

HOUSEHOLD FOOD SECURITY OF COCOA FARMERS (*Theobroma cacao L*) ON FORMER COAL MINE LAND IN SAWAHLUNTO CITY

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ABSTRACT

An overview of the food security vulnerability of cocoa farmer households on former mining lands is able to provide recommendations in efforts to increase the income that can support the welfare of farmer households and increase regional farmer food security. The purpose of this study was to determine the amount of cocoa farmer household income and cocoa farmer household expenditure and the level of food security of cocoa farmer households in ex-mining areas in Talawi District, Sawahlunto City. With a sample of 39 respondents selected by simple random sampling and data analysis using a quantitative approach. This study shows the results that the average household income of respondents is IDR 3,082,821 per month. Whereas for the average respondent household food expenditure is Rp.1,426,282.05 or 59.94% of total household expenditure, the respondent's household non-food expenditure is Rp.953,384.62 or 40.06% of total household expenditure ladder. Judging from the proportion of household expenditure to total expenditure, the results show that the level of household food security is 23.08% of households are food secure and 76.92% of households are food insecure. Households should improve food expenditure patterns by paying attention to and diversifying the amount and type of food they will consume.

Keywords: *Cocoa Farmer Households; Food Security; Income*

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INTRODUCTION

West Sumatra Province is one of the regions that develop plantation commodities, one of which is cocoa commodities. One of the regions in West Sumatra province that develops cocoa commodities is Sawahlunto City. Where the city government sees that cocoa commodities can revive the community's economy after the cessation of coal mining by PT Bukit Asam Ombilin Company Unit (PT BA-UPO) in 2002 (Asta et al 2015). However, the closure of this mining when viewed from its economic and social impacts causes a loss of income for an area and the communities that depend on the mining business so a new poverty cluster is formed (Anarta, 2019).

Talawi District as one of the areas with large mining activities, after the closure of coal mines, became one of the areas targeted by the government, namely in terms of reclamation of mining land by planting cocoa. Furthermore, the potential of cocoa farming is very large and is expected to have an impact on the income of farmers and their households. The level of income of farmers will affect the pattern of life of farmers, and the low level of productivity and production will affect the amount of income received by farmers so later it will also affect the level of income earned (Tita, 2014).

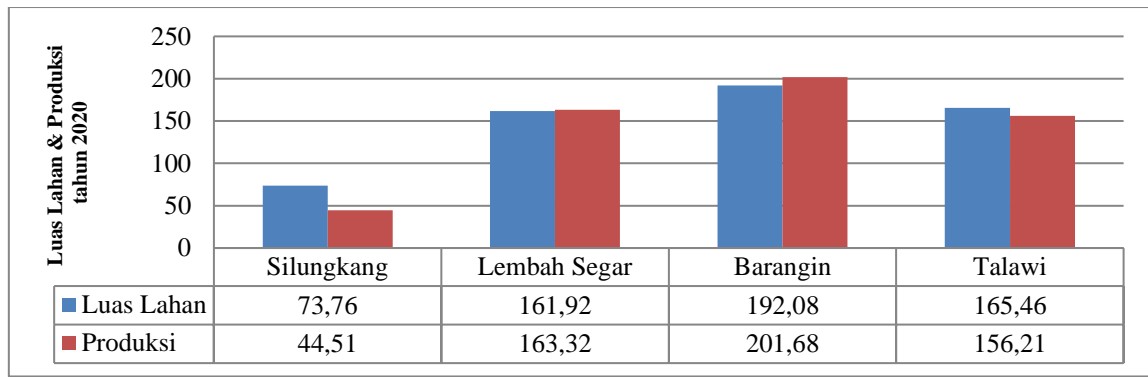


Figure 1. Area of Planting Area and Cocoa Production According to Subdistrict in Sawahlunto City in 2020.

Source: BPS, Sawahlunto City, 2021.

In figure 1, it can be seen that in 2020 the production and a land area of cocoa plantations in Talawi District are in the third lowest position out of 4 sub-districts in Sawahlunto City (Badan Pusat Statistik Kota Sawahlunto, 2020). Based on research conducted by (Asta et al, 2015).

Low production yields, low productivity of cocoa crops, relatively low prices, pest and disease problems, low IKP, low farmer human resources, and per capita expenditure which is slightly increased from the previous year, but for the aspect of food expenditure which decreases from the previous year results in problems for these farming households which will later affect the level of income of the farmer households and will eventually affect the to the food security of these households (Tita, 2014).

Household food security includes not only the aspect of adequate food availability but also the aspect of households' ability to access food and does not depend on any party. Where in this case farmers have a strategic position in food security because farmers are the largest producers and consumers of food (Widowati, 2005). Therefore, research is needed to see how the level of food security of Cocoa farmer households (*theobroma cacao l*) on former coal mining land in Sawahlunto City.

METHOD

Sampling Sites and Techniques

This research was conducted in Talawi District, Sawahlunto City, West Sumatra Province. The selection of the location of this study was carried out by *purposive sampling* with the consideration that Sawahlunto City was formerly a mining city, but with the closure of the mine, mining land and urban people changed their professions to become farmers, one of which was cocoa farmers. The method used in this study used a descriptive method with a *survey* approach.

The selection of samples was carried out by *simple random sampling* with the criteria of the household population of cocoa farmers who owned cocoa farming land on former mining

land. In determining the study sample calculated using the Slovin formula, a sample of 39 respondents was obtained according to the criteria.

2. Data Analysis Methods

The method used in measuring the income and expenditure of farmer households uses the following equation (Arida et al., 2015)

$$P_d = P_{d(on)} + P_{d(off)} \dots\dots\dots (1.1)$$

Where:

P_d : Total income of farmer households (Rp/month)

$P_{d(on)}$: Income from farming (on-farm) (Rp/month)

$P_{d(off)}$: Income from outside the farm business (off-farm) (Rp/month)

Meanwhile, to measure the total expenditure of farmer households, it can be known from the following equation:

$$TP = P_p + P_n \dots\dots\dots (1.2)$$

Where:

TP: Total Expenses (Rp/month)

P_p : Food expenditure (Rp/month)

P_n : Non-food expenses (Rp/month)

As for calculating the level of household food security based on the approach of the share of food expenditure. According to Soetrisno (1995) explained to measure the level of food security based on the approach of the share of household food expenditure, with the following equation:

$$PPP = x \ 100\% \dots\dots\dots \frac{\text{household food expenditure}}{\text{total expenses}} \dots (1.3)$$

Information:

PPP = share of food expenditure (%)

Measuring the level of food security based on the proportion of the share of food expenditure, the following criteria were found:

- a. The share of food expenditure <60% of total expenditure means that households are food secure

The share of food expenditure >60% of total expenditure means that households are not food secure.

RESULTS AND DISCUSSION

1. Overview of the Research Area

Talawi Subdistrict is the district with the largest area in Sawahlunto City, which is 36.5% of the total area of Sawahlunto city. The geographical area of Talawi District is 100.2⁰ BT and 0.46 0 LS. Is one of the sub-districts that has extensive mining land and ex-mining land and is one of the focus areas for post-mining land reclamation to grow cocoa. All post-mining areas of PTBA UPO have been handed over to the local government since 2008. With the release of some mining land, the community reclaimed land belonging to their ancestors which caused the city government to immediately claim the land that belonged to it (Rahman et al., 2021).

With few mines in production, the population turned into farmers. Agriculture is managed very simply, through the PIR (Inti Rakyat Plantation) pattern where one of the people ends up growing cocoa on former mining land. Agricultural products are sold directly at Talawi Market on certain market days (Tuesdays and Fridays). The production of agricultural products is sold individually which is a problem of the very minimal scale of production in each household.

2. Respondent's Household Income

Household sources of income are classified into 2 categories, namely income derived from the agricultural sector and the non-agricultural sector. The income of respondents from the study came from income from cocoa farming, other farm business income, and also came from income outside the farming business. Most of the respondents have jobs outside the farm business such as civil servants, private sector, laborers, traders, and others, some wives also have income from permanent jobs and side jobs running their farming businesses. In Tabel 1 can be seen the average household income of the respondent.

Table 1 shows that the average household income of respondents from the agricultural sector is Rp. 716,154 or 23.24%. In this study, income from the agricultural sector was obtained from the results of cocoa farming and other farming businesses (paddy rice, cayenne pepper, rubber, betel nut, and others). The income of the agricultural sector derived from cocoa farming is obtained in the amount of Rp. 355,000 or 1 1.52% of the total household income. This is because the cocoa farming business run by farmers has a small amount of land, little production, and nowadays most of them consider that the cocoa farming they have is just a side business so they do not manage well so that the results are not optimal.

Table 1. Respondent's Average Household Income

No.	Sources of Income	Revenue (Rp/month)	Percentage (%)
1.	Farm Business Sector		
	a. Cocoa Farming Business	355.000	11,52
	b. Other Farming Businesses	361.154	11,72
	Sum	716.154	23,24
2.	Non-Farm Business Sector	2.366.667	76,71
	Total	3.082.821	100

Meanwhile, the income from other farming businesses amounted to Rp.361,154 or 11.72% of the total household income. The respondents' household income came from farming businesses such as paddy rice, a small part of which they sold, farming cayenne pepper, betel nut, rubber, lime, and others. Some of the respondents' households that have paddy rice farming businesses sell some of the results of their farming business so that they are included in household income, but some of the respondents' households do not sell the results of their paddy rice farming business either in the form of rice or rice, because the results of the farming business are to meet the food needs of the respondent's household until the next harvest. So the respondent's household did not get income from the rice paddy farming business because it was only consumed by themselves. While other farming businesses, respondent households sell the results of the farming business as a source of income.

Income from the non-agricultural sector is derived from the income of household members working in the non-agricultural sector, such as civil servants, the private sector, traders, construction workers, and others. Most of the respondents' households earned income from non-farm income in addition to the farm income they had. On average, of the 4 family members in a household, there are 2-3 people who work, namely the head of the household, the housewife, and her child. In the research conducted, the amount of income from the non-farm business sector was Rp. 2,366,667 or 76.77% of total household income. Apart from coming from the non-farm business sector, the non-farm income also comes from wives who work and get side income such as traders, kindergarten teachers, tailors, and others, children who work and are still family members of the household as well as sending children who do not live in one house / work outside the area. Thus, it can be concluded that the percentage of income of

the non-agricultural sector is greater than the percentage of income of the agricultural sector. The cocoa farming sector contributed little to respondents' household incomes.

3. Respondent's Household Expenses

Food expenditure is an amount of money spent to buy food / food needs in a household. Food expenditure is one of the factors that shows the level of welfare of the population which can be seen from the relationship between respondents' income and household expenditures. When income is high, there is a possibility to meet needs beyond the food needs that should be, and vice versa if the income is low then the possibility is to meet the food needs only what is important and necessary because of limitations. The following average monthly expenditure of respondents' households is presented in Table 2 below.

Table 2. Respondent's Average Household Monthly Expenditure

No.	Types of Expenses	Expenses (Rp/per month)	Percentage (%)
1.	Food Expenditure	1.426.282,05	59,94
2.	Non-Food Expenditures	953.384,62	40,06
Total		2.379.666,67	100

Table 2 shows that the average level of home expenditure of respondents in the study area was Rp. 2.379,666.67 per month. For the average household food expenditure of respondents amounting to Rp.1.426,282.05 with a percentage of 59.94% of all total household expenditures, the details of respondents' household food expenditures can be seen in Appendix 1. Meanwhile, the average non-food expenditure of the respondent's household was Rp.9 53,384.62 with a percentage of 40.06% and the details of the respondent's household non-food expenditure can be seen in Appendix 2.

Based on table 2 it is concluded that the average food expenditure is greater than non-food expenditure. According to Engel's Law states that as income declines, the proportion spent on food needs increases. This means that in this study the level of welfare of respondent farmer households is still low. The low level of welfare of respondents will lead to limited access to food, resulting in weak food security.

4. Proportion of Respondent's Household Savings to Respondent's Total Household Income and Expenditure

The proportion of household savings is the difference between the total income and the respondent's total household expenses. The average amount of household savings of respondents is as follows.

Table 3. Average Income, Food Expenditure and Non-Food Expenditure at Home Respondents' Ladder.

Information	Nominal (Rp/Month)	Percentage (%)
Revenue (1)	3.082.821,51	
Food Expenditure (2)	1.426.282,05	46,26
Non-Food Expenditures (3)	953.384,62	30,92
Total Expenses (4) = (2) + (3)	2.379.666,67	
Savings (1) – (4)	703.154,84	22,82

Based on Tabel 3, it can be seen that expenditure on food is the largest expenditure, amounting to Rp.1,426,282.51 or 46.26% of the total income. Meanwhile, expenditure for non-food is in the second largest expenditure, namely Rp.953,384.62 or 30.92% and the last is savings, which is Rp. 703,154.84 or 2 2.82%. In this study, savings is the difference between household income and expenses, not a certain amount of money that is deliberately saved or saved by the household, because the reality is that it is not necessarily the respondent's household that has a certain amount of money to save.

5. Respondents' Household Food Security based on the Proportion of Food Expenditure to Total Expenditure

Food Security consists of 3 aspects, namely the aspect of food availability, where food is sufficient for the population in quantity, quality, safety, and affordability. The distribution of household food security of respondents can be seen in Table 4.

Table 4. Distribution of Respondents' Household Food Security based on Proportion of Food Expenditure

Food Security Status	Number of Households	Percentage (%)
Food Security	9 RT	23,08
Not Food Secure	30 RT	76,92
Total	39 RT	100

Based on Tabel 4 above, it shows that the average respondent household is classified as non-food secure. Where food security households are only 9 households or 23.08% of the total respondent farmer households. Meanwhile, households that are not food secure are 30 households, or 76.92%. The cause of households not being food secure is that the expenditure on their food needs is greater than other expenses. The low level of household income will also affect the low economic access to food, where from the results of the research obtained it was found that not all of these households have a basic basis of trying to grow cocoa so that the income from the sale of cocoa is also small which also affects the respondent's household income.

In addition to the Low income factor, the condition of food security of the respondent's household was also influenced by the frequency of irregular eating, namely an average of only eating 2 meals a day which had an impact on not meeting the quality and quantity of nutrition and diversification of food that was not diverse. Therefore, to be able to increase household income and also the condition of food security of respondents' households, households should be able to increase income from cocoa farming, especially by paying attention to the maintenance and care of cocoa so that later it can produce increased cocoa production.

CONCLUSION

From the results of research on the income and food security of cocoa farmers on ex-mining land, the following conclusions can be drawn:

- a. Farmer Household Income from the cocoa farming sector is Rp. 355,000/month and other farming business sectors are Rp. 361,154/month. So that the income from the total sector of farming business carried out by farmers on former mining land is Rp. 716,154/month. Meanwhile, the household income of farmers from the non-farming sector gets an income of Rp. 2,366,667/month.
- b. The average proportion of food expenditure to the total expenditure of farmer households is Rp.1.4 26,282.05/month or 59.94 % and the proportion of non-food consumption expenditure to total household expenditure is Rp.953,384.62/month or 40.06 %. Farmers' food expenditure on ex-mining land has a larger proportion compared to the non-food expenditure of farmer households.
- c. Based on income and proportion of food expenditure of farmer households on ex-mining land, only 23.08% (a small part) is in a food security position and the remaining 76.92% is in a non-food security position.

2. Advice

Thus, it can be suggested as a recommendation from the results of the study, namely:

- a. To increase the production and income of farmers, especially from the cocoa sector, the government and the community should work together to increase the capacity of farmers in production activities, marketing, farm business management and the need for the support of farmer groups and extension workers.
- b. Farming households can improve food expenditure patterns for families by paying attention to the amount and type of food to be consumed and the quantity and quality of food consumed.

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