

## The Role of Gapoktan Bakti in Increasing the Income of Rubber Farmers in Anggokoti Village, Buke District, South Konawe Regency

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### Abstract

*This study aims to find out the function of Gapoktan Bakti in Anggokoti Village, find out the level of income obtained by rubber farmers in Anggokoti village and find out the relationship between the function of Gapoktan Bakti and the income of rubber farmers in Anggokoti Village. The population in this study includes individuals who are members of Gapoktan Bakti and have their own rubber plantations, totaling 21 people, with the sampling method being saturated sampling, where the entire population is used as a sample. The variables in this study are the function of gapoktan and farmers' income. The first data analysis technique uses descriptive analysis to determine the function of Gapoktan Bakti in Anggokoti Village. The second analysis technique uses income analysis to determine the income level of rubber farmers in Anggokoti Village. The third analysis technique uses Spearman rank correlation analysis to determine the relationship between the function of Gapoktan Bakti and the income of rubber farmers in Anggokoti Village. The results of the study show that (1) The implementation of the function of Gapoktan Bakti as a unit providing production facilities and infrastructure consists of fulfilling agricultural facilities (fertilizers, herbicides, and rubber vinegar), agricultural equipment (sapping knives and rubber pryers), and making it easier for farmers to access agricultural facilities, obtaining an average score (2.25) which is in the medium category. The implementation of Gapoktan Bakti's function as a farming/production unit consists of improving farmers' ability in rubber tapping activities, maintaining rubber plants, and maintaining the cleanliness of rubber sap, obtaining an average score (1.74) which is in the medium category. The implementation of Gapoktan Bakti's function as a marketing unit consists of stabilizing the selling price of rubber through partnerships, facilitating rubber marketing activities, and providing information on rubber prices, obtaining an*



average score (2.12) which is in the medium category. (2) The income level of rubber farmers in Anggokoti Village is quite high with an average of Rp 33,275,833,-/ha/year. (3) There is a strong relationship between the implementation of the Gapoktan Bakti function and the income of rubber farmers in Anggokoti Village, with a correlation coefficient value ( $r_s$ ) of 0.653 and a significance of 0.001.

**Keywords:** Gapoktan Function, Farmer Income, Rubber Farming

## INTRODUCTION

Indonesia is an agrarian country, where most of its population depends on the agricultural sector for their livelihood. According to data from the Central Statistics Agency (BPS), in the first quarter of 2024, approximately 28.64% of Indonesia's 142.18 million population were employed in the agricultural sector (Zuhdi, 2024). This sector plays a strategic role in the national economy, not only as a major employer but also as a significant contributor to foreign exchange earnings. In January 2024, the agricultural sector contributed 374 million US dollars to Indonesia's total non-oil and gas exports, which reached 19.13 billion US dollars (Harianto, 2024). Hendrawan and Dewi (2016) also stated that the agricultural sector has an important contribution to community income, regional domestic product (RDP), and national inflation control.

One of the agricultural subsectors that contributes significantly to Indonesia's economy is the plantation subsector, particularly rubber (*Hevea brasiliensis*). Rubber is a strategic commodity that generates foreign exchange earnings and increases farmers' income. According to the Central Statistics Agency (BPS, 2023), the total rubber plantation area in Indonesia reached 2,974,000 hectares with a production of 2,651,200 tons. Of this total, the majority (86.6%) are smallholder plantations, while the remainder are managed by state-owned plantations (5.8%) and private plantations (7.6%). Rubber plantations are spread across various regions in Indonesia, including Southeast Sulawesi Province. In this region, over the past three years, the area of rubber plantations increased by 0.85%, and production grew by 13.78% (BPS, 2025).

Rubber production has also increased in South Konawe Regency, particularly in Buke District. Data from the Central Statistics Agency (BPS) indicates that despite no significant changes in rubber plantation area over the past three years (242 hectares for the regency and 127 hectares for the sub-district), production has surged sharply: from 20 tons in 2022 to 36 tons in 2024 for the regency, and from 10 tons to 21 tons at the sub-district level. This increase in production reflects the significant potential that can be optimized, one of which is through strengthening the role of farmer institutions such as farmer groups (gapoktan).



Gapoktan is an institutional framework for farmers consisting of several farmer groups collaborating to enhance efficiency and economies of scale. Under Ministry of Agriculture Regulation No. 67/Permentan/SM.050/12/2016, Gapoktan has five main functions: (1) providing production facilities and infrastructure, (2) production/farming units, (3) processing units, (4) marketing units, and (5) microfinance units (savings and loans). Through appropriate empowerment, Gapoktan are expected to become the driving force behind increasing farmers' income.

Anggokoti Village in Buke Subdistrict is one of the villages that relies on rubber as a major source of income. Out of 370 households, 53 families depend on rubber as their primary source of income. Between 2022 and 2024, the rubber plantation area in this village remained at 25 hectares, with production ranging from 0.3 to 0.4 tons per hectare per month (Anggokoti Village Profile, 2024). Interestingly, rubber marketing in this village is not conducted through middlemen but directly by Gapoktan Bakti—an active farmers' group formed in 2011 and comprising five farming groups.

Gapoktan Bakti is the only active farmers' group in Buke Sub-district engaged in marketing functions. Although it has not yet optimized all its functions, its focus on marketing has proven to add value for farmers. The group is able to offer a selling price of Rp10,500–11,000 per kilogram, higher than the price offered by middlemen (Rp10,000 per kilogram). The existence of this Gapoktan holds significant potential in supporting increased farmer income, as demonstrated in studies by Wahyu (2022) and Wulandari (2023), which found that Gapoktans have a significant impact on increasing farmer income for both rubber and rice commodities.

However, the reality on the ground shows that the functions of Gapoktan Bakti are still limited and do not yet reflect the five functions mandated by regulations. This is a matter of concern, as the optimization of all Gapoktan functions is believed to promote broader and more sustainable farmer welfare. Therefore, in-depth research is needed to evaluate the functions carried out by Gapoktan Bakti and to what extent these functions contribute to the income of rubber farmers in Anggokoti Village.

Based on the above, the author is interested in conducting research titled: "The Role of Gapoktan Bakti in Enhancing Rubber Farmers' Income in Anggokoti Village, Buke Sub-District, Konawe Selatan District."

## METHOD

This study was conducted purposively in Anggokoti Village, Buke Sub-district, Konawe Selatan District, from December 2024 to June 2025, considering that this village has an active

Farmers' Group (Gapoktan) called Gapoktan Bakti, and 53 out of 370 households rely on rubber as their primary income source, the highest number compared to other villages in Buke Sub-district.

The population in this study includes individuals who are members of Gapoktan Bakti and own rubber plantations, resulting in a population of 21 individuals. Due to the small sample size, the sampling technique used is saturated *sampling* (census), where all members of the population are included as samples.

The data collection techniques employed by the researcher include field observations, interviews with the research sample, and documentation. The data analysis used in this study is divided into three categories:

1. Descriptive Analysis to describe and provide a more in-depth understanding of the implementation of the functions of Gapoktan Bakti in supporting rubber farming activities in Anggokoti Village . To measure the functions of Gapoktan, the *Likert* scale can be used . The *Likert* scale consists of three options:

Score 1= Not Very Effective (KB)

Score 2= Moderately Effective (ME)

Score 3= Playing a Role (B)

**Table 1 Assessment Category Average Score of Respondent Statements**

| No | Value      | Category |
|----|------------|----------|
| 1  | 1.00– 1.67 | Low      |
| 2  | 1.68– 2.33 | Moderate |
| 3  | 2.34– 3.00 | High     |

2. Income Analysis is used to analyze the income received by rubber farmers in Anggokoti Village who are members of the Bakti Farmers' Group (Gapoktan). The income of farmers in the can be measured using the following agricultural income formula (Soekartawi, 2016):

$$TR = P \times Q \quad (1)$$

$$TC = FC + VC \quad (2)$$

$$Pd = TR - TC \quad (3)$$

Explanation:

$Pd$  = Rubber Farming Income (Rp/ha/year)

$TR$  = Total Rubber Farming Revenue (Rp/ha/year)

TC = Total Rubber Farming Costs (Rp/ha/year)  
P = Price per unit of rubber production (Rp/kg)  
Q = Rubber Production Quantity (kg/ha/year)  
VC = Variable Costs of Rubber Farming (Rp/ha/year)  
FC = Fixed Costs of Rubber Farming (Rp/ha/year)

3. A *Spearman's Rank* Correlation Analysis was conducted to determine the strength of the relationship between the Gapoktan Bakti function and rubber farmers' income in Anggokoti Village. Data processing and analysis will be performed using the SPSS 30 (*Statistical Product and Service Solutions*) software. The *Spearman's Rank* Correlation formula is:

$$rs = 1 - \frac{6 \sum d_i^2}{N^3 - N}$$

Explanation:

rs = Spearman's Rank Correlation Coefficient  
1 = Constant  
N = Number of respondents  
 $\sum$  = Number of sample sizes  
 $d_i^2$  = Sum of squares of the differences between the ranks of variable X and variable Y

Determining the strength of the relationship between variables can be based on the correlation coefficient value obtained from SPSS output, with the following conditions (Sugiyono, 2021):

- Correlation coefficient value of 0.00 – 0.19 = very weak relationship
- Correlation coefficient value of 0.20–0.39 = weak relationship
- Correlation coefficient value of 0.40–0.59 = moderate relationship
- Correlation coefficient value of 0.60–0.79 = strong relationship
- Correlation coefficient value of 0.80–1.00 = very strong relationship

## RESULTS AND DISCUSSION

### The Function of Gapoktan Bakti in Anggokoti Village

Gapoktan Bakti in Anggokoti Village performs gapoktan functions only covering units that provide production facilities and infrastructure, farming/production units, and marketing units.

**Table 2. Average Functions of Gapoktan Bakti in Anggokoti Village**

| No | Unit                                               | Average Indicator | Category |
|----|----------------------------------------------------|-------------------|----------|
| 1  | Production Facilities and Infrastructure Providers | 2.2               | Moderate |
| 2  | Agriculture/Production                             | 1                 | Moderate |
| 3  | Marketing                                          | 2.12              | Moderate |

Source: Primary Data Analysis, 2025

Based on Table 2 above, the average function of Gapoktan from the three units studied can be explained as follows:

1. The average score for the Gapoktan Bakti function as a provider of production facilities and infrastructure is 2.25, which falls into the moderate category. This indicates that the Gapoktan Bakti function in providing production facilities and infrastructure still needs to be optimized to provide maximum support in increasing rubber farmers' income. With maximum support in the provision of production facilities and infrastructure, it is hoped that respondents can operate their farming activities more efficiently and productively. This aligns with the research conducted by Noviani and Wahyuni (2021), which states that the provision of adequate production facilities can enhance the productivity effectiveness of farmers and production outcomes.
2. The average score for the Gapoktan Bakti function as a farming/production unit is 1.74, which is in the moderate category. This indicates that the implementation of the Gapoktan Bakti function as a farming/production unit is not yet optimal. Overall, the Gapoktan Bakti function as a farming/production unit is considered to be functioning, but still requires optimization in terms of improving the capacity/skills of farmers. Improving farmers' capacity/skills is one of the important factors contributing to increased productivity. As stated by Rustandi, *et al.* (2020), improving farmers' capacity is necessary so that farmers can increase their productivity and income for their welfare. Therefore, optimizing the function of this production unit is necessary to have a greater impact in supporting rubber farming productivity.
3. The average score for the marketing function of Gapoktan Bakti as a marketing unit is 2.12, which falls into the moderate category. Overall, this achievement indicates that the marketing function of Gapoktan Bakti as a marketing unit is functioning fairly well, but there is a need to optimize its functions to ensure that the marketing unit operates effectively and efficiently. A well-functioning and efficient marketing unit enables farmers

to obtain better selling prices and more stable income. This aligns with the findings of Fatmawati and Zulham (2019), who concluded that an efficient marketing channel (efficiency of 13.43%) enables farmers to obtain higher selling prices, especially if farmers can sell directly to large traders without going through multiple intermediaries.

An overview of respondents' assessments of the implementation of Gapoktan Bakti's functions, including the production facilities and infrastructure unit, the farming/production unit, and the marketing unit, can be seen in Table 3.

**Table 3 Average Value of Gapoktan Function Variables**

| No | Average Value | Category | Respondents | Percentage |
|----|---------------|----------|-------------|------------|
| 1  | – 1.67        | Low      | 6           | 28.6       |
| 2  | 1.68– 2.33    | Moderate | 6           | 28.6       |
| 3  | 2.34– 3.00    | Height   | 9           | 42.8       |

*Source: Primary Data Analysis, 2025*

Table 3 illustrates respondents' assessment of the performance of Gapoktan Bakti as a provider of production facilities and infrastructure, a farming/production unit, and a marketing unit. Based on the data, it is evident that the majority of respondents rated Gapoktan Bakti's performance as high. This indicates that farmers generally consider the implementation of these three functions to be quite good, but that each function still needs to be optimized.

### Rubber Farmers' Income in Anggokoti Village

Farmers' income is the difference between the total revenue obtained from the sale of agricultural products and all costs incurred during the farming process. The analysis of rubber farmers' income in Anggokoti Village consists of costs (fixed and variable costs), revenue, and income. For more details, see the following table:

**Table 4 Average Total Costs Incurred by Rubber Farmers in Anggokoti Village in 2024**

| No | Description    | Total (Rp/Ha/Year) |
|----|----------------|--------------------|
| 1  | Fixed Costs    | 6,231,000          |
| 2  | Variable Costs | 62,842,500         |
| 3  | Total Cost     | 69,073,500         |
| 4  | Average        | 3,289,214          |

*Source: Primary Data Analysis Results, 2025*

Table 4 presents details of rubber farming costs in Anggokoti Village, consisting of fixed and variable costs. Fixed costs include taxes, tapping knives, latex containers, latex scrapers, and buckets. Tapping knives are the highest contributor to fixed costs for rubber farmers in Anggokoti Village. Variable costs include fertilizers, herbicides, rubber vinegar (SP-26), fuel (gasoline), and sacks. Fertilizers and fuel (gasoline) are the highest contributors to variable costs, each costing more than Rp 20,000,000 per year. Overall, the total rubber farming costs in Anggokoti Village amount to Rp 69,073,500 per hectare per year, with an average of Rp 3,289,214 per hectare per year. This indicates that variable costs are the main component in the cost structure of rubber farming in Anggokoti Village.

**Table 5 Rubber Farmers' Income and Revenue in Anggokoti Village , 2024**

|         | Production (kg/ha/year) | Price (Rp/kg)           | Income (Rp/ha/year) |
|---------|-------------------------|-------------------------|---------------------|
| Average | 3,848                   | 9,500                   | 36,565,048          |
|         | Revenue (Rp/ha/year)    | Total Cost (Rp/ha/year) | Income (Rp/ha/year) |
| Average | 36,565,048              | 3,289,214               | 33,275,833          |

Source: Primary Data Analysis, 2025

Table 5 shows the average rubber production of farmers in Anggokoti Village at approximately 3,848 kg/ha/year. With an average selling price of rubber at the farmer level of Rp 9,500/kg, the average income received by farmers is Rp 36,565,048/ha/year. This data indicates differences in production capacity among farmers, which impacts the amount of income received. This suggests that production levels are one of the primary factors influencing rubber farmers' income. As stated by Sari *et al.* (2023), production has a significant partial effect on income, meaning that the amount of production influences rubber farmers' income. The more rubber produced by rubber farmers, the higher their income will be.

Table 5 shows the average income of rubber farmers in Anggokoti Village at Rp33,275,833/ha/year. This average value provides a general overview of the net income level of rubber farmers in Anggokoti Village. Despite variations in production costs and income among farmers, the average income obtained indicates that rubber farming activities still provide significant profits. This fact indicates that rubber farming can be a viable source of income for rural communities. In line with the research findings by Suwandike *et al.* (2023), rubber farming in Nusa Bali Village achieved an R/C Ratio of 2.59, indicating that rubber farming is viable to pursue as the income obtained exceeds the costs incurred.

### The Relationship Between the Function of Gapoktan Bakti and the Income of Rubber Farmers in Anggokoti Village

An analysis of the relationship between the functions of Gapoktan Bakti and the increase in rubber farmers' income in Anggokoti Village was conducted through two stages of data testing, namely research instrument testing and Spearman's rank correlation test.

The research instrument was tested to ensure that the questionnaire used was a valid and reliable measuring tool. Based on the validity test using SPSS on 21 respondents and 13 statements, all items were declared valid because the calculated  $r$  value was greater than the table  $r$  value of 0.433. Meanwhile, the reliability test results showed that Cronbach's Alpha values for the three Gapoktan function indicators were above 0.60, namely 0.811 for the production facilities unit, 0.830 for the farming unit, and 0.862 for the marketing unit. Thus, this research instrument was declared valid and reliable for use.

**Table 6 The Relationship between Gapoktan Bakti Functions and Rubber Farmers' Income in Anggokoti Village**

| Variable                                  | Correlation Coefficient | Significance Value | Relationship |
|-------------------------------------------|-------------------------|--------------------|--------------|
| Function of Gapoktan ↔ of Farmers' Income | 0.653                   | 0.                 | Significant  |

Source: Primary Data Analysis Results, 2025

The results of the study indicate that there is a significant relationship between the functions of Gapoktan Bakti and the income of rubber farmers in Anggokoti Village, based on the Spearman's rank correlation coefficient ( $r_s$ ) of 0.653 with a significance level of 0.001. This suggests that the more optimal the implementation of Gapoktan Bakti's functions, the higher the income received by farmers. The functions of Gapoktan as a provider of production facilities, implementer of agricultural activities, and marketing facilitator have a positive impact on cost efficiency, increased production, and price stability for rubber. For example, the provision of fertilizers and tapping tools helps farmers reduce transaction costs, tapping training improves technical skills, and marketing partnerships with rubber factories help stabilize prices and reduce distribution costs.

This finding is reinforced by Wulandari's (2023) research, which shows a significant relationship between farmers' perceptions of the role of Gapoktan and their income. In addition, Noviani and Wahyuni (2021) emphasize that adequate production facilities can improve efficiency



and productivity, while Rustandi et al. (2020) state that increasing farmers' capacity in cultivation practices is an important factor in increasing income. The research by Fatmawati and Zulham (2019) also supports this finding, indicating that efficient marketing channels provide farmers with opportunities to obtain higher selling prices. Thus, optimizing the functions of Gapoktan Bakti is a key factor in promoting sustainable farmer welfare.

## CONCLUSION

Based on the results of this study, the conclusion of this research is that the implementation of Gapoktan Bakti's function as a provider of production facilities and infrastructure consists of providing agricultural inputs (fertilizer, herbicides, and rubber vinegar), agricultural equipment (tapping knives and latex scrapers), and facilitating farmers' access to agricultural facilities, with an average score of 2.25, which falls into the moderate category.

The implementation of Gapoktan Bakti's function as a farming/production unit consists of improving farmers' skills in rubber tapping, maintaining rubber trees, and keeping rubber sap clean, with an average score of 1.74, which is in the moderate category. The implementation of Gapoktan Bakti's functions as a marketing unit consists of stabilizing rubber selling prices through partnerships, facilitating rubber marketing activities, and providing rubber price information, achieving an average score of 2.12, which falls into the moderate category.

The income level of rubber farmers in Anggokoti Village is relatively high, with an average of Rp 33,275,833 per hectare per year. The results of this study indicate a strong correlation between the implementation of Gapoktan Bakti's functions and the increase in rubber farmers' income in Anggokoti Village, with a correlation coefficient ( $r_s$ ) of 0.653 and significance of 0.001.

The recommendations provided in this study involve three main parties. First, Gapoktan Bakti is expected to optimize its institutional functions, particularly through ongoing technical training and equitable service provision to members, as well as developing processing units and microfinance to improve the overall welfare of farmers. Second, the Anggokoti Village government is encouraged to provide more intensive support through institutional capacity building, production assistance, and farmer empowerment programs. Third, future researchers are advised to expand the scope of the study, including aspects of Gapoktan functions that have not been explored and involve a larger sample size to ensure more representative and in-depth research findings.





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