

Original Research Paper

Socialization of Household Waste Processing into Eco-enzyme Products in Gegutu Reban Hamlet, Dasan Griya Village, West Lombok

Rachmawati Noviana Rahayu¹, Suropto^{2*}, Siti Raudhatul Kamali³, Supardiono⁴, Baiq Fadila Arlina⁵ & Natacha Amalia⁶

¹Faculty of Mathematics and Natural Sciences, University of Mataram, Mataram, Indonesia

²Faculty of Mathematics and Natural Sciences, University of Mataram, Mataram, Indonesia

³Faculty of Mathematics and Natural Sciences, University of Mataram, Mataram, Indonesia

⁴Faculty of Mathematics and Natural Sciences, University of Mataram, Mataram, Indonesia

⁵Department of Environmental Science, University of Mataram, Mataram, Indonesia

DOI: <https://doi.org/10.29303/jpmp.v9i2.15752>

Sitasi: Rahayu, R. N., Suropto., Kamali, S. R., Supardiono., Arlina, B. F., Amalia, N. (2026). Socialization of Household Waste Processing into Eco-enzyme Products in Gegutu Reban Hamlet, Dasan Griya Village, West Lombok. *Jurnal Pengabdian Magister Pendidikan IPA*, 9(2)

Article history

Received: 20 Mei 2026

Revised: 25 Mei 2026

Accepted: 15 Juni 2026

*Corresponding Author:

Suropto, Faculty of
Mathematics and Natural
Sciences/ University of
Mataram, Mataram, Indonesia;
Email: suriptobio@unram.ac.id

Abstract: The problem of household organic waste remains a significant environmental issue in the Lembar region of West Lombok, particularly in Dasan Griya Village, West Lombok. This is characterized by low public awareness of waste management and minimal knowledge and skills in processing organic waste into products with higher economic value. This activity was carried out with the aim of increasing the motivation, knowledge and skills of the community in processing kitchen waste into ecoenzyme liquid soap. Socialization activities were carried out using lecture, discussion, demonstration and practice methods with housewives and teenagers as participants, facilitated by the local government. The results showed that the participants were very enthusiastic, and the knowledge and skills of most participants regarding processing kitchen waste into ecoenzyme liquid soap increased. The activity material absorbed by the participants includes a sustainable community-based waste management system and the fermentation-based kitchen waste processing into ecoenzyme products with high economic value. The participants expressed their readiness to further practice processing kitchen waste into ecoenzyme soap products at home.

Keywords: Ecoenzyme; Liquid soap; Fermentation; Kitchen waste

Introduction

Household organic waste management remains a significant environmental problem in various regions, including Dasan Griya Village, Lingsar District, West Lombok Regency. Population growth is not matched by an adequate waste management system, resulting in most

organic waste being disposed of irregularly or burned, potentially causing environmental pollution and health problems (Ismail *et al.*, 2023; Hasnah *et al.*, 2024; Anwar *et al.*, 2025). Meanwhile, organic waste has great potential as a raw material for products with economic value, but its utilization by the community is still very minimal. (Puspitasari *et al.*, 2022; Wahyuni *et al.*, 2025). This shows the

need for interventions that can empower communities while addressing environmental problems through an applicable and sustainable approach (Louise *et al.*, 2025).

Dasan Griya Village, Lingsar District, West Lombok has considerable human resource potential, especially the group of housewives who are active in domestic and social activities. It is known that every household produces organic waste in the form of food scraps, fruit peels and other kitchen waste every day, however most of them still experience limitations in the knowledge and skills to process it, thus hindering the productive use of this waste (Rejeki *et al.*, 2025; Silviyanti *et al.*, 2025).

From an economic perspective, most people still depend on the informal sector with unstable incomes, so that opportunities for environmentally based businesses and environmentally friendly entrepreneurship have not yet developed in the region (Puspitasari *et al.*, 2022; Nasrulloh *et al.*, 2025). This condition can be a challenge as well as an opportunity to increase community capacity through the application of the eco-entrepreneurship concept by utilizing organic waste as raw material for products with economic value, one of which is ecoenzyme liquid soap (Ismail *et al.*, 2023; Putri *et al.*, 2023).

This community service activity aimed to empower the community of Dasan Griya Village, Lingsar District, West Lombok, by processing household organic waste into economically valuable ecoenzyme liquid soap products. This program is expected to increase the community's knowledge, skills, and independence in managing waste, especially household waste, productively and sustainably, while simultaneously fostering an entrepreneurial spirit based on local potential. The activity is implemented in a participatory manner, involving the community as the main actors, so that the lecturers' work can be utilized directly and sustainably (Louise *et al.*, 2025; Silviyanti *et al.*, 2025).

In addition to its tangible impact on the community, this activity is closely linked to the Merdeka Belajar Kampus Merdeka (MBKM) policy, as it involves students in mentoring and applying their knowledge in the field, gaining community-based learning experiences, and developing soft skills. This activity also supports the achievement of the university's Key

Performance Indicators (KPI), particularly in terms of lecturer and student involvement in community service and the utilization of lecturers' work by the community (Puspitasari *et al.*, 2022; Nasrulloh *et al.*, 2025). In relation to this, this activity focused on community empowerment based on local potential and an environmentally friendly creative economy. Thus, it is hoped that this community service activity will provide real, measurable and sustainable benefits, in line with the principles of community service and sustainable development goals (Wahyuni *et al.*, 2025; Putri *et al.*, 2023).

Method

Location of Community Service Activities

This community service activity was carried out in Gegutu Reban Hamlet, Dasan Griya Village, Lingsar District, West Lombok Regency, approximately 10 km northeast of the Mataram University campus (Figure 1).

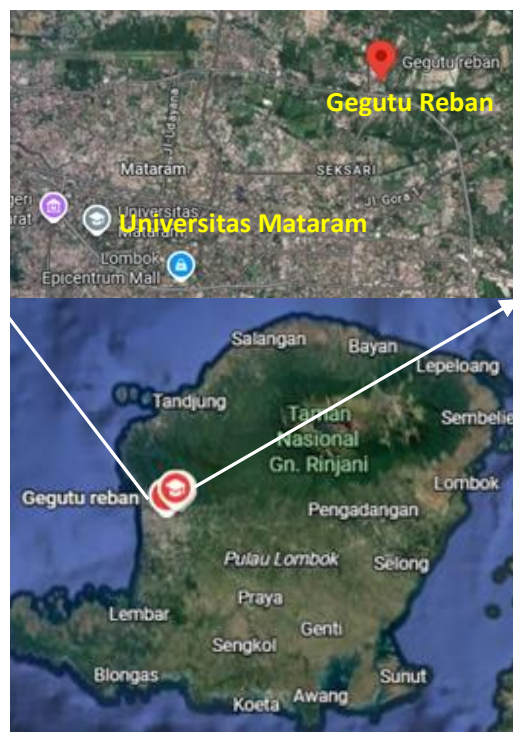


Figure 1. The location of Gegutu Reban Hamlet is approximately 10 km northeast of the Mataram University campus.

Activity Procedures

This community service activity was carried out in July – August 2025, which consisted

of preparation stages including preliminary surveys, determining target audiences and methods, implementation stages, and evaluation stages (Figure 2).

The preparation stages include a preliminary survey to determine the location, target audience (participants), and implementation method. In the preparation stage, tools and materials were also collected, including previously made ecoenzyme products.

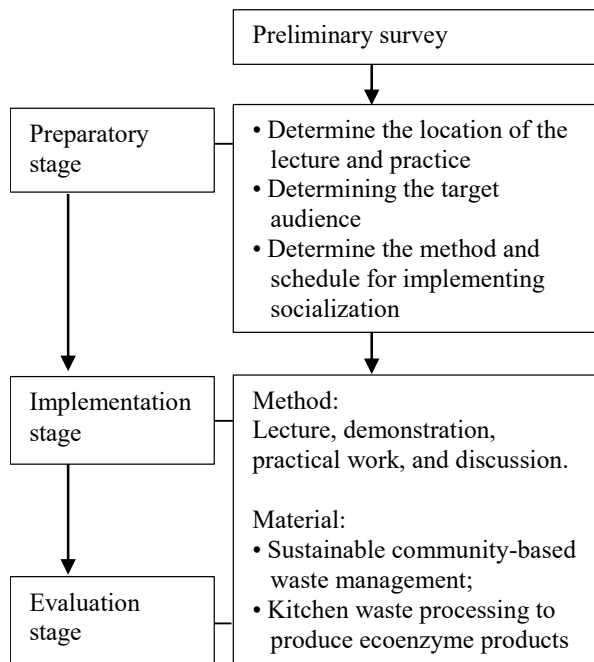


Figure 2. Flowchart of socialization of waste processing into ecoenzyme soap in Gegutu Reban Hamlet

The community service activities were carried out by a team consisting of lecturers and students from the Environmental Science Study Program, Faculty of Mathematics and Natural Sciences, University of Mataram using a combination of lecture, demonstration, discussion and practice methods, which were attended by housewives and young women as participants, especially from Gegutu Reban Hamlet, Dasan Griya Village, West Lombok. The learning materials provided include 1) Household waste problems; 2) Integrated waste management systems; 3) Community-based waste management; 4) Sustainable waste management that can increase community economic independence; and 5) Processing organic waste to produce eco-enzyme products (Suprpto & Arda, 2021; Ernawati et al.,

2024; Putra et al., 2024; Soamole & Hirto, 2024). The final stage was the evaluation of the activities carried out to monitor the stimulus of community service activities for participants.

Results and Discussion

The socialization activities involved various elements of society in Gegutu Reban consisting of housewives, the SABRO (Sapu Bersih Dedoro) youth group and community leaders of Dasan Griya Village, totaling 30 people. The results of monitoring during the activity showed that the majority of participants were very enthusiastic about participating in the activity, starting from face-to-face sessions, demonstrations, practice to focus group discussion sessions (Figure 3).



Figure 3. Implementation of socialization of waste processing into ecoenzyme soap in Gegutu Reban Hamlet, Dasan Griya Village, West Lombok

Before participating in this activity, the participants did not know enough and did not have experience in processing waste from organic materials into ecoenzyme products. After participating in this activity, participants gained knowledge and practical experience in processing household waste, particularly kitchen waste, into ecoenzyme products with higher economic value, such as ecoenzyme liquid soap. In general, the learning materials provided include:

- a. Community-based waste management;
- b. Sustainable waste management that can increase community economic independence;
- c. Processing organic waste to produce eco-enzyme products
- d. Benefits of eco-enzymes

The learning achievement of most participants regarding the learning material provided was sufficient to high (Table 1).

Table 1. Number of participants (in % of 30 participants) by achievement category.

Rated aspect	Mastery category		
	Poor	Enough	High
Affective	0,00	16,67	83,33
Knowledge	3,33	20,00	76,67
Skills	6,67	33,33	60,00

Ecoenzyme liquid is rich in benefits, including cleaning stoves, dishes, clothes, floors, hair, and the body, as a hand sanitizer, detoxifying the body, as an air purifier, as a wound and boil medicine, as an anti-radiation agent, as a pool cleaner, as a pet cleaner, as well as as an organic fertilizer and pesticide. Ecoenzyme dregs can be used as a car freshener by drying them first and placing them in a small cloth bag. The dregs can also be converted into solid organic fertilizer (Ernawati *et al.*, 2024; Darunnafis *et al.*, 2025).

Processing household organic waste, especially kitchen waste into fermentative products, namely ecoenzyme liquid soap, can be done easily (feasible) by housewives and young women. Ecoenzymes can be made from 1) brown sugar/molasses, 2) organic kitchen waste, and 3) pure water from a source or rainwater in a ratio of 1:3:10, then stored in anaerobic or airtight conditions or tightly closed for 3 months (Figure 4).



Figure 4. Workflow for processing kitchen waste into ecoenzyme liquid soap

At harvest, the product is filtered and then packaged in clean containers or bottles. This ecoenzyme liquid soap can be used to meet daily household soap needs or can be bottled for sale (Darunnafis *et al.*, 2025). An example of ecoenzyme liquid soap packaged in bottles can be seen in Figure 5.



Figure 4. Example of ecoenzyme liquid soap packaging made from kitchen waste
Source: Ernawati *et al.* (2024)

Does ecoenzyme have any harmful effects on health? As long as the recommended dosage is followed, ecoenzyme is relatively safe for human health, animals, and the environment. Ecoenzyme contains a probiotic solution that helps support health and the environment.

Conclusion

After this community service activity, participants' awareness, knowledge, and motivation to process kitchen waste into ecoenzyme liquid soap increased.

Most participants achieved moderate to high levels of achievement in processing kitchen waste into ecoenzyme liquid soap.

Recommendation

The socialization activity on processing household waste into ecoenzyme products, which have high economic value, in Gegutu Reban Hamlet needs to be followed up with similar community service activities, but with learning materials geared towards strengthening the community's capacity to build cooperative systems and product marketing, facilitated by the local government.

Acknowledgments

This community service activity had been approved by the Head of LPPM and supported by the Dean of the Faculty of Mathematics and Natural Sciences, University of Mataram with a community service activity implementation contract letter Number: 2703/UN18.L1/PP/2025. Gratitude was also expressed to the Head of Gegutu Reban Hamlet and the Head of Dasan Village, Lingsar District, West Lombok Regency, who were willing to be partners and facilitate the implementation of this community service activity.

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