

Socialization and Extension of Green Economy to PKK Group and Farmer Groups

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Abstract

Protecting the environment and ensuring its sustainability for future generations are sustainable development goals (SDGs). A preserved environment and ensuring sustainability for future generations is a sustainable development goal (SDGs). Every human activity produces waste that, if not appropriately managed, can bring problems in the future. Before starting a production process that utilizes natural resources, a complete understanding of the "*green economy*" is required. This activity aims to provide socialization and counseling for partners in the assisted village empowerment program (GDP) about the "*green economy*" as the first step in building a pineapple center assisted village in Mendelem village, Belik District, Pemalang Regency. The method used is *participatory action research*. Five steps are taken to use the method: socialization, training, technology application, mentoring, and evaluation. The results were: an increase in partners' understanding of *green economy* reached 17%; partners' understanding of *green economy* practices reached 70.37%. The practice of a green economy has a higher score than understanding. Partners feel helped by the direct practice of the green economy concept in the production process of processed pineapples.

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INTRODUCTION

Social, environmental, and economic aspects are the three essential pillars of sustainable education ([Andris et al., 2024](#); [Darmawan et al., 2022](#); [Anjani et al., 2023](#)). Conventional economic implementation focuses on risks related to finance. The principle of maximizing profit with minimal capital investment is characteristic of conventional economics ([Adnyana et al., 2021](#); [Napu, 2022](#)). Economic practices accompanied by environmental sustainability considerations represent a positive step toward ensuring the availability of natural resources in the future. Green economy is an economic concept that aims to improve social well-being and equality while reducing the risks of environmental damage by decreasing carbon emissions and other negative environmental impacts for sustainable development ([Kristanto, 2020](#); [Vita & Soehardi, 2022](#)).

The well-being of society is often equated with the exploitation of natural resources to meet human needs as much as possible ([Effendy et al., 2024](#); [Hasani et al., 2021](#); [Natalia & Maulidya, 2023](#)). This situation is not impossible in rural areas. The well-being of rural

communities is directly proportional to environmental damage if there are no preventive steps before starting production activities. The mindset of utilizing natural resources for human welfare should start with a complete and accurate understanding of green economy principles. The benefits gained from understanding the concept of a green economy include (1) having a high sensitivity to environmental stability, (2) having the ability to offer various alternative solutions, and (3) fostering creative ideas along with an interest in entrepreneurship ([Anwar, 2022](#); [Susila & Hukom, 2023](#)). Through a proper understanding of the green economy, communities are expected to explore natural resources in rural areas and utilize them while maintaining environmental sustainability.

Mendelem Village is located in Belik District, Pemalang Regency. Mendelem Village lies in the southern part of Belik District, and due to its size, it borders almost all neighboring villages, such as Sikasur, Belik, and Bulukan. Mendelem Village comprises five hamlets: Karanganyar, Bodas, Gembol, Mendelem, and Penepen. The village is situated in a highland area, which gives it a cool climate and high rainfall. Mendelem Village is one of the four main villages producing pineapples in Belik District. In addition to pineapples, Mendelem Village has a potential natural mountainous environment and is crossed by the provincial road leading to Purbalingga Regency, Purwokerto Regency, and Banjarnegara Regency. Mendelem Village covers an area of 17.95 km², situated at an altitude of 700 meters above sea level. The majority of the population works as farmers (75%), and 85% of them have completed elementary school education (Meitasari et al., 2020; Pemalang, 2021). This is also reflected in the Human Development Index (HDI), which is still low at 66.32, below Central Java's 71.87 and the national average of 71.94. It is second lowest compared to surrounding Central Java regencies, just above Brebes Regency at 66.11 (14). The well-known natural resource commodity in Belik District is pineapple, which is also found in Mendelem Village.

According to interviews with residents, the honey pineapple potential in Mendelem Village contributes 80% of the community's income, with 75% of the population being farmers. This means that the community's economy is heavily reliant on pineapple farming. Farmers sell pineapples as raw material, fluctuating prices depending on the buyer and the season. Farmers sell pineapples at very low prices during harvest time, while farmers benefit from more stable prices during stable seasons. The "ijon" system (where buyers purchase the pineapples before they ripen and collect them once ripe) gives traders more advantages and plays a crucial role in the marketing pattern ([Hadipuro, 2022](#); [Hesthria & Pajaria, 2024](#)). Ijon buyers are able to provide a larger margin of profit and have control over pricing, affecting prices at the farmer, middleman, and wholesaler levels. This situation applies to most conventional farmers, where there is a long marketing value chain, difficulties in providing seeds, inability to meet consumer demands, weak infrastructure, unpredictable weather, and price fluctuations ([Khusna et al., 2022](#); [Pakki et al., 2021](#)).

Processing pineapples into various products is an alternative to improving the economy of pineapple farmers ([Listiawati et al., 2024](#); [Nurlatifa et al., 2021](#)). Pineapples can be processed into a variety of products that can generate new sources of income for the community through the PKK group of Mendelem Village and the Agro Rimba Abadi Forest Farmers Group (KTH). The parts of the pineapple plant used as sources of income are not only the fruit but also the leaves. However, utilizing the leaves as a potential commodity in Mendelem Village has not attracted much attention because the community is unaware of this potential.

Processing both the pineapple fruit and leaves as economic sources requires a solid foundation from the entrepreneurs involved in green economy principles. This ensures that production sustainability aligns with the availability of raw materials. Therefore, it is

necessary to conduct socialization, counseling, training, technology application, mentoring, and evaluation to enhance understanding and implementation of green economy principles among these community groups. This activity is part of a Village Empowerment Program (PDB), where partners, including the PKK of Mendelem Village and the Agro Rimba Abadi KTH, collaborate to empower the village's potential to increase new sources of income. This activity aims to provide partners with socialization and mentoring about the "green economy" as the first step in building a pineapple center in Mendelem Village, Belik District, Pemalang Regency. The effectiveness of this socialization can be measured by the absorption of information shared with the participants. The comparison between the initial and final conditions after the socialization and counseling shows measurable improvements.

METHODS

The method of implementing this community service activity is Participatory Action Research. This method is oriented towards community empowerment and the mobilization and development of knowledge so that the community is not only an object of service but also an actor of change ([Anjani et al., 2023](#); [Jumiati & Chadijah, 2024](#)) This activity has five steps: socialization, training, technology application, assistance, and evaluation. It was carried out for three months and is described in Table 1. The activity took place at the Mendelem Village Hall, Belik District, Pemalang Regency.

Table 1 Description of activity implementation

No.	Activities	Implementation	Target
1	Coordination with partners	June and July 2024	Obtaining target partner profiles
2	Socialization and Counseling	September 14, 2024	Participants obtain information about the concept of a green economy and its benefits
3	Training	August 15, 2024	Partners have an idea of implementing the concept of the green economy in economic practices made from pineapple fruit and leaves
4	Application of technology	August 16, 2024	Participants can apply green economy in pineapple fruit and leaf processing.
5	Assistance	August 22, 2024 and September 20, 2024	Partners receive assistance from the assisted Village Empowerment Team (PDB)
6	Evaluation	September 21, 2024	Find things that need to be improved and repaired

RESULTS AND DISCUSSION

The green economy is an important part to be given to people who will start their business in the field of processed food/beverage production made from natural resources. Business actors need to be given knowledge and implementation of the green economy because of the benefits obtained, namely: Because in the concept of green economy, the state is not only based on profit but rather on the economy by prioritizing equitable welfare in society ([Arifin et al., 2023](#); [Nabila & Arinta, 2020](#); [Zaini et al., 2024](#)) . People also consider the balance and sustainability of natural resources when using natural resources as a source of income.

Socialization and counseling activities are the first steps in the community service method stages. Two partners participated in this activity: Mendelem Village PKK Group and Rimba Abadi Agro Forest Farmers Group. In summary, Table 2 shows the profiles of the socialization and counseling participants.

Table 2 Demographics of partners participating in socialization and counseling

Aspects		Total	Percentage (%)
Gender	Women	27	100
	Male	0	0
Age	20-25	2	7.41
	26-30	2	7.41
	31-35	2	7.41
	36-40	9	33.33
	41-45	3	11.11
	46-50	4	14.81
	51-55	5	18.52
Jobs	Housewife	18	66.67
	Farmer	4	14.81
	Self-employed	5	18.51
Partner Element	PKK	13	48.14
	KTH Agro Rimba Abadi	14	51.85

Based on Table 2, 100% of women from the PKK group and the Agro Rimba Abadi Forest Farmers Group (KTH) attended the socialization and counseling activities. The KTH itself consists of men; in this training, the wives of the forest farmer group were sent. This is interesting because this socialization was left to the women, while their husbands did not participate in the socialization and training. This shows that the learning spirit of women is higher than that of men, especially those who are married (Kamila, 2020; Yuniarnengsih, 2023). Before conducting socialization and training, a pre-test was given to determine the initial condition of the participants regarding their understanding of the green economy and its implementation practices. To map partners' knowledge of the green economy, there are two questionnaires, namely a questionnaire on the green economy and a questionnaire on the eco enzyme. The questionnaire about the green economy consists of 15 items, with a choice of answers for no.1 "ever" and "never" and 14 other items for the answer is closed, namely "yes" and "no." The profile of the participants' understanding of green economy socialization and training is shown in Figure 1.

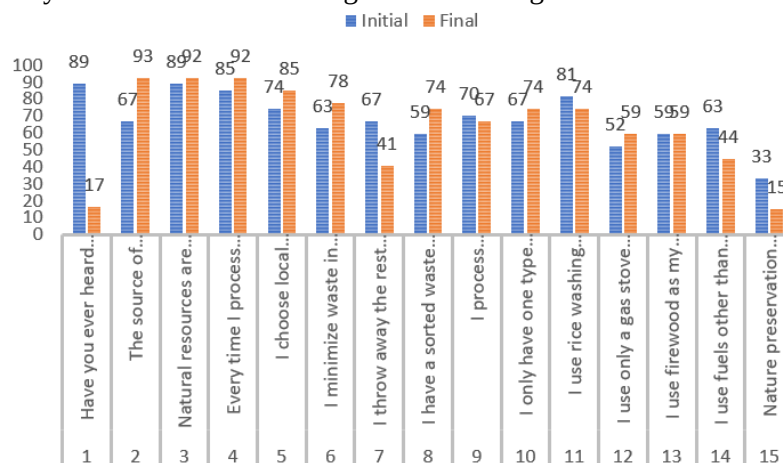


Figure 1 Profile of trainees' understanding of the green economy

The second questionnaire reveals about the practice of green economy in making eco-enzyme. This questionnaire contains 10 items, item no.1 the answer options are "ever" and "never" while items 2-9 the answer options are "yes" and "no". Figure 2 shows the profile of partners' understanding in applying green economy to make eco-enzyme. The profile of understanding and practice of making eco-enzyme is shown in Figure 2.

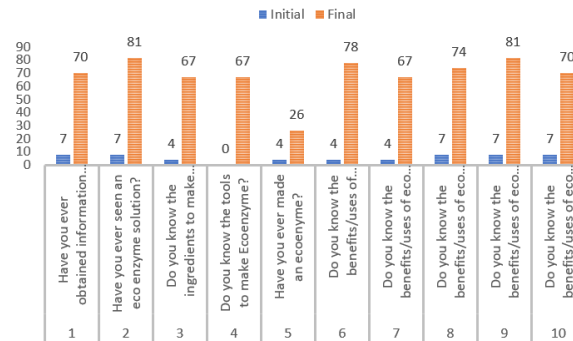


Figure 2 Profile of understanding and practice of making eco enzyme

Based on Figure 2, participants experienced a significant increase in understanding of information related to eco-enzyme. When compared with the experience of obtaining information about green economy and eco-enzyme, there is a striking difference, where in the experience of obtaining information about "green economy" before being given socialization 89% chose the answer "never", and only 17% of participants chose "never" after being given socialization. While in the eco-enzyme questionnaire, it increased from 7% who stated that they had never obtained information but as many as 70% said "ever."

The practice of making eco-enzyme strengthened the participants' understanding of the green economy (Azizah et al., 2024; Durahman et al., 2024). This is because the material used to make eco-enzyme comes from pineapple peel as the main organic material. The eco-enzyme made comes from organic materials in the form of pineapple fruit peel, coconut sugar, and water in a ratio of 3:1:10 (Rochyani et al., 2020; Viza, 2022). Pineapple peels, which are usually not used or thrown away as compost, are first made into an eco-enzyme solution that has many functions. Partners get how to apply green economy in the production process of processed pineapple fruit. So that pineapple skin is not thrown away carelessly but can be utilized as an ingredient to make eco-enzyme. Eco-enzyme made from pineapple skin has a distinctive fragrance, which is fresh and pungent (Patonah et al., 2024; Widodo et al., 2022). In addition, pineapple plants in the leaves are taken for fiber for fabric material to produce shredded leaves that can be used as animal feed and as compost. The socialization and counseling activities are shown in Figure 1. Partners directly practice pineapple fruit processing and utilize pineapple skin to make eco-enzyme (Figure 3). The products produced in this activity are processed pineapple fruit, pineapple fiber, and eco-enzyme (Figure 4).



Figure 3 Socialization and counseling activities



Figure 4 Green economy practice activities

After socialization and training, assistance is carried out for 1 week (22 August 2024), and 3 weeks afterwards (14 September 2024), to monitor the implementation of knowledge and skills. The final part of the service implementation stage is evaluation. The evaluation was conducted by asking 4 questions: (1) Which training is best understood? (2) Which training has been done, (3) Which training will be followed up, and (4) Which training has generated new sources of income? The profile of training reflections in response to the 4 questions is shown in Figure 5.

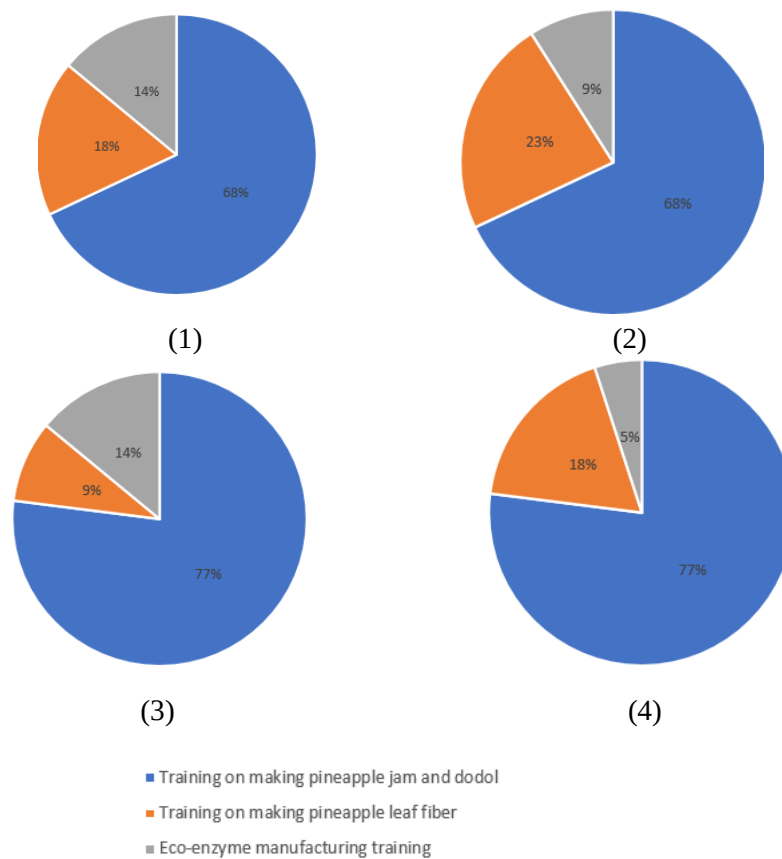


Figure 5 Post-training participant reflection

Based on Figure 5, it shows that some participants were more familiar with pineapple jam and dodol making compared to pineapple fiber and eco-enzyme making. In Figure 5 (1), which is the participants' response to the question "Which training is best understood?", the participants' answers tend to answer about "training in making pineapple jam and pineapple dodol." This illustrates that partners are familiar with making jam and dodol from pineapple fruit. Participants often make both to make Lebaran cakes. Figure 5 (2) shows participants' responses to "Which training has been conducted". This question was asked because it was a follow-up to the previous activity. Based on the participants' responses, the participants chose the answer "making pineapple fiber", this was done because it was easier with less capital. Figure 5(3) shows participants' responses to "Which training will be followed up?". The participant's response to this question was to choose to make pineapple jam and dodol. Figure 5(4) shows participants' responses to the question, "Which training has generated new sources of income?" The participants still gave the most answers on making pineapple jam and dodol. Meanwhile, eco-enzyme production was the least common response given by participants. This can be considered reasonable because the information has never reached the village. Participants have never received this information, let alone practiced it

CONCLUSION

Socialization and counseling on the green economy for fostered village partners who would start pineapple-based production have benefits as a preventive measure for possible environmental damage. Through socialization and training on the green economy, the community can provide an understanding of production practices with attention to sustainability in the future. Partners process pineapple fruit into various types of processed foods while the pineapple peel produced can be made directly into eco-enzyme materials, and the remaining pineapple fiber can be used as animal feed and plant compost. This program provides a practical solution for using pineapple waste, which was previously discarded, into economically valuable products such as eco-enzymes. Recommendations from this activity can be considered as follows: Further training to improve practical skills, institutional support to market the training products, and long-term monitoring to see the socio-economic impact.

CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest.

AUTHOR CONTRIBUTIONS STATEMENT

Conceptualization, SP and EES; methodology, SP, HM, and EES; data collection, SP, HM, EES, and EAS; writing—preparation of the original draft, SP and HM; writing reviewing & editing, SP, EES. HM and EAS; All authors have read and approved version of the manuscript.

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