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ECOFOAM: EDUCATION AND TRAINING IN DISHWASHING SOAP MAKING

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ABSTRACT

Social Community Service (SCS) group 208 of Universitas Sebelas Maret carried out the Ecofoam activity: Education and Training on Dish Soap Making in Sendangagung Village, Plaosan District, Magetan Regency. This activity aims to increase public knowledge and skills in producing environmentally friendly dish soap as an effort to reduce dependence on commercial cleaning products. The implementation methods include socialization, demonstration, and direct practice involving PKK women as the main participants. The results of the activity showed a high level of participation, where most participants were able to produce good quality dish soap even though they had no previous experience. This activity has a positive impact on two main aspects, namely increasing environmental awareness regarding the dangers of using synthetic chemicals and opening up household business opportunities based on natural soap products that have the potential to increase family income. Thus, the Ecofoam program contributes to community empowerment, strengthening economic independence, and increasing environmental awareness in Sendangagung Village.

Keywords : Social Community Service (SCS), Ecofoam, community empowerment, environmentally friendly.

INTRODUCTION

The use of dish soap is a primary need in maintaining the cleanliness of eating and cooking utensils in the household. However, most commercial dish soap products contain synthetic chemicals such as petroleum-based surfactants, artificial dyes, and preservatives that have the potential to pollute the environment through household wastewater (Parinduri et al. 2020). Synthetic soap waste that is discharged into waters can disrupt aquatic ecosystems and reduce clean water quality, a problem that is rarely realized by the wider community.

On the other hand, the economic burden of using commercial dish soap is also quite significant for rural communities with limited income. Even though the price of one sachet of soap is relatively cheap, the accumulation of routine use in one month can burden the household budget. This condition is experienced by the people of Sendangagung Village, Plaosan District, Magetan Regency, whose majority of residents work as farmers and farm laborers with irregular incomes. This village, with a population of approximately 1,852 people, has great potential for the development of community empowerment programs, considering that the majority of its residents are of productive age (15-39 years) and have shown openness to innovation, as seen from the success of the weekly posyandu health program and the operation of auxiliary health centers.

Dish soap is basically a cleaning product composed of two main components: fatty acids with C16 carbon chains and sodium or potassium as a base (Zulkifli & Estiasih, 2014). The chemical structure of soap, which has a hydrophilic (water-loving) part on the ion chain and a hydrophobic (fat-loving) part on the carbon chain, allows it to bind and lift oily dirt from the surface of equipment (Amalia et al., 2018). This chemical principle is the basis for making environmentally friendly soap by utilizing natural ingredients that are more easily broken down in the environment.

Faced with these problems, the UNS Social Community Service Team Group 208 designed the "Ecofoam: Education and Training on Dish Soap Making" program as an alternative solution that combines economic and environmental aspects. This program aims to: (1) increase public knowledge about the negative impacts of using synthetic chemicals in cleaning products; (2) provide practical skills for making

environmentally friendly dish soap using natural ingredients such as lime and pandan leaf extract (Sarnita et al., 2024); and (3) open up household business opportunities that can increase family income.

The selection of PKK women as the main target is based on the consideration that they are direct users of dish soap products and have strong social networks at the village level, so they can be agents of change in spreading the practice of using environmentally friendly products. The high enthusiasm shown by participants from the start of socialization is an indicator of the community's readiness to accept this innovation, as well as important social capital for the sustainability of community empowerment programs in Sendangagung Village.

METHOD

The method used in this activity is Participatory Action Research (PAR). PAR is a research approach that emphasizes the active involvement of the community in every stage of the activity, starting from problem identification, planning, action implementation, to evaluation. This approach aims not only to produce knowledge, but also to encourage social change and community empowerment directly. In the context of the Ecofoam program, the community is not only the object of activities, but also acts as subjects who are involved in the learning process and practice of making environmentally friendly dish soap.

The implementation of the PAR method in this activity is realized through the stages of socialization, training, direct practice, and joint evaluation. The methods used in this activity are in the form of socialization and training. Socialization and training were attended by PKK women of Sendangagung Village as training participants. Making Ecofoam dish soap requires materials such as 1 kg of Texapon, 250 grams of salt (NaCl), 200 grams of sodium sulfate, 100 ml of foam booster, 20 limes, 15 pandan leaves, aroma enhancers, dyes, and 5 liters of water. The tools used in making dish soap are buckets or basins, knives, blenders, strainers, and stirrers. The finished dish soap will be put into 100 ml bottles. The process of making dish soap is carried out through several stages, namely:

1. Prepare 5 liters of water

2. Cut the pandan leaves into small pieces, then blend with 500 ml of water
3. Strain the pandan leaf extract and put it in a large container
4. Add texapon to the container containing pandan leaf extract, then stir until evenly mixed
5. Add 200 grams of sodium sulfate, then stir until dissolved
6. Add 250 grams of salt, then stir until dissolved
7. Add water little by little, then stir until mixed
8. Add lime juice
9. Add water little by little until it runs out, then stir until dissolved
10. Add 100 ml of foam booster, stir again until mixed
11. Add aroma enhancers and dyes as needed, then stir again
12. Leave it for 1 night to disappear
13. After being left for one night, the dish soap can be put into bottles and ready to use.

FINDINGS/RESULTS AND DISCUSSION

The Rule of ECOFOAM Program



Figure 1. Education and Practice of Making Ecofoam

The image above explains how the Ecofoam program is implemented and provides a real impact for the people of Sendangagung Village. This program is designed as a form of community empowerment that focuses on two important things, namely environmental education and productive economic training. Through this activity, the community, especially PKK women, are not only invited to understand the importance of protecting the environment, but are also equipped with practical skills in producing environmentally friendly dish soap.

The input or preparation stage begins with the involvement of the UNS Social Community Team Group 208 as the implementer of the activity, which provides all the training needs. The team collaborates with the village government and PKK group to ensure community support and active participation. Preparation also includes the provision of tools and natural materials that are safe for the environment as basic ingredients for making soap.

In the process or implementation stage, activities are carried out through several systematic steps. First, socialization and counseling are carried out regarding the dangers of using synthetic chemicals in household cleaning products. Next, the team provides a live demonstration on how to make natural dish soap using ingredients that are easily found nearby. After that, participants are given the opportunity to practice making soap themselves with guidance from the implementing team. At the end of the activity, assistance and evaluation are carried out on the results of the soap made by the participants to assess their quality and understanding. The results of this activity can then be seen in the output stage. Participants succeeded in producing their own natural dish soap products, while also gaining increased knowledge and skills in making environmentally friendly products. In addition, this activity also encourages the formation of small business groups or home industries that have the potential to become a new source of income for villagers.

The long-term impact or outcome of the Ecofoam program is also very

positive. This activity increases public awareness of the importance of protecting the environment, while also helping to reduce dependence on commercial products that contain harmful chemicals. From an economic perspective, this program contributes to increasing family independence through new business opportunities based on natural soap. More than that, this activity also strengthens social solidarity and cooperation between residents, because the learning and production process is carried out together in a collaborative and mutually supportive atmosphere.

Impact of ECOFOAM Program

The implementation of the Eco Foam program in Sendangagung Village provided quite significant results, especially in terms of community participation. PKK women who were the target of the activity showed high enthusiasm in participating in every stage of the training. They not only attended as participants, but also actively participated in the practice of making dish soap directly. Through this practice process, most participants were able to produce soap with quite good quality even though they were trying it for the first time. This shows that the training has succeeded in improving their skills, as well as giving them confidence to be able to make similar products independently in the future. In addition, this activity also succeeded in fostering a sense of togetherness and cooperation between PKK members, because the learning process was carried out in an interactive atmosphere, helping each other, and sharing experiences.

The impact of this activity can be felt in two main aspects, namely the environment and family economy. From an environmental perspective, participants became more aware of the dangers of using synthetic chemicals in household cleaning products, so they began to understand the importance of switching to environmentally friendly products. By using soap from the training, they can reduce their dependence on commercial products that often contain harmful ingredients and produce toxic waste. Meanwhile, from an economic perspective, this training opens up new business opportunities for PKK women. With the skills they have acquired, they have the potential to develop natural dish soap as a home-based product that can be sold, thus helping to increase family income. Overall, the Ecofoam program

not only succeeded in providing new knowledge, but also had a positive impact on the economic independence and environmental awareness of the community in Sendangagung Village.

The Ecofoam program carried out in Sendangagung Village has strong relevance to various previous studies that show the effectiveness of similar programs in increasing public knowledge and skills. Research by (Maghfirah et al., 2024) found that training in making natural soap from pandan leaves and lime in Giri Agung Village was able to increase the average understanding of participants from 58.07% to 71.61% after the training. This shows that an approach based on direct practice and active participation of participants is effective in strengthening the community's ability to process natural materials into useful products. Similar results were also found by (Dermawan et al., 2023) who carried out a community empowerment program in Budi Lestari Village, South Lampung, by utilizing local organic materials as the basic ingredients for dish soap. This activity not only increased participants' knowledge about soap-making techniques, but also fostered entrepreneurial motivation among villagers. In addition to economic aspects, research by (Arif et al., 2023) states that a combination of pandan leaf and lime extract can produce natural dish soap that is effective in removing fat and is also environmentally friendly, because it contains active compounds such as flavonoids, limonene, and essential oils that have antibacterial properties. These findings reinforce the results of the Eco Foam activity which not only provides economic benefits through home business opportunities, but also contributes to increasing public environmental awareness of the use of natural ingredients that are biodegradable and safe for health.

The implementation of the Eco Foam program in Sendangagung Village was carried out in the first week of August involving PKK women as the main participants. Before the activity began, the implementation team prepared various necessities in the form of tools and materials for making dish soap, such as mixing containers, stirrers, and natural materials that are safe for the environment. This preparation is important so that the training process can run smoothly and each participant has the opportunity to try the practice directly. The activity began with an opening session and introduction to the program, where the team explained the aims

and benefits of the natural soap making training. After that, a live demonstration was given by the facilitator regarding the steps for making dish soap, starting from measuring the ingredients, mixing, to producing soap that is ready to use. After the demonstration session, PKK women were given the opportunity to practice independently with guidance from the implementing team. The atmosphere of the activity was interactive, full of enthusiasm, and colored with discussions about the differences between natural soap and chemical-based soap that they usually use every day.

At the end of the activity, a reflection and question and answer session was held to deepen participants' understanding of the benefits of environmentally friendly soap and the business opportunities that can be developed from this skill. Some of the dish soap made by the participants was then packaged simply as evidence that the product could be used as a valuable alternative. Overall, the implementation of the program went well, marked by active participation of participants, a conducive learning atmosphere, and the achievement of the main objective, namely providing practical skills as well as education about the importance of using environmentally friendly products.

CONCLUSIONS

As an outcome, the Ecofoam program not only produces environmentally friendly dish soap products, but also creates new economic opportunities for the community. The products produced have the potential to be developed as a home business (home industry) which is able to support the family economy and increase people's income on an ongoing basis. Thus, this activity not only has an impact on environmental aspects, but also makes a real contribution to improving the welfare of the Sendangagung Village community.

The socialization and education program for making environmentally friendly dish soap (Ecofoam) in Sendangagung Village has proven real success in empowering the community. Through the active participation of PKK women, this activity has successfully surpassed its objectives by not only providing practical skills, but also fostering a collective awareness of the importance of

environmentally friendly products. The high enthusiasm shown by residents of productive age is an important foundation for the success of the program, which ultimately has a positive impact on the environment and family economy. This training is a long-term investment, equipping the community with the ability to create valuable products that can reduce dependence on dangerous commercial products, while also opening up new business opportunities that have the potential to increase income.

The success of the Ecofoam program is a concrete example of effective synergy between the Social Community Service team and the village community. This activity confirms that simple initiatives can bring about major changes, foster independence, and advance community welfare. It is hoped that the spirit of innovation and collaboration that has been formed in Sendangagung Village can continue, making it a model for other villages in developing local potential in a sustainable manner. In the end, this program not only produces soap, but also instills the seeds of awareness and independence that will continue to grow for the future of a more independent and empowered village.

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