles, so the total price was Rp 195,000. Third, 1 liter of Noxon grass burning poison at a price of Rp 70,000 for 3 bottles, so the total price was Rp 280,000. So the total cost used was Rp 1,395,000/hectare.

### Production and Income Structure

#### a. Farmer Income Before Land Conversion (2023)

One of the farmers in Katimbang Tasruna Village said "farmers' income before converting cocoa land to rice fields was very insufficient to meet household needs due to insufficient agricultural yields. The condition of the cocoa plants which are old and diseases or pests that are difficult to overcome, resulting in insufficient agricultural yields to meet daily needs".

Based on the results of research that has been conducted in Katimbang Village, researchers found several factors that influence farmers to convert land, including the following:

- ✓ Previous farming or crops are old, so it affects the harvest obtained by farmers, this greatly affects farmers' income due to the decreasing crop production. However, the use of rice fields can have a negative impact on farmers' income when water is not smooth or lacking.
- ✓ Previous crops are often affected by pests or diseases such as Cocoa Fruit Borer (PBK), Stem Borer, and Fungus. All efforts have been made by farmers to control these pests, starting from providing pesticides or pest control and pruning branches. But it has not produced good results, so farmers decided to convert land because farmers have spent a lot of money in an effort to control these pests or diseases.
- ✓ The geographical condition of Katimbang Village is one of the villages that has a fairly abundant water supply even though it is located in a mountainous area so that this is realized by farmers to convert land functions.
- ✓ The active role of the government in encouraging the improvement of the quality of natural resources and the utilization of agricultural land in Polewali Mandar Regency. On the cocoa plantation land carried out by farmers in Katimbang Village, the income has decreased so that farmers have decided to convert land functions. For further explanation before farmers convert land functions, see the following table:

**Table 2.** Farmers' income before land conversion

No	Income before land conversion (Rp/Ha)	Unit (Person)	Percentage %
1	850.000 - 1.300.000	9	30
2	1.310.000 - 2.500.000	6	20
3	2.510.000 – 4.000.000	7	23,33
4	4.010.000 – 5.000.000	3	10
5	5.010.000 – 6.000.000	3	10
6	6.010.000 – 7.500.000	2	6,67
<b>Amount</b>		<b>30</b>	<b>100</b>

Source: Farmer Interview Results

Based on the table above, it shows that the income of farmers before carrying out land conversion in Katimbang Village was 850,000 - 1,300,000 / hectare for 9 people with a percentage of 30%, 1,310,000 - 2,500,000 / hectare for 6 people with a percentage of 20%, 2,510,000 - 4,000,000 / hectare for 7 people with a percentage of 23.33%, 4,010,000 - 5,000,000 / hectare for 3 people with a percentage of 10%, 5,010,000 - 6,000,000 / hectare for 3 people with a percentage of 10%, while farmers who have an income of 6,010,000 - 7,500,000 / hectare are 2 people with a percentage of 6.67%. This shows that farmers in Katimbang Village have an average income that is quite low.

#### Cost Structure and Revenue After Land Conversion

The costs incurred after carrying out the land conversion can be seen in the table below:

**Table 3.** Cost Usage After Land Conversion 2024/2025 (Ha)

No	Cost	Price (Rp)	Amount	Total (Rp)
1	Urea Fertilizer 50 kg	135.000	10	1.350.000
2	Petrokum Rat Poison 100 grams	10.000	5	50.000
3	Ally Grass Poison 20 WG	13.000	6	78.000
4	Virtako Pest Control 100 mil	110.000	3	330.000
5	Bionnic Snail Venom 500 mil	65.000	2	130.000
6	Rice Tractor	300.000	1	300.000
7	Superior Seeds 5 kg	130.000	3	390.000
8	Plant seeds	300.000	1 ha	300.000
<b>Total Amount</b>				<b>2.928.000</b>

Source: Farmer Interview Results

Based on the table above, it shows that the costs incurred after the land was converted to rice fields: first, the purchase of 50 kg urea fertilizer in 1 sack at a price of Rp 135,000 was used for 10 sacks, so the total price was Rp 1,350,000. However, it should be noted that fertilization of rice fields using urea fertilizer was carried out 2 (two) times. Second, the purchase of rat pesticide (petrocum 100 grams) at a price of Rp 10,000, used for 5 packs, so the total price was Rp 50,000. Third, the purchase of alli 20 WG grass pesticide at a price of Rp 13,000 in 1 pcs, used for 6 pcs so the total price was Rp 68,000. Fourth, the purchase of virtako 100 mil pesticide at a price of Rp 110,000 was used for 3 bottles, so the total price was Rp 330,000. Fifth, the purchase of 500 mil bionnic snail poison at a price of Rp 65,000 was used for 2 bottles, so the total price was Rp 130,000. Sixth, the cost of wages for rice field tractors was Rp 300,000. Seventh, the purchase of 5 kg of superior rice seeds at a price of Rp 130,000 was used for 15 kg, so the total price was Rp 390,000. So the total cost used was Rp 2,928,000/hectare. This shows that the costs used to carry out rice field farming are quite a lot.

### b. Farmers' Income After Land Conversion (2024)

One of the farmers in Katimbang Saipul Village said "farm income after converting cocoa land to rice fields has increased well from previous income. Good income can help meet family needs in daily life". So Mr. Saipul has a steady income to meet his family's needs.

The income of farmers in Katimbang Village increased after converting land compared to before the land conversion. This shows that the farmers' decision to convert land to obtain higher income. This shows that this strategy has had a positive impact on the income of farmers and the local community. In addition, this change can also trigger economic growth and welfare in the area. For more details, we can see in the table below the income of farmers after converting agricultural land.

**Table 5.** Income after land conversion

No	Income before land conversion (Rp/Ha)	Unit (Person)	Percentage %
1	3.000.000 – 4.000.000	8	26,6
2	4.010.000 - 6.500.000	6	20
3	6.510.000 – 7.800.000	8	26,67
4	8.000.000 – 9.000.000	2	6,67
5	9.010.000 – 11.000.000	6	20
<b>Amount</b>		<b>30</b>	<b>100</b>

Source: Farmer Interview Results

The table above shows that the income of farmers after land conversion in Katimbang Village is 3,000,000 - 4,000,000 / hectare as many as 8 people with a percentage of 26.66%, 4,010,000 - 6,500,000 / hectare as many as 6 people with a percentage of 20.00%, and 6,510,000 - 7,800,000 / hectare as many as 8 people with a percentage of 26.66%, and 8,000,000 - 9,000,000 / hectare as many as 2 people with a percentage of 6.66% and while farmers who have an income of 9,010,000 - 11,000,000 / hectare as many as 6 people with a percentage of 20.00%. This shows that farmers in Katimban Village experienced an increase in average income after land conversion.

### b. Impact of Land Conversion on Farmers' Income

One of the farmers in Katimbang Budiman Village said that "the conversion of cocoa land to rice fields has a positive impact on his income, especially in household needs. Among them, one of the basic needs for daily food can be met, namely rice produced from rice plants. In addition, rice from the rice fields can also be used to exchange fish with traveling fish sellers. In addition to being able to plant pies, rice fields can also be used to cultivate freshwater fish. So, in addition to producing rice, rice fields can also be used to produce freshwater fish".

Economic calculations between cocoa farmers and rice farmers show that rice farmers make higher profits than cocoa farmers. The reason is, rice farmers can recoup their capital in just three months from the harvest, especially if the rice seeds planted are superior seeds. However, it should be noted that the costs incurred by rice farmers are higher than the costs incurred by cocoa farmers. The presence of rice fields in Katimbang Village can provide new jobs for many farmers, especially farm laborers who are affected by land conversion. In addition, the existence of rice fields in Katimbang Village can create new jobs for many farmers, especially farm laborers affected by land conversion. According to Selfiai 2021, classifying the impact of agricultural land conversion on the economy into two, namely seen from the positive and negative sides. The positive impacts include:

- ✓ Availability of new jobs for a number of farmers, especially farm laborers affected by land conversion.
- ✓ Improving the quality of economic growth in the community.

The negative impacts felt by the community around the conversion of agricultural land are:

- Rice fields require intensive irrigation, which can cause water shortages in the surrounding areas.
- Cocoa land is decreasing due to the conversion of cocoa land to rice fields.



**Figure 3.** Observing the land after it has been converted

## CONCLUSION

Research on the impact of land conversion on farmers' income in Katimbang Village shows that the conversion of agricultural land from cocoa to rice fields has a significant positive impact on farmers' economy. Despite challenges such as intensive irrigation needs and reduced cocoa land, land conversion has increased farmers' income, created new jobs, and improved the quality of economic growth in local communities. It is important to continue to pay attention to the sustainability of the agricultural sector and natural resource management in order to minimize the negative impacts of land conversion and ensure that farmers' welfare can continue to be improved. Making efforts so that agricultural yields continue to increase so as not to cause losses to farmers.

## ACKNOWLEDGEMENT

We would like to thank all respondents who have taken the time to participate in this research, so that the necessary data can be collected properly.

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