



## IMPLEMENTATION OF FARMING ROADS AND ITS EFFECT ON INCREASING THE INCOME OF DURIAN FARMERS IN LANGGAR VILLAGE, KEJOBONG SUB-DISTRICT, PURBALINGGA DISTRICT

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### ABSTRACT

*The agricultural sector plays an important role in national development, especially in agricultural countries such as Indonesia. Langgar Village, Kejobong District, Purbalingga District, is a village with a majority of its inhabitants working as durian farmers. However, they face the challenge of increasing revenue due to high production costs and a lack of infrastructure on the Now Business Road. (JUT). This research aims to understand the implementation of JUT and its impact on the income of durian farmers in Langgar Village. Using a qualitative and quantitative mixing approach (mix method) with purposive sampling, data analysis is carried out through descriptive analysis and paired t-tests. The results show that JUT is well implemented and has a positive impact on the income of durian farmers. The Upland program, which uses a hybrid approach (top-down and bottom-up), is effective in improving communication, resource mobilization, and bureaucratic efficiency. The structured JUT development process and the gotong royong spirit of the community resulted in a solid and beneficial path. The positive impact of JUT development was demonstrated through statistical tests that showed an increase in the income of Montong durian farmers in Langgar Village by 9.11%.*

*Keywords: Farmer's Business Road, Farmer's income, Durian*

### INTRODUCTION

Agriculture is a very important sector in national development in agrarian countries. The agricultural sector functions as a source of basic needs, clothing, and housing, provides employment for a large number of people, contributes to national income, provides foreign exchange to the country, and has a high economic multiplier effect with low import dependency, which is the relationship between industrial input and output, consumption, and investment (Siregar, 2020).

One agricultural commodity with potential for development is horticultural commodities. Horticulture is part of the agricultural sector, consisting of vegetables, fruits, ornamental plants, and bio-pharmaceuticals. Horticultural commodities have high economic value, thus generating income for the community (Mendrofa, 2021).

Durian (*Durio zibethinus* Murray) is one of the fruit commodities included in the horticultural industry and has high economic value in Indonesia. The market reach is very wide and diverse, ranging from traditional markets to modern

markets, restaurants, and hotels (Sobir and Napitupulu in Ali, 2016). In Indonesia, durian plants are spread across all provinces with various varieties and qualities. Central Java ranks third in durian production in 2022, with a production volume of 181,713 tons. This province is below East Java with a production of 419,913 tons and West Sumatra with 219,638 tons (BPS, 2022).

Purbalingga Regency, located in Central Java, is one of the areas known as a durian producer. This regency recorded a durian production of 44,643 quintals of various varieties in 2021 (BPS, 2022). Kejobong District stands out as the main contributor, with 3,067 durian trees and ranking second after Bukateja in the list of durian-producing districts in Purbalingga (BPS, 2022). This success is due to the commitment of local farmers to maintain and develop their durian orchards. Kejobong is also known for its superior durian varieties, attracting durian enthusiasts from various regions. One village in Kejobong District is Langgar Village. The community in Langgar Village engages in durian farming with the hope of providing higher income compared to other commodities such as cassava or other fruits.

Despite the enthusiasm to develop durian orchards, durian farmers in Langgar Village face serious issues related to high production costs. High agricultural production costs become a significant burden, especially with the increase in the prices of fertilizers, pesticides, and other agricultural materials. Additionally, rising labor costs further add to the financial burden of farmers. Adam, et al. (2021), noted that production costs contribute about 81.84% of the total expenses incurred by durian farmers.

Limited road access is a serious issue affecting overall production costs. Difficult-to-pass routes, especially if the roads are still dirt roads, hinder farmers from bringing farming equipment, delay plant care, and limit the distribution of water and fertilizers. Dirt roads that become slippery when wet and dusty when dry add

their own challenges. The distribution process of agricultural products from farmland to processing or storage centers is also hindered. Under inadequate road access conditions, farmers often have to use less efficient transportation, which not only takes longer but also significantly increases transportation costs. Additionally, the risk of damage and loss of agricultural products also increases due to unstable transportation access.

Farmer Road (JUT) is a component within the upstream subsystem that is expected to support farming, processing, and marketing subsystems, particularly in agricultural areas focusing on food crops, horticulture, smallholder plantations, and livestock. In Law No. 38 of 2004 on Roads, there is a clause on Special Roads, which states that the construction and maintenance of roads are the responsibility of the relevant Ministry. Consequently, agricultural roads are categorized as Special Roads in agricultural areas, making their maintenance the responsibility of the Ministry of Agriculture. Farmer roads play a crucial role in facilitating the transport of production facilities to farmland and the transport of agricultural products from farmland to temporary collection points, processing sites, settlements, or markets (Technical Guidelines for Agricultural Road Development, Fiscal Year 2013).

The construction of farmer roads in Langgar Village is a positive step to address the problems faced by durian farmers. With good agricultural roads, farmers can optimize the distribution process of their agricultural products, reduce losses due to poor road conditions, and ultimately reduce overall production costs. Moreover, good road access allows farmers to easily access their land and supports plant production activities, as well as provides access to necessary resources and services. The Farmer Road (JUT) program in Langgar Village is part of the 2020 UPLAND Project. This program is funded by international organizations such as the Islamic Development Bank (ISDB) and the

International Fund for Agricultural Development (IFAD) to support sustainable agricultural development in highland areas. The program aims to develop an integrated agricultural system in highland areas to increase agricultural productivity and improve farmers' income.

Based on the background above, the author conducted research titled "Implementation of Farmer Road and Its Impact on Increasing Durian Farmer Income in Langgar Village, Kejobong District, Purbalingga Regency.

## LITERATURE REVIEW

### Implementation

Policy implementation, as explained by Pressman and Wildavsky (in Jumroh, 2021), is a complex process of interaction. This interaction occurs between setting goals and means, where policy objectives are defined and appropriate tools are selected to achieve them. In addition, implementation also involves an interaction between actions and results, where the actions taken are evaluated based on the achievement of the expected goals. According to Edward III, the success of policy implementation is influenced by four main components:

1. Communication: It is important to ensure effective policy communication by the transformation of clear, transparent, and consistent information to policy implementers.
2. Resources: Policy effectiveness is highly dependent on the availability of adequate resources, including staff, information, authority, and supporting facilities.
3. Disposition: Refers to the willingness or agreement of implementers to implement the policy, which is driven by factors such as ego-sectoral attitudes and motivation.
4. Bureaucratic Structure: Policy implementation is often hampered by fragmented bureaucratic structures and unclear SOPs, causing inefficiencies and difficulties in coordination.

In addition, for successful policy implementation, it is also important to pay attention:

- Clarity of policy content.
- The level of information available to the actors involved.
- Adequate support for the policy.
- Balanced division of roles and responsibilities.

Three commonly used theoretical approaches in looking at policy implementation are top-down, bottom-up, and hybrid models, each with a different focus and implementation strategy.

### Farmer Road

Under Law No. 38 of 2004 on Roads, the construction and maintenance of roads fall under the responsibility of the relevant ministry. Agricultural roads, classified as special roads for the agriculture sector (horticulture, plantations, and livestock), are the responsibility of the Ministry of Agriculture. The main function of agricultural roads is to facilitate the movement of agricultural machinery, transport production inputs to farmland, and distribute agricultural products from farmland. Technical specifications include:

1. Norms: Developing agricultural roads to facilitate the transport of production facilities, machinery, and agricultural products.
2. Technical Standards: Road dimensions, drainage systems, and construction materials must meet specific standards.
3. Technical Criteria: Planning and implementation of road development must be based on surveys and verified by technical teams.

### Income

Income is the total wealth at the beginning of the period plus changes in valuation not caused by changes in capital, and debts used to calculate income using community expenditure (Utami, 2019). Income is the total earnings received by workers or households during their

employment (Ramadhan et al., 2023). Net income is calculated by subtracting total costs from total revenue (Sari, 2023).

### **Durian**

Durian (*Durio zibethinus* Murray) is a high-value fruit commodity in Indonesia. Optimal growth conditions include specific climate, soil, and altitude requirements. There are numerous registered varieties, with the Monthong variety being particularly popular due to its large size, thick flesh, and sweet taste (Indrajati et al., 2021).

## **RESEARCH METHODS**

This research combines qualitative and quantitative methods to examine the impact of farm road construction on the income of durian farmers in Langgar Village. The qualitative approach was used to gain an in-depth understanding of the implementation of the farm road, while the quantitative method was used to measure its impact in a more quantifiable manner.

Primary data were collected through interviews, observation, and documentation, while secondary data were obtained from journals, the internet, literature books, and official documents. The research sample consisted of 26 durian farmers who owned land around the farm road with a minimum area of 0.5 ha. Data analysis included an evaluation of farm income using income calculation methods and statistical tests, including a normality test to confirm data distribution and a paired t-test to assess significant differences in farmers' income before and after farm road construction.

## **RESULTS AND DISCUSSION**

### **Implementation Of Farming Roads**

The Development Of Integrated Farming System In Upland Areas (UPLAND) program demonstrates innovation in supporting agricultural

infrastructure development in the highlands, as seen in the construction of the Jalan Usaha Tani (JUT) in Langgar Village. The program combines Top-down and Bottom-up approaches, creating an enabling environment for innovation and farmer group engagement. Top-down approach: Decision-making and goal-setting for the program was done by the Ministry of Agriculture through government budget allocations. The project is self-managed by the Mandiri Muda Lestari farmer group. Bottom-up Approach: UPLAND Community Grants are awarded based on proposals prepared by the recipient farmer groups, indicating the freedom to submit proposals according to their own needs and potential. The results of the research and discussion regarding the implementation of the farmer's business road in Langgar Village, Kejobong District using the theory of George Edward III with 4 indicators, namely as follows:

#### **a. Communication**

The communication process in the implementation of the UPLAND program is highly structured. Information and decisions are conveyed from the center (DG PSP of the Ministry of Agriculture) to the provincial and district levels, then to the Agricultural Extension Center (BPP) and Mandiri Muda Lestari farmer groups. Intensive socialization and training are conducted to ensure understanding and active participation from farmer groups and communities.

#### **b. Resources**

The human resources involved in this project include various parties, including the Directorate General of Agriculture, provincial and district Agriculture Offices, BPP, village facilitators, as well as farmer groups and local communities. The Mandiri Muda Lestari Farmer Group plays an important role in project management and implementation. Project funds come from government budget allocations through the UPLAND program, with the

main funder being the Islamic Development Bank (IsDB), as well as labor contributions from local communities.

### **c. Bureaucratic Structure**

The policy implementation mechanism is regulated through Standard Operating Procedures (SOPs). The SOPs are taught to the Mandiri Muda Lestari farmer groups verbally through continuous training to the farmer groups to help them understand and implement the SOPs properly. Flexibility in the bureaucratic structure allows for quick response in emergency situations, While this can be helpful in emergency situations, it can also create confusion in long-term coordination as people may no longer follow established procedures.

### **d. Disposition**

Local government support was realized by the issuance of Purbalingga Regent Decree number 520/133 of 2022 on the Determination of Farmer Groups/Groups of Farmers Receiving and Implementing The Development of Integrated Farming System at Upland Areas Project (UPLAND). In addition, a UPKK (Activity Management Unit) team was formed to manage UPLAND program funds efficiently and accountably. By separating financial management from the group treasurer, the potential for misuse of funds can be minimized.

The ability of the farmer groups to regularly prepare the LPJ shows their dedication to accountability and transparency. The continued support of program funds received for three consecutive years is clear evidence of appreciation for their efforts and dedication in developing the agricultural sector. It demonstrates strong responsibility in fund management and financial reporting. The program also applies strict consequences for farmer groups that do not meet commitments and accountability, namely being

disqualified and only receiving the JUT program once and not receiving program funds for subsequent years.

### **Construction of Farm Business Road**

In 2021, Langgar Village received assistance from the UPLAND program with a total budget of IDR 109,375,000 to build 313 meters of road. In 2022, an additional budget was provided to build another 300 meters, bringing the total length of the road to 613 meters. In 2023, additional assistance enabled the construction of another 700 meters, bringing the total length of farming roads built from 2021 to 2023 to 1313 meters. The road now circles the farmer's land area, facilitating access and transportation of crops. The construction of the JUT in Langgar Village went through several structured stages:

- **Site Clearance:** Cleaning according to technical guidelines, road width 2 meters.
- **Material Preparation:** Main materials: split stone, sand, cement, water, formwork, cast boards, culverts.
- **Application of Urug Sand, Formwork, and Cast Plastic:** The soil was leveled, 5 cm thick of urug sand, formwork and cast plastic were installed with a height of 75 cm.
- **Mixing Process:** Concrete was mixed by machine, 1:2:3 ratio (cement, sand, gravel).
- **Supporting Buildings:** Installation of culverts and concrete floor slabs to reinforce the road.
- **Inspection:** Final inspection by DSC consultant to ensure road quality.

### **Factors Affecting the Increase in Farmer Income**

#### **a. Production output**

The implementation of Farm Roads (JUT) in Langgar Village has increased durian production from 59,320 kg to 64,262 kg, a rise of 8.3%. The average production per farmer has also increased from 2,281.5 kg to 2,471.6 kg. This is due to better maintenance and

more effective pest control due to easier access to durian orchards.

#### b. Labor Costs

Labor costs decreased significantly after JUT, from a total of Rp 24,220,000 (an average of Rp 931,538 per farmer) to Rp 17,780,000 (an average of Rp 683,846 per farmer), a decrease of 26.5%. Time and labor efficiency increased, reducing the need for additional labor.

#### c. Transportation Costs

Transportation costs also decreased from Rp 16,770,000 (an average of Rp 645,000 per farmer) to Rp 14,750,000 (an average of Rp 567,308 per farmer), a decrease of 12%. The improved road conditions have increased the efficiency of durian transportation.

### Data Analysis

#### a. Normality test

	N	Statistik	df	Sig.
Setelah Jalan Usaha Tani	26	.092	26	.200
Sebelum Jalan Usaha Tani	26	.108	26	.200

Farmers' income data before and after the construction of JUT is normally distributed with a significance value of 0.200, greater than 0.05. It can be concluded that the farmer's income data before and after the existence of farm roads is normally distributed. Therefore, the difference test can be done using the Paired T- Test.

#### b. Descriptive test

	N	Minimum	Maximum	Mean
Setelah JUT	26	76460000	117330000	94461923.08
Sebelum JUT	26	73950000	106640000	86533461.54
Valid N (Listwise)	26			

Before JUT, the average income of Montong durian farmers was IDR 86,553,461.54 per 0.5 hectares per harvest season, with the lowest income of IDR 73,950,000 and the highest of IDR 106,640,000. After JUT, the average

income increased by 9.11% to IDR 94,461,923.08, with the lowest income increasing by 3.36% to IDR 76,460,000 and the highest increasing by 10.04% to IDR 117,330,000.

#### c. Paired T-test

Paired Samples Correlations			
	N	Correlation	Sig.
Pair 1	Sebelum JUT & Setelah JUT	.722	.000

The Paired T-Test test shows a Sig. (2-tailed) value of 0.000, smaller than 0.05, indicating a significant difference in farmers' income before and after the JUT. The construction of JUT has a significant positive impact on the income of durian farmers in Langgar Village.

## CONCLUSIONS AND SUGGESTIONS

### CONCLUSIONS

Based on the results of the research and discussion that has been carried out above regarding the implementation of farming roads and their effect on increasing the household income of durian farmers in Langgar Village, Kejobong District, Purbalingga Regency, the following conclusions can be drawn:

1. The construction of Jalan Usaha Tani (JUT) in Langgar Village, which is part of the Ministry of Agriculture's UPLAND program, has had a positive impact on the village community. The program's approach of combining top-down and bottom-up, accompanied by clear communication, adequate resources, a supportive bureaucratic structure, and active community participation, resulted in significant positive impacts. The JUT construction process, which went through structured stages, from land clearing, material preparation, installation of formwork and cast plastic, concrete mixing, to

construction of culverts and concrete floor slabs, reflected the spirit of gotong royong and community collaboration.

2. Statistical tests show that the construction of farming roads has made a positive contribution to increasing the income of Montong durian farmers in Langgar Village, Kejobong District. The paired t-test shows a significant difference between income before and after the construction of JUT, with an increase in the average income of Montong durian farmers by 9.11%.

## SUGGESTIONS

Based on the results of research on the implementation of farm roads and their effect on increasing the income of durian farmers in Langgar Village, Kejobong District, Purbalingga Regency, the following suggestions are given:

1. Mandiri Muda Lestari Farmer Group

Farmer groups need to utilize the resources provided efficiently, including time, energy, and funds. By managing these resources wisely, they can increase agricultural yields and income.

2. Government

For the government, it is recommended that the UPLAND program, especially the construction of farm roads, be implemented and developed in other villages or farmer groups because the program has a positive impact on regional development, production and farmers' income.

3. For other researchers

Future research is advised to consider the impact of development programs such as farming roads from various aspects, such as social welfare, the environment, or village infrastructure as a whole.

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