

## EMPOWERING THE CEPKOJAJAR HAMLET COMMUNITY THROUGH HOUSEHOLD COMPOST-BASED ORGANIC WASTE PROCESSING

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### Abstract

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Community Empowerment,  
Organic Waste Management,  
Household Composting,  
Community Participation,  
Sustainable Environment

Household organic waste remains one of the environmental challenges faced by rural communities. Limited public awareness regarding waste sorting and proper waste management often leads to the accumulation of organic waste that can cause environmental pollution. This study aims to increase community awareness and knowledge regarding organic waste management through household-based composting activities. The program was implemented as part of the Community Service Program (Kuliah Kerja Nyata/KKN) in Cepokojajar Hamlet, Sitimulyo Village, Piyungan District, Bantul Regency, Special Region of Yogyakarta. The methods used in this activity included observation, counseling and socialization activities, question-and-answer sessions, and direct practice of compost production using household organic waste. The materials used consist of kitchen waste such as fruit peels and vegetable residues, garden waste, animal manure, soil as a microbial starter, and additional bioactivators such as EM4 and rice washing water. The results of the program showed that community members began to understand the importance of waste sorting and were able to process organic waste into compost that can be used for household vegetable cultivation. Furthermore, the compost produced was used for planting vegetables such as spinach, water spinach, and mustard greens in home gardens. This program contributed to improving community awareness in maintaining environmental cleanliness and encouraged sustainable household waste management practices.

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## INTRODUCTION

Waste is an environmental issue that is gaining increasing attention in various regions, both in cities and villages. The increasing population and high levels of daily activity have resulted in a daily increase in waste volume. One of the most common types of waste is organic waste, which comes from food scraps, vegetables, fruits, and plant residues. If not managed properly, organic waste can cause various environmental problems, such as unpleasant odors, the growth of disease-causing microorganisms, and soil and water pollution. Organic waste has the potential to be reused through proper processing. One method is to process organic waste into compost. Composting is the process of decomposing organic matter by microorganisms, producing organic fertilizer that is beneficial for plants. In addition to reducing waste volume, the use of compost can also improve soil fertility and support environmentally friendly agricultural practices.

Compost is organic materials (organic waste) that have undergone a decomposition process due to the interaction between microorganisms (decomposing bacteria) working within it. These organic materials include leaves, grass, straw, twigs and branches, animal waste, flower droppings, urine, and others (Murbando, 2000). (Suhastyo et al., 2017).

In reality, many people still lack the knowledge and skills to manage their own organic waste. This situation is also evident in Cepokojajar Hamlet, Sitimulyo Village, Piyungan District, Bantul Regency, Yogyakarta Special Region. Based on initial observations conducted by Community Service Program (KKN) students, in response to the high volume of waste, the local government launched the Bantul Clean Waste 2025 Movement (Bantul Bersama), which focuses on reducing waste at its source, namely households.

Efforts to increase community capacity through outreach and guidance activities on organic waste management at the household level. Capacity building is one way to raise awareness, understanding, and involvement in addressing environmental issues in their area. Through outreach activities, outreach, and hands-on composting practices, it is hoped that residents will understand how to manage organic waste easily and effectively.

This organic waste has the potential to be very useful for reforestation if processed into compost. The lack of public knowledge about the use of compost, especially for reforestation in yards, can be addressed through training and mentoring. (Di et al., 2020)

This activity was carried out as part of the Community Service Program (KKN) at Cokroaminoto University in Yogyakarta, which focused on improving residents' capacity in processing organic waste into household compost. The resulting compost was also used to grow vegetables in their yards, such as spinach, kale, and mustard greens. This plan is expected to provide multiple benefits for residents, reducing the volume of organic waste while encouraging the use of yards for household farming.

The goal of this activity is to increase residents' insight and understanding regarding organic waste management and to encourage the use of organic waste as compost which is useful for the environment and household agricultural activities.

## REVIEW LIBRARY

According to (Hidayat & Kusdinar, 2025), the composter is used as the primary means of processing collected organic waste. Community service officers, along with community representatives, operate the composter using a simple method to accelerate the decomposition of organic waste into compost. The composting process needs to be carried out together with residents to be taught how to stack organic waste layer by layer and monitor the

humidity/temperature of the composter. The stable organic compost can then be harvested and used by residents as plant fertilizer, making organic waste recirculate as a resource. The entire composting process is guided so that residents master processing techniques and obtain quality compost.

Based on its characteristics, waste is divided into organic waste, which easily decomposes naturally, and inorganic waste, which is difficult to decompose. Adequate waste management relies not only on technical methods and supporting infrastructure but also requires community participation at every level of management, particularly within the family environment (Rizkiana et al., 2025).

Community service activities related to waste management usually aim to support the achievement of a waste-free environment and increase the ability of human resources to process natural waste into compost (Adiansyah et al., 2024).

Compost is a fertilizer made from natural waste, mostly from households. Compost is natural materials that can decompose, such as leaves, kitchen scraps, straw, grass, and other debris, all of which are beneficial for soil fertility (Suryati, 2014), (Mallapiang & Haerana, 2021).

The results of this activity are in accordance with the study (Handoko et al., 2025), which states that handling natural waste using compost can increase public awareness regarding environmental management.

The community service activities focused on learning about waste separation and waste management, based on strengthening community capacity. Processing waste into compost is expected to generate valuable items, thereby increasing the income of local residents (Purnami et al., 2023).

Anaerobic composting occurs when natural materials break down without oxygen, producing products such as methane, carbon dioxide, and natural acids. Aerobic composting occurs when natural materials break down in the presence of oxygen, producing primary products such as carbon dioxide, water, and heat. (Azmin et al., 2022), (Luh et al., 2026).

Community empowerment based on the 3R principle (Reduce, Reuse, Recycle) is an effort to increase the capacity and awareness of residents to manage waste independently from the source. This involves education, active participation, and organization (such as Waste Banks) to reduce waste generation (Reduce), reuse (Reuse), and recycle (Recycle) waste into items of economic value.

SIPSN data as of January 2026 shows the critical state of waste management in Indonesia. The report highlights that the proportion of unmanaged waste reaches 65%, with waste generation from 250 regencies/cities reaching 25.24 million tons per year. Technical infrastructure such as waste banks and composting facilities still cannot fully offset the high waste production.

## METHOD STUDY

This activity was carried out on January 26-March 11, 2026 in Cepokojajar Hamlet, Sitimulyo Village, Piyungan District, Bantul Regency. The procedures applied in the implementation of this activity included observation, counseling and socialization, questions and answers, and documentation. The observation procedure was carried out in the initial phase of the activity by directly observing the environmental conditions and community patterns in managing household waste. In addition, scheduling and initial interviews were carried out with the local Hamlet to obtain information about the situation in the area and the problems faced by residents regarding waste management.

The next phase involved conducting outreach and education for residents of neighborhood units (RT) 01, 02, and 04 regarding the urgency of separating organic and inorganic waste and using organic waste as compost. The goal of this activity was to increase residents' understanding and awareness of environmentally sustainable waste management. A question-and-answer session served as a communication channel between students and residents, enabling them to ask questions and discuss waste management in their area.

In addition to outreach activities, residents also received hands-on training in assembling compost from household organic waste. Materials used to make compost include kitchen scraps such as fruit peels, vegetables, coffee grounds, leftover rice, and tea leaves; garden waste such as dry leaves, grass, and small twigs; animal manure as a nitrogen source; soil or old compost as a microbial starter; and sufficient water to maintain moisture. Additionally, supporting materials such as Effective Microorganisms 4 (EM4) liquid, brown sugar, or rice washing water as a bioactivator are used to accelerate the decomposition process. Tools used in the composting stage include a compost container in the form of a plastic barrel or large bucket, a hoe or shovel for mixing the material, a knife or scissors for cutting the organic material, gloves, and a watering can. The composting process involves several stages: collecting the organic material, cutting the material into smaller dimensions, combining the compost material, wetting it with sufficient water, and storing it in the compost container until the decomposition process occurs.

All the sequence of events was recorded through photo shots of activities and writings in the field as evidence of the implementation of the plan as well as assessment material for community development activities regarding organic waste management based on home compost in Cempoko Jajar Hamlet.

## RESULTS AND DISCUSSION

The results and discussion are as follows:

### 1. Waste Sorting and Incineration

Waste sorting is the first step in community-based waste management. This program involved educating residents of Cepokojajar Hamlet about the benefits of sorting waste into organic and inorganic categories. Organic waste, such as leftover food, leaves, and kitchen scraps, can be used for composting, while inorganic waste, such as plastic and other packaging, is separated to reduce waste mixing.

In addition to waste sorting, residents were also educated about waste management, a common practice in hamlets, including burning. This activity aims to reduce the accumulation of household waste in the surrounding area. However, the education also explained that waste burning should ideally be done in limited quantities and should not involve specific types of waste that can cause air pollution. Therefore, residents were encouraged to use more organic waste as compost to reduce the volume of waste burned.



**Figure 1. Waste Sorting and Incineration**

### 2. Practice of Making Compost from Organic Waste

The practice of making compost from natural waste is a key component of the Community Service Program (KKN) in Cepokojajar Hamlet. This program aims to instill in residents an understanding and skills in processing household waste into compost, which is beneficial for the environment and home gardening.

This composting process uses natural waste from the kitchen and the surrounding environment, such as vegetable scraps, fruit peels, dried leaves, and grass. Additional materials used in the composting process include soil, animal manure, and bioactivators such as EM4 or rice washing liquid, which accelerate the breakdown of natural substances.

Composting involves mixing all the natural ingredients in a composting container or container, then stirring thoroughly to ensure smooth decomposition. Afterward, the compost is left to sit for several weeks, stirring occasionally to maintain moisture and speed up the decomposition process.

Through this hands-on activity, residents learned firsthand the steps involved in preparing compost from natural waste. Besides helping reduce household waste volume, compost can also be used as a natural fertilizer for gardening activities around the home, such as growing vegetables in the yard. This activity not only reduces waste but also provides financial and environmental benefits for the residents of Pedukuhan Cepokojajar.



**Figure 2. Practice of Making Compost from Organic Waste**

### 3. Utilization of compost for growing household vegetables

Using compost for home vegetable growing is a follow-up to the composting process already underway. The compost obtained from processing organic waste is used as a natural fertilizer to support farming activities in the residential area of Cepoko Jajar Hamlet.

In this activity, residents are encouraged to use compost as a medium to grow a variety of easily grown vegetables in their yards, such as spinach, kale, and mustard greens. Using compost as a natural fertilizer has several benefits, including enriching the soil, improving soil conditions, and reducing dependence on chemical fertilizers.

The planting process involves mixing compost with soil as a growing medium, then placing the vegetable seeds in the yard soil or using simple containers like polybags. This activity is carried out collaboratively by KKN students and local residents so that the community can understand firsthand how to utilize the compost they have created.

The results of this activity demonstrate that the compost obtained from processing organic waste can be effectively used as fertilizer for vegetable plants. In addition to helping reduce the amount of organic waste in the environment, this activity also provides additional benefits for residents in meeting their own household vegetable needs and raising awareness of the importance of sustainable environmental management.



**Figure 3. Utilization of compost for growing household vegetables**

## CONCLUSION

Community empowerment through a household compost-based organic waste processing program in Cepokojajar Hamlet, Sitimulyo Village, Piyungan District, Bantul Regency, Yogyakarta Special Region, has had a positive impact in increasing community knowledge and awareness of the importance of sustainable household waste management. The series of activities carried out included waste separation, counseling and learning about waste processing for residents of RT 01–05, experiments on making compost from organic waste, and the use of compost to grow household vegetables.

Activity studies show that the community is beginning to understand the importance of separating organic and inorganic waste and is able to process organic waste into environmentally beneficial compost. In addition to helping reduce household waste, compost can also be used as a natural fertilizer to support gardening activities, such as spinach, kale, and mustard greens. Thus, this program not only helps reduce waste in the hamlet but also encourages community behavior that is more concerned about environmental cleanliness and the sustainable use of local resources.

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