BUILDING ECONOMIC INDEPENDENCE OF SRIDADI VILLAGE, SIRAMPOG DISTRICT BREBES REGENCY THROUGH ARABICA PRODUCTS

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Abstract. Sridadi Village, Sirampog District is one of the villages producing Arabica Coffee in Brebes Regency. So far, the cultivation results produced by coffee farmers are still sold in the form of cherry coffee which has a low economic value, which is less than IDR 8,000. There is a small part that has been processed into green beans and roast beans, but still on a small scale and household scale. Even then, they still use traditional mortar and pestle tools. In addition to the conventional cultivation methods, during the main harvest there are difficulties in drying the harvest, due to high humidity and rainfall. Due to these conditions, the village empowerment team (PDB) of the Universitas Peradaban and Unsoed funded by DRTPM in the first year (2024) carried out community service through various training, workshops and appropriate technology grants. In the implementation of appropriate technology, 1 unit of pulper (wet seed peeler) with a capacity of 150 kg/hour, Huller (dry seed peeler) with a capacity of 100 kg/hour and a greenhouse measuring 54 m2 (6 m x 9 m) have been donated. The results of this service have increased the production capacity of peeling at least 6 times previously from 150 kg/day to 900 kg/day. And the dry peeling capacity of 100 kg to 600 kg/day. For drying, it is also efficient because farmers no longer need to lift and dry coffee in the afternoon or when it rains. Farmers only need to turn it over so that the dryness is evenly distributed. With the greenhouse system, it also dries faster because the heat is stored and trapped, and the capacity increases 3 times because the drying is arranged in 3 layers.

Keywords: economic independence, greenbean, roasted bean, arabica coffee, green house

A. Introduction

Brebes Regency, according to BPS (BPS, 2023) stated that the number of Poor People in Brebes Regency in 2022 was 290,660 people. With a population of 2,011,000 people in Brebes, the Percentage of Poor People is 16.05%. Based on Sakernas data enumerated in August 2023, Brebes Regency is the most populous regency in Central Java, but also the one with a high poverty rate, namely in the top 3 poverty in Central Java. Of the workforce, there are 813,592 people aged 15 years and over who work. During that period, the open unemployment rate (TPT) was 9.4 (BPS, 2022). In this Regency, the Human Development Index (HDI) is 67.05.

This figure is the lowest HDI in the Province of Central Java. Brebes Regency is the regency with the highest level of extreme poverty in Central Java. The characteristics of extremely poor households in Brebes are still dominated by agriculturahouseholds (rice and secondary crops), with casual/casual worker status, low education and female-dominated household heads (BPS, 2021).

Coffee is one of the 3 major potential superior regional products in Brebes Regency, besides salted eggs and shallots (Dawuhan Village, 2018). In 2015, Brebes Regency coffee production reached 61.61 tons, in 2016 it became 201.65 tons and in 2017 it increased again to 495.6 tons (Pakpahan, 2004), which was 393.9 tons consisting of 358 tons of robusta coffee and 35.9 tons of arabica. Based on infographics taken from BPS through the Brebes in Figures 2022 publication, it is known that Sirampog District is the most dominant district producing Arabica coffee because Sirampog District is at an altitude above 1000 meters above sea level.

From data taken from the Central Java Bappeda, it is known that in 2023 there are 34 poor villages assisted by the province of Central Java and 10 extreme priority poor villages in 2023 in Central Java. Sridadi Village in Sirampog District is one of the villages that is classified as poor in Sirampog District, Brebes Regency . In fact, this village has extraordinary potential for coffee plants and production, namely a community coffee plantation covering an area of 118.47 Ha based on data collected in 2021. Due to the large potential of this coffee, the Berkah Abadi farmer group was formed and divided into 7 blocks, each chaired by a block leader. In addition to the Berkah Abadi farmer group focusing on cultivation, in Sridadi Village in the same year (2021) a joint business unit, Kopi Sirampog Estate, was also established which focuses more on coffee processing.

The potential for large coffee plants and production is still not accompanied by good cultivation and processing capabilities. There are still limitations, including the first partner , namely the Berkah Abadi farmer group which focuses on coffee plant management and cultivation. The method of planting, cultivating, harvesting and post-harvest processing of the farmer group is still very simple and conventional. Although this farmer group manages 118.47 Ha, the current yield is only around 16 Ha (13.5%) with a total coffee cherry harvest of 20,248 kg in 2023. The second partner is the Sirampog Estate coffee processing business group. Although this business unit has a progressive vision, it still has many limitations, especially the facilities/production equipment to produce downstream coffee products. If previously farmers sold their coffee cherries very cheaply to traders outside the village, then since 2021 the coffee has been processed by the coffee processing unit itself. In this condition, there is added value enjoyed by farmers from selling *coffee cherry* for 5,000 rupiah to *green beans* in 3 grades, namely grade 1 (premium) priced at Rp 75,000/kg around 20%, grade 2 Rp 65,000/kg around 50% and grade 3 priced at around Rp 25,000 around 30%. According to empirical calculations, 100 kg wet will become 16-17 kg of *green beans* . This means that every 6 kg wet will produce 1 kg dry. Based on the calculations with the above conditions, the farmer group receives benefits of Rp. 4,075,000/ton or added value of Rp 4,075/kg.

B. Methods

The following are the steps for implementing the Village Empowerment Program (PDB) in Sridadi Village for village economic independence through the target partners of the Berkah Abadi Farmer Group and the Sirampog Estate business unit. The activities carried out include (1) Preparation, the PDB Team of Peradaban University coordinates and divides tasks between members. (2) Focus Group Discussion (FGD), FGD is carried out between the PDB Team and Community Service Partners which includes Identification and analysis of problems faced by Berkah Abadi and Sirampog Estate partners, Determination of priority problems to be handled in PDB activities, and determination of activity participants. (3) Activity Planning, which includes determining the procurement of tools and materialsneeded for community service,

selecting the type of training agreed to handle the priority problems to be handled, and determining the required resource experts (resource persons). (4) Implementation of activities, including socialization and training. (5) Application of technology, with the main solution being the procurement of tools. (5) mentoring, monitoring and evaluation of activities.

C. Results and Discussion

1. Implementation of Activities

Community service activities aimed at the farmer groups of Sridadi Village, Sirampog, Brebes in order to increase added value for coffee farmers were carried out on Saturday, August 31, 2024. Located at the Sridadi Village Hall, which was attended by 43 people, consisting of village officials, the PDB team and the Sridadi Village farmer groups. Community service activities were filled with presentations of material by resource persons on "Strengthening Arabica Coffee Product Downstreaming in Sridadi District, Brebes Regency" and "Quality Control and Increasing Competitiveness" (figure 2). In addition to training activities, the Community Service Team also provided technology grants in the form of 1 pullper machine unit, 1 huller machine unit and a Green House manufacturing unit.

2. Implementation of Technology Products

a. Pullper Machine

The wet coffee fruit skin peeling machine (pulper) is used to separate or remove the fruit skin components from the coffee part with the shell (Saputra, 2024). After being harvested and quality coffee beans are selected, the farmers then peel the coffee skin. The coffee beans are peeled to separate the fruit flesh and coffee beans using a pulper machine. Previously, farmers peeled the coffee using a simple tool, namely using a mortar and pestle . Some of the differences in using a simple tool, a mortar & pestle, and using a pulper machine are as follows.

Table 1. Differences between the mortar & pestle coffee peeling tool and the pulper machine

No	Coffee Huller Mortar & Pestle	Coffee Peeling Using Pulper
1	The result of peeling the coffee beans is that many are broken	The result of peeling the coffee beans is that not many are broken
2	Wet coffee peeling capacity using mortar and pestle 20kg/hour	Wet coffee peeling capacity increased to 150kg/hour

Source: primary data (processed)

The picture of the old coffee peeling tool (mortar pestle) and the coffee peeler using a pulper machine are presented in the following picture:

(a) (b)

Figure 2 Coffee Peeling Tools (a. Mortar and Pestle, b. Pulper Machine)

b. Huller Machine

One of the stages of the coffee production series from harvest to ready to be brewed is the peeling of the coffee beans. The process of peeling the coffee beans carried out by partners after wet coffee peeling is dry processing, namely the coffee fruit that has been harvested is dried directly and the process of peeling the fruit flesh, horn skin and skin is carried out after drying. This coffee skin peeling aims to separate the coffee beans from the horn skin. The coffee beans that will be peeled are dry. Water content affects this process. The lower the water content (dry), the better the results (the number of broken/defective beans is small). The process can be repeated twice until clean green beans are produced. (Solihin & Wicaksono, 2022) .

The presence of the Coffee Huller machine through the PDB grant program has a positive impact, namely the coffee beans produced are maintained as hygienic as before. The coffee skin waste produced can be further utilized for animal feed and or planting media (compost). In addition, the presence of this coffee Huller machine is also not limited in terms of production capacity and time. Even the Huller machine can open up business opportunities for coffee skin peeling services at a price of IDR 1,200, - / Kg green bean.

The comparison of the results of the coffee skin peeling process using a mortar and pestle tool and a coffee huller machine is presented in Table 2 as follows.

Table 2. Differences between the mortar and pestle coffee peeling machine and the huller machine

No	Coffee Huller Mortar & Pestle	Coffee Huller Using Huller
1	The result of peeling the coffee beans is that many are broken	The result of peeling the coffee beans is that not many are broken
2	Wet coffee peeling capacity using mortar and pestle 10kg/hour	Dry coffee peeling capacity increased to 100kg/hour
3	Coffee hygiene is not well maintained	Coffee hygiene is well maintained

Source: primary data (processed)

The picture of the old coffee hulling tool (mortar pestle) and the coffee huller using a huller machine are presented in the following picture:

(a) (b)

Figure 2 Coffee Hulling Tools (a. Mortar and Pestle, b. Huller Machine)

c. Coffee Greenhouse

Green House Coffee is a greenhouse drying room for drying/drying coffee with a roof in the form of a hut. The Green House construction frame material is made of light steel while the material for the walls and roof is made of transparent material, namely ultraviolet (UV) plastic. Both materials were chosen because they are weather-resistant, resistant to ultraviolet rays, and

have a light penetration of more than 80%. (Budi, et al., 2020). Green House, a coffee drying greenhouse is able to dry coffee naturally with the advantage of higher temperatures (drying faster). The capacity of the greenhouse will be higher and the benefits will be greater because in this greenhouse a tray or rack will also be made that can dry in layers.

The impact of the existence of the Coffee Green House is the process of drying red cherries (coffee) indirectly under the sun but in a closed room with a roof and walls made of UV plastic. The Green House made by the PDP Team for partners measures 7 x 10 m2 with a light steel frame and roof and wall materials made of UV plastic (figure 3).

Figure 3. Coffee Green House Technology Grant

Comparison of the results of the direct drying process with drying through a Green House is presented in the following table.

Table 3. Comparison of direct and green house drying processes

No	Aspect	Direct Sun Drying	*Green House* Drying
1	Drying Process	Direct drying (dry sun)	Covered by UV plastic
2	Time	It takes a relatively long time, 7-14 days	Relatively fast time 4-8 days
3	Place	Requires a large space	Requires a place that is not too large, easy to make multi-storey
4	Coffee Quality	Coffee hygiene is not well maintained, open areas Quality 70% - 80%	Coffee hygiene is well maintained, closed place Quality ± 90%
5	Results	The drying process is not even. It is possible for mold to grow.	The drying process is even. Rarely does mold grow.

D. Conclusion

Based on the activities carried out, it can be concluded that the existence of a Pulper Machine Wet coffee peeling capacity increased to 150kg/hour, with the huller machine, the dry coffee peeling capacity increases to 100kg/hour and with the Green House it can provide an impact on improving the quality of good coffee, a faster and more even drying process, a large capacity, and hygiene is maintained. It is hoped that through this activity, partners can utilize the application of post-harvest technology in the coffee drying process, so that post-harvest handling of coffee is faster with adequate capacity. Furthermore, it can improve the quality of coffee which can ultimately increase income.

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