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Community Socialization and Training for Waste Management and Productive Household Composting

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Abstract
Community service is one of the core pillars of the "Tri Dharma Perguruan Tinggi" and embodies the social responsibility of higher education institutions. It enhances the relevance of higher education to community needs, empowering the community, and contributes to the attainment of the Sustainable Development Goals (SDGs). This community service concerns on waste management, which is one approach to achieving a greener future. Tonjong village is one of the villages in Tajur Halang District, Bogor, which faces significant challenges in managing the large volume of household waste, much of which remains unprocessed. To address this issue, the Business Administration Program, Faculty of Law, Social and Political Sciences (FHISIP), Universitas Terbuka, launched a community service program aimed at improving household waste management through socialization of waste management and composting training in Tonjong village. The community service has fifteen participants, including four heads of community unit (RT) from the area, head of community association (RW), representative from Karang Taruna, members of Kelompok Tani, and administrators from Bank Sampah. At the initial stage, an assessment to identify the prevailing issues within

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the village was conducted. Then, workshop activities related to waste management were carried out and training in composting practices was held. The composting method used is the modification of heap method. The result of the program shows increased ecological literacy and increased awareness among participants in managing waste and processing organic waste into compost. It is reflected by the participants' active involvement and positive response throughout the workshop sessions conducted. Additionally, compost from household waste can be used to improve soil fertility, thereby reducing dependency on chemical fertilizers. It will be promoting environmental sustainability and enhancing the economic resilience of the community.

Keywords: *composting, waste management, sustainable development goals*

Introduction

According to data from the SIPSN of the Ministry of Environment and Forestry (KLHK) in 2023, Indonesia produces approximately 19 million tons of waste annually. Rural and peri-urban regions contribute significantly to the nation's overall waste generation about 40% of waste (Darustation, 2025).

In rural areas, the composition of waste is dominated by organic materials, ranging from food scraps and leaves to wood, which account for 60-70% of the total waste. Meanwhile, around 20-25 percent of rural waste consists of plastics and packaging materials. Despite the abundance of organic waste, much of it remains unmanaged and often ends up being burned or dumped, leading to environmental and health problems (Darustation, 2025).

According to the Ministry of Environment and Forestry, as cited by (Annur, 2023), West Java was ranked third in waste production among Indonesian provinces, with a total of 4.89 million tons. Tajur Halang District is one of the districts in West Java, with an area of 27.76 km2 (BPS Kabupaten Bogor, 2024). According to the Bogor Regency Central Statistics Agency, Tajur Halang District generated 63 tons of waste per day in 2023, yet only 21 tons could be transported to the landfill. Tonjong Village, located in Tajur Halang District, faces significant challenges in managing the large volume of household waste, much of which remains unprocessed (Badan Pusat Statistik Kabupaten Bogor, 2025).

Bogor Regency has a complicated waste management problem. According to the Acting Regent of Bogor, Asmawa Tosepu, the current daily waste pile in Bogor Regency is 2,700 tons. Of the 2,700 tons, only 1,200 tons can be managed conventionally. The remaining 1,500 tons of waste have not been appropriately handled (Rama, 2024).

This situation presents both a challenge and an opportunity. With proper management, primarily through composting, organic waste can be transformed into valuable resources such as compost fertilizer (Siahaan et al., 2024). By adopting composting practices, communities can reduce the volume of waste sent to landfills, enhance soil quality, and contribute to a cleaner, healthier environment (Ayilara et al., 2020). Compost is organic matter including animal manure, kitchen vegetable and fruit residues, as well as other biodegradable materials that has broken down through the decomposition process, leading to an alteration in its physical structure.

To address this issue, the Business Administration Study Program, Faculty of Law, Social and Political Sciences (FHISIP), Universitas Terbuka, launched a community service program

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aimed at improving household waste management through composting training. As stated by Noviana & Sukwika (2020), the lack of information and knowledge of residents about the use of compost can be answered by using a training activity approach.

This community service promotes better environmental practices and optimizes household waste into a beneficial product through composting. The community service activities include socialization and training to empower participants with practical skills in managing household organic waste through simple, effective composting methods. The community service activities target the community unit (RT), community association (RW), administrators of "Bank Sampah" and Kelompok Tani "Maju Bersama" members in the Tajur Halang district. Additionally, the community service activities also improve ecological literacy among community members. It is crucial to enhance ecological literacy because environmental sustainability is highly dependent on human behavior (Ismawati & Rahayu, 2024). Furthermore, this initiative will contribute to achieving the Sustainable Development Goals (SDGs), particularly SDGs 11 and 12, which focus on sustainable cities and communities, as well as responsible consumption and production.

Method

The method includes preparation, socialization, and training. The participants are the community unit (RT), community association (RW), administrators of "Bank Sampah" and Kelompok Tani "Maju Bersama" members in the Tajur Halang district which consists of approximately fifteen participants.

The entire process, starting from preparation to the socialization of waste management and composting training, took place from March to July 2025. In March 2025, the team conducted internal coordination with the community services team as well as identified appropriate locations and partners. Subsequently, in April 2025, the team made a detailed schedule and prepared teaching materials. In May 2025, the team conducted gathering with neighborhood unit and association related to their current waste management practice. In this occasion, the team carried out a dialogue session to observe the issues faced by the local community in the designated area. In July 2025, the team undertook socialization of waste management focused on sorting household waste into organic and non-organic categories. Specifically, non-organic waste will be recycled using upcycling techniques. Organic waste will be made into compost. Then, the team from the Business Administration Program conducted composting training for the community. Below are the steps carried out in the community program, Community Socialization and Training for Productive Household Composting:

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Figure 1. Practical Steps in Community Service

Results and Discussion

The socialisation of waste management informs the concept of household waste, which results from household activities, such as fruit and vegetable scraps, dry leaves, coffee grounds, and eggshells (Ode Rustam et al., 2023). It also stresses the importance of separating organic waste from inorganic materials and avoiding items such as oily food residues, bones, and animal products to ensure the success of the composting process. In this phase, participants are given awareness to separate household waste that can be composted.

The next step is the introduction of the composting concept. Compost is a natural fertilizer made from organic materials, including dry leaves and household waste (Suhastyo, 2017). Compost is beneficial for improving soil structure, fertilizing plants, and reducing waste within an area. By introducing the concept of composting, participants are given the theory and basic knowledge about composting.

The composting method introduced by this community service was a modification of the heap method. According to Simanungkalit as cited in (Suhastyo, 2017), heap-method composting is done on the surface of the soil. The compost pile measures 2 meters by 2 meters and is 1.5 meters high. The pile is started with a 15 cm layer of carbon-rich materials (such as leaves, straw, sawdust, or corn stalks), followed by a 10–15 cm layer of nitrogen-rich materials (like plant residues, fresh grass, manure, or kitchen waste). Then, the layer is continued until the pile reaches a height of 1.5 meters. It is essential to ensure that the pile is moistened by adding sufficient water. Next, the compost is turned after 6 weeks and again after 12 weeks to speed up the decomposition process. Those are the heap-method composting. However, in this community service, modifications are made to accommodate the participants, who are primarily women and prefer a more straightforward method and not lengthy composting processes. Therefore, the composting training method employs simple steps and basic tools to ease the process, capture interest, and build awareness, skills, and knowledge among participants.

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Figure 2. Socialization of Waste Management and Compost

Furthermore, the compositing training is carried out. The team prepares the basic tools needed, which are burnt rice husk, soil, a bucket, and water. The process is then initiated by filling one-third of the bucket with a mixture of water and burnt rice husk. Next, the bran is mixed with water and stirred until it is evenly distributed. Afterwards, the bucket is covered to prevent water from entering for seven days. Afterwards, the household waste is added gradually. When it is full, wait for fourteen days until the compost is ready.

Figure 3.Demonstration and Training of Composting

Afterwards, hands-on demonstrations formed the core of the training, with participants guided step-by-step in the compost-making process. Each participant learned to chop and mix organic

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materials, maintain the ideal moisture level, and use a composter effectively. Additionally, participants were taught how to recognize and address common problems, such as unpleasant odours, by adding more dry materials or rice husk.

Figure 4. Interactive Q&A and Community Reflection

Throughout the sessions, active participation was encouraged, with participants engaging in both discussions and practical exercises. The training fostered a supportive learning environment where community members could ask questions and share experiences. This engagement not only enhanced their technical understanding but also built confidence in applying composting techniques at home.

As a result of the training, participants gained practical knowledge and skills to convert household organic waste into valuable compost. The compost produced can be used to enrich home gardens or sold to generate additional income for the community. The training thus contributed to environmental cleanliness, promoted sustainable waste management, and supported the productive economic capacity of the village community. Previous research and community service activities have demonstrated that waste processing through recycling can empower and enhance skills within individuals (Ismawati & Rahayu, 2024).

The success of the program underscores the value of training and socialization in empowering communities to adopt sustainable practices. By equipping participants with both the knowledge and tools for composting, the initiative aligns with broader national policies on village economic development and environmental stewardship. In general, participants gave positive and enthusiastic responses to the implementation of community services. They hoped that other similar activities would be conducted to enhance knowledge and skills, particularly in commercializing the result of composting. This result is identical to the community service carried out by (Rizki Putra et al., 2021) who stated that the composting training received a positive response from the participants as they gained knowledge and skills in making compost.

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Conclusion and Recommendation

The community service program, which focuses on socialization and training in waste management, is beneficial in raising awareness about waste management and composting method. Through the program, participants were informed about the method and impact of composting and managing waste. Additionally, the tools and materials instructed in the training were straightforward and easily accessible, making it practical and easy for participants to implement at home. However, the success of this initiative depends on an ongoing commitment, not only in terms of willingness and technical ability, but also in maintaining sound management practices among community partners. Ultimately, this community service is expected to inspire and motivate residents and participants to adopt clean and sustainable waste management practices within their neighborhoods, thereby fostering a culture of clean production and environmental responsibility at the local level, and contributing to SDGs 11 and 12.

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