

## **TRANSFORMATION OF WASTE INTO USEFULNESS: TRAINING ON ECOENZYME PRODUCTION FROM HOUSEHOLD ORGANIC WASTE**

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**Abstract** - *One of the community service activities in Cremo Hamlet is to conduct training on making ecoenzyme from household waste. This activity is expected to increase public awareness in managing waste, one of which is by recycling the waste into something rich in benefits such as ecoenzyme. Ecoenzyme can be used as a natural pesticide for plants. Given that the majority of the people of Cremo Hamlet work as farmers, the results of this ecoenzyme training will be very beneficial for them. Ecoenzyme is made from organic waste such as fruit peels and vegetable scraps which if only thrown away without being processed will have a negative impact on the environment. Therefore, this activity can provide new understanding and knowledge for the community to be practiced independently in the future or can also be used as a new source of income for the community.*

**Keywords:** *Eco-Enzyme, Waste Management, Cremo Hamlet*

## **1. INTRODUCTION**

The issue of waste is a serious problem. Waste that is not processed properly will accumulate. In addition, it can cause serious environmental problems, such as soil, water and air pollution. Effective waste management requires a comprehensive approach. It includes reduction, reuse and recycling. By using these principles, communities can reduce the amount of waste generated and improve the efficiency of resource use.

Waste piles in the Special Region of Yogyakarta (DIY) Province currently reach around 5,000 tons. In the end, the Piyungan landfill was closed for a whole month. Because of this, waste accumulation occurs everywhere. There are even irresponsible people who throw their garbage on the side of the road or even throw it on the banks of the river. They dump in these places because there is no land to dispose of garbage. Unlike the case with rural areas, in rural areas the land is still there, but they don't know how to process it. So it can be concluded that the difference between urban people and rural people in processing waste is that if urban people know how to process waste but do not have land, while rural people have land but do not understand how to process it.

Waste management is an obligation for mankind. Waste that is processed will not harm humans but rather bring benefits to humans. Waste management is included in the prevention of environmental damage and pollution. The benefits obtained include reducing environmental pollution, preserving natural resources, improving the quality of life of the community, reducing the amount of waste that must be dumped in landfills and saving energy and money.

Most people still use the old way to get rid of waste, namely by burning, especially rural people. Burning waste can have negative impacts on health and the environment, including air pollution. The smoke from burning waste can release toxic pollutants that can be harmful to human health, both short and long term. Second, respiratory problems. Carbon dioxide and carbon monoxide gas produced from burning can be inhaled into the lungs, causing respiratory infections. Third, chronic diseases. Pollution from waste burning smoke causes various medical problems, such as heart attacks. Fourth, global warming. Burning waste can produce greenhouse gas emissions that cause global warming.

The form of waste management in rural communities can be said to be less environmentally friendly, where waste is only disposed of without sorting and usually

directly burned. Villagers do not understand how to process household waste properly. Habits like this have been going on for a long time. Therefore, providing community education, especially village communities, so that they can process waste properly is needed so that waste can be used as something that has useful value.

The result of this KKN work program is that the community, especially mothers in Cremo Hamlet, can understand waste processing by utilizing household waste. In addition, the people of Cremo Hamlet can make eco-enzyme independently so that it can bring sustenance to the people of Cremo Hamlet. During this activity, the community was given an explanation first related to waste management by making eco-enzyme. Then practice together making pesticides from vegetable waste that has been brought by the community from home.

## **2. METHODS**

At the beginning of the activity, the KKN team coordinated with the person in charge of the dukuh head and the RT father to carry out the service and analyze the problems in the object of service. Furthermore, the KKN team discussed to determine programs related to processing organic waste into eco-enzyme. After the program was ready, the KKN team proposed to community leaders at the place of service to provide a brief explanation of the ecoenzyme program by using lecture, discussion and direct practice methods to the community in Cremo Hamlet, especially regarding the time and place of eco-enzyme practice. The enthusiasm of the women to understand the material provided by the speaker during the question and answer session and eco-enzyme practice made this activity run smoothly.

In its implementation, this activity requires materials in the form of water, molasses / sugar cane drops, and organic waste of fruit and vegetable peels. Molasses was provided by KKN students while organic waste was obtained from residents who had collected their vegetable and fruit waste to be processed back into eco-enzyme. The place of activity was carried out at one of the RT 01 residents' houses, namely in front of Mrs. Yunisa's house. This activity was attended by around 40 mothers which was held on August 2, 2024. The activity starts at 14.00-15.30 WIB. Eco-enzyme participants are only carried out on a representative basis, namely each RT submits at least 5 mothers to take part in this training. However, because the enthusiasm of the mothers was extraordinary,

this should be appreciated. Of the 5 RTs, the most came from RT 01 because it was in the host area where this activity was held.

### **3. RESULTS AND DISCUSSION**

This activity was carried out at the house of Mrs. Yunisa, one of the RT 01 communities, which began with providing material related to waste, then continued with awareness related to waste management and finally direct practice of making eco-enzyme. The eco-enzyme practice was divided into 2 groups. Each group was asked to bring used vegetables or fruits as materials for making eco-enzyme. Then each group cut the used vegetables or fruits into small pieces. Next, they put some ingredients such as molasses/red sugar, leftover vegetables or fruit peels, and water into a container that has been prepared by the KKN team. The ingredients are put in a ratio of 1:3:10 as explained at the beginning when delivering the material. Then stirred evenly and covered using white plastic tied with rope. Furthermore, the white plastic is perforated in small holes so that the air in the container can escape. The results of eco-enzyme require a long time, which is about 3 months for the fermentation process. So the practice of utilizing eco-enzyme for pesticides or as a cleaner directly could not be done at that time. However, if the women want to try it, the KKN team provides the content of the material to be studied further.

The enthusiasm of the women of Cremo Hamlet to do this is very good, based on direct observation, during this activity many women asked about the benefits of eco-enzyme, besides that they also asked how to make it into soap or other cleaning tools. So that many mothers want to try it. This is because the ingredients are quite easy to find and the price is very pocketfriendly.

With this activity, the people of Cremo Hamlet can absorb knowledge well and can be practiced in their respective homes. From this activity, there are several benefits of processing waste into eco-enzyme, namely as follows:

1. Household cleaners, such as for cleaning stoves, dishes, clothes, floors, and hair
2. Plant fertilizer
3. Pest repellent or commonly called pesticide
4. Disinfectant
5. Wound treatment
6. Organic medicine

This activity is expected to be able to provide many more benefits for mothers to be more aware of loving the environment at least by processing waste from household waste. In addition, it provides awareness for mothers to be more sensitive to waste processing. From waste can bring blessings not only as a problem.

The disadvantage of this activity is that the fermentation process of eco-enzyme takes quite a long time, namely for 3 months so that the practice of utilizing eco-enzyme for cleaning tools or pesticides cannot be done at that time. Even though the women really wanted to know the manufacturing process until it was completed. However, the KKN team also provided materials to the women so that they could learn more at home. Even though it was like that, it did not reduce the enthusiasm of the women to carry out this activity until it was completed. The two gallons of eco-enzyme that had been made were then left at Mrs. Yunisa's house to see its development for the next 3 months.



**Figure 1.** Submission of Material



**Figure 2.** Practice of Making Eco-enzyme

#### **4. CONCLUSION**

Based on these results, the existence of the KKN team to the community in Cremo Hamlet through the eco-enzyme program activities that have been carried out at Mrs. Yunisa's house can provide understanding to the community, especially mothers, to be more sensitive to waste management. The implementation of this activity went very well and the enthusiasm of the mothers to ask questions and practice directly should be appreciated. The mothers also hope that this activity can continue until the manufacture of cleaners or pesticides.

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