



Economic Empowerment of Mothers Through Product Production Training: Case of Making Dishwashing Soap in Kadilangu Village

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Abstract. *This work program examines the economic activities, especially of mothers in Kadilangu Village, Kangkung District, Kendal Regency, where the majority of mothers' jobs there are farmers and housewives. Training on making dishwashing soap in Kadilangu Village was held involving community representatives, where two representatives from each RT were present from a total of 18 RTs in Kadilangu Village. The resource persons for this training were members of the MIT-18 KKN team Posko 120 UIN Walisongo, totaling 4 presenters with competencies in the field of chemistry. The training was carried out divided into six groups, where each group consisted of six members who would directly participate in soap making from the start until the product was ready to use. With these new skills, residents now have the potential to create an additional source of income after completing housework and rice field activities, which is also expected to improve the welfare of the family and community as a whole.*

Keywords: *Economy, Training, Soap*

1. BACKGROUND

The main focus in sustainable development is to address issues related to the environment and social welfare. Increasing human activities in various sectors, especially in households and industries, have led to an increase in hazardous waste that can threaten the environment and public health. One product that is often used in everyday life in households is dishwashing soap available on the market. However, these soaps often contain chemicals that can pollute the environment, especially aquatic ecosystems (Suryani et al., 2020). Dishwashing soap waste containing synthetic surfactants, phosphates, and other chemicals can cause eutrophication, reduce water quality, and endanger the life of aquatic ecosystems. Therefore, a more environmentally friendly alternative solution is needed to overcome this problem.

One solution that can be implemented in community service in Kadilangu Village, Kangkung District, Kendal Regency is to hold training on making environmentally friendly dishwashing soap that provides economic opportunities for the community. Environmentally friendly dishwashing soap is made using the main ingredient Methyl Ester Sulfonate (MES). MES is a vegetable oil-based surfactant that is biodegradable and more environmentally friendly than petrochemical-based surfactants (Hidayati et al., 2019). The use of MES in dishwashing soap can reduce negative impacts on the environment without reducing cleaning effectiveness.

The main objective of this service is to increase awareness of the Kadilangu Village community about the importance of using environmentally friendly products and provide practical skills in making more sustainable dishwashing soap. In addition, this training also aims to open up business opportunities for the local community. By having the knowledge and skills in making environmentally friendly soap, training participants can develop their own products and market them as a greener alternative (Rahmawati et al., 2021).

Through this training, it is hoped that there will be a change in the mindset and behavior of the community in using more environmentally friendly household products. In addition, this initiative can also encourage local economic empowerment by creating new jobs and increasing the income of the Kadilangu Village community. Thus, this environmentally friendly dishwashing soap making training is not only beneficial for environmental sustainability but also has a positive impact on the socio-economy of the local community (Pratiwi et al., 2022).

2. METHODS

This training was conducted using several methods and data collection to find out what the community in Kadilangu Village needed, some of the methods used were, a qualitative approach using case studies as a method to explore in depth the challenges and dynamics of the economy faced by residents of Kadilangu Village, Kangkung District, Kendal Regency especially for mothers. Some of the data collection techniques used in this training are as follows:

Data collection technique

Data collection was carried out using several techniques, namely as follows:

Documentation

Documentation techniques are carried out through documentation activities related to this dishwashing soap making training, both in preparation for training, a list of chemicals used, the production process, and how to make dishwashing soap from start to finish. This documentation is used to complete and will be a guide for mothers who are interested in running this dishwashing soap production business.

In Depth Interview

This in-depth interview technique was conducted with several parties including the Head of Kadilangu Village, Mrs. Ida Fitriana, SE and several mothers in Kadilangu Village to find

out information on economic activities that have been running in the village, the needs in the village in the economic sector, and the impact of this soap training.

Training Location

This training was conducted in Kadilangu Village, Kangkung District, Kendal Regency, while the main location for the dishwashing soap making training was at the Kadilangu Village Hall. This location was chosen based on an agreement with the community and also the Head of Kadilangu Village, Mrs. Ida Fitriatna, SE

Training Subjects

The subjects of this training are mothers in Kadilangu Village, both housewives, farmers, and entrepreneurs. The main resource persons of the training are three chemistry students from the KKN MIT-18 UIN Walisongo Semarang team who have competencies in the field of chemistry needed in making dishwashing soap.

Stages of Making Dishwashing Soap

The production is carried out in 2 stages, namely the trial stage and the joint production stage with the community. In the trial stage, a trial was carried out at home (post) with the aim of testing the quality and safety of the soap and to develop a soap formula. This experiment was carried out in August 2024 by the MIT 18 KKN team, Post 120 UIN Walisongo.

The preparation begins by dissolving 200 g of MES using 1 liter of hot water. After it has cooled and there is no foam in the solution, 100 g of texapon and 25 g of Na₂SO₄ are added. Stir until the solution is homogeneous. Add 200 g of NaCl until the liquid becomes thick. Add foam booster. Add 4 g of EDTA. Pour 4 liters of distilled water little by little. Stir continuously for each additional ingredient. Add perfume essence. Wait 24 hours and the soap will thicken perfectly.

3. RESULTS AND DISCUSSION

The dishwashing soap making training activity in Kadilangu village is a real manifestation of the application of knowledge gained from campus to the community. The purpose of this activity is not only limited to applying academic knowledge, but also to improve community welfare through counseling on the dangers of synthetic soap to the environment and how to overcome its negative impacts, and in this training can be a business opportunity for the Kadilangu village community. One of the concrete methods proposed is the manufacture

of dishwashing soap using environmentally friendly main ingredients such as MES (Methyl Ester Sulfonate).

The use of MES (Methyl Ester Sulfonate) in soap making has attracted attention as a more environmentally friendly alternative compared to synthetic surfactants such as Sodium Lauryl Sulphate (SLS). According to research conducted by Hidayati (2019), MES derived from vegetable oil has several ecological advantages. This material is biodegradable, meaning it can decompose naturally in the environment without leaving harmful residues. In addition, the MES production process produces lower carbon emissions compared to petrochemical-based surfactants. A study by Putri (2021) also showed that MES-based soap has lower toxicity to aquatic organisms, reducing the potential for negative impacts on aquatic ecosystems. Furthermore, the use of MES in the soap industry supports the utilization of renewable resources, because it can be produced from various types of vegetable oils, including palm oil and coconut oil, which are agricultural commodities that can be cultivated sustainably (Hasanah et al., 2020). Thus, the use of MES in soap making not only provides functional benefits but also contributes positively to environmental conservation efforts.

Interviews with the Kadilangu community revealed a common but potentially detrimental preference for the environment. People tend to prefer dishwashing soaps that produce abundant foam, believing that more foam will clean household equipment more effectively. However, this perception is contrary to scientific reality. According to research conducted by Kawahara et al. (2017), excessive foam does not directly correlate with cleaning effectiveness. On the contrary, excessive foam can have a negative impact on the environment. Surfactants in soap, which are responsible for foam production, can pollute water sources and damage aquatic ecosystems if not properly processed (Olkowska et al., 2014). With this data, this training provides insight to the community about the importance of using environmentally friendly soap.

The dishwashing soap making training in Kadilangu Village was held by involving representatives of residents from each RT. This event was attended by two representatives from each of the 18 RTs in the village, so that the total number of participants was 36 people. Through this dishwashing soap making training program, it is hoped that the Kadilangu village community can understand and implement it in their households more responsibly. By involving the Kadilangu community in making this soap, the community can educate the wider community about the use of environmentally friendly soap and will be an opportunity for the Kadilangu village community as a business idea.



Figure 1. Demonstration of Making Dishwashing Soap

The training that has been implemented has had a significant impact on improving the economy and standard of living of the Kadilangu village community. This activity has succeeded in increasing the capacity of residents, especially housewives, through dishwashing soap production training. The participants not only succeeded in mastering soap-making techniques, but also gained a deep understanding of the composition of the ingredients needed. This achievement is a strong foundation for the community to develop an independent soap production business. With these new skills, residents now have the potential to create additional sources of income, can improve the welfare of families and the community as a whole. The success of this program shows that well-planned community service can be effective for local economic empowerment and improving the quality of life in rural areas.

4. CONCLUSION

Overall, the dishwashing soap making training carried out by the KKN MIT-18 Posko 120 UIN Walisongo Semarang team in Kadilangu Village has been successfully implemented and has had a significant positive impact on increasing economic activities, especially for mothers in Kadilangu Village. This training is expected to be an opportunity or inspiration for mothers in Kadilangu Village as a business idea and to be able to continue the production of dishwashing soap in order to improve the welfare of the community and society in Kadilangu Village.

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