THE OVERLAY BRICK METHOD: AN ATTEMPT TO REDUCE THE ORGANIC WASTE FROM HOME

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Abstrak
Pengelolaan limbah organik rumah tangga sering menjadi tantangan utama di masyarakat, terutama di daerah urban. Ketidakoptimalan pengelolaan limbah dapat menyebabkan masalah lingkungan seperti pencemaran tanah dan air yang dapat mengancam Kesehatan masyarakat. Program pengabdian kepada masyarakat ini bertujuan untuk memperkenalkan dan menerapkan metode kompos bata terawang sebagai solusi inovatif dan berkelanjutan dalam pengelolaan limbah organik. Metode ini dipilih karena sederhana, efisien, serta dapat diadaptasi oleh masyarakat dengan keterbatasan ruang dan sumber daya. Pelaksanaan program meliputi sosialisasi, pelatihan, dan pendampingan kepada masyarakat di Perum Panorama Bumi Pasalakan 1, Kabupaten Cirebon. Hasil program menunjukkan peningkatan signifikan dalam pengetahuan masyarakat mengenai pentingnya pengelolaan limbah organik dan penerapan metode bata terawang. Namun, pada tahap ini, perubahan masih terbatas pada pemahaman, dan belum menciptakan kebiasaan baru dalam pengelolaan limbah. Kesimpulannya, program ini berhasil meningkatkan kesadaran masyarakat dan memiliki potensi untuk mendorong praktik berkelanjutan di masa depan dengan pendampingan lanjutan.
Kata kunci: Pengomposan, Bata Terawang, Pengabdian Masyarakat, Peningkatan Pengetahuan, Manajemen Limbah Organik, Keberlanjutan Lingkungan

Abstract
The household organic waste management often becomes a major challenge in society, especially in urban areas. The insufficient waste management system can cause environmental problems such as soil and water pollution that can threaten public health. This community service program aims to introduce and implement the overlay brick composting method as an innovative and sustainable solution in organic waste management. This method was chosen because it is simple, efficient, and can be adapted by communities with limited space and resources. The implementation of the program includes socialization, training, and assistance to the community in Perum Panorama Bumi Pasalakan 1, Cirebon Subdistrict. The results of the program showed a significant increase in community knowledge regarding the importance of organic waste management and the application of the overlay brick method. However, at this stage, changes are still limited to understanding, and have not created new habits in waste management. In conclusion, this program has succeeded in increasing public awareness and has the potential to encourage sustainable practices in the future with further assistance.
Keywords: Composting, Overlay Bricks, Community Service, Knowledge Enhancement, Organic Waste Management, Environmental Sustainability

INTRODUCTION

Up to now, most places in Indonesia are still facing the severe waste problem. Indonesia faces significant challenges in waste management, primarily due to rapid urbanization and population growth. Major urban centers in Indonesia produce up to 8 million tonnes of waste per day that led to escalating environmental problems, including greenhouse gas emissions. Many landfills in Indonesia operate as open dumps, where waste is piled high without proper control, leading to groundwater pollution and methane gas release (Paulo, 2022). Thousands of scavengers, often children, work in hazardous conditions to collect recyclable materials from waste. Indonesia is one of the world's largest plastic polluters, with significant amounts of plastic waste ending up in rivers and oceans (Nexus3Foundation, 2022). There have been tragic incidents, such as the 2005 Leuwigajah Waste Processing Center explosion in West Java, which resulted in significant loss of life and environmental damage (Saraswati, 2022). Efforts are being made to address these issues, including community-driven waste management initiatives and policies.

The community-driven waste management program was conducted rapidly this past five years; including the one that initiated by scholars. Those programs initiated the small movement of waste

management from home as in (Wartama & Nandari, 2020) that offered waste bank program, (Mappau & Islam, 2022; Ningsih & Siswati, 2021) that offered composting method for organic waste, (Kholili, 2023) that integrated technological system to manage the waste, (Durahman et al., 2024) that offered eco enzyme production to handle the organic waste from home, etc. Those offered programs are successfully applied in certain places around Indonesia and some of them supported by the policy makers for the sustainability of the programs.

This program was the community-driven waste management activiy that carried out to solve the organic waste problem in one area of Cirebon Subdistrict. It was the following up organic waste management activity held in the same location. The previous one was about making *eco enzyme* from each household organic waste of the targeted community. The *eco enzyme* program was not successfully reduce the waste in the targeted location due to two factors. The first, *eco enzyme* is made of fresh unprocessed organic waste that leaves the homemade leftover foods. The second, the targeted community does not make it as a good habit to reduce organic waste. Thus, this program, once again, is intended to introduce the new method in handling the household organic waste.

Unlike the previous program, the recent activity focuses on initiating community movement in reducing the organic waste. It introduced the new knowledge of making compos in bigger scale namely overlay brick composting method. It is the composting method by using the ovelay brick technique where the brick is arranged at a certain distance that leaves 3 cm holes. The holes are needed to ensure optimal air circulation in fermentation process of the green and brown organic materials. This method emphasizes the importance of balance between green (nitrogen-rich) and brown (carbon-rich) materials to produce good 1quality and odor-free compost. The method is appropriate to be implemented in community scale to educate the targeted community and promote a good habit in handling organic waste from home. Thus, this program aims to educate the targeted community and building their awarness in handling their organic waste from home.

METHOD

The implementation of the program was carried out in seven activities; covering spreading knowledge and providing examples of direct practice to the target community. The detail description of each step is as follow:

1. **Introductory Workshop and Training Session** to introduce the overlay brick method to the targeted community and highlight the importance of organic waste reduction.
2. **Material Preparation and Site Setup** to equip the tools and knowledge needed.
3. **Building the Overlay Brick Compost Structure** to facilitate effective organic waste decomposition.
4. **Daily Organic Waste Collection and Management** to encourage households to segregate and manage organic waste effectively.
5. **Compost Maintenance Workshop** to educate participants on how to maintain and monitor the compost pile for optimal decomposition. Here, the targeted community learns how to turn the compost pile every 1-2 weeks to introduce oxygen and promote decomposition.
6. **Harvesting and Using the Compost** to guide participants in recognizing mature compost and using it to benefit their gardens.
7. **Following Up Session and Feedback Collection** to monitor the program's effectiveness and gather insights for improvement.

These activities are giving guidece to the targeted community through each stage of the overlay brick composting method and also emphasize hands-on learning, collaboration among community, and sustainability.

RESULT AND DISCUSSION

The Description of The Program Implementation

The program was carried out in *Perum Panorama Bumi Pasalakan 1*, an urban area with unwell-organized waste management system. The program was held for 6 months from April to September 2024 that began with workshop and training through group discussion. The targeted audience was 30 heads of family. During the program, the targeted community was given the direction of the important of reducing organic waste from home and turning the waste into valuable product that can support their habit in using small space to grow their foods. The workshop and training were held in stages

including delivery the theory and direct practice. The main focus of this activity was to introduce the composting method with overlay bricks method, which is innovative, simple and environmentally friendly. It was also conducted to provide the targeted community with sufficient knowledge from various sources to motivate them to act based on their social function (Herdiana, 2018).

The Implementation of the Overlay Brick Method

The overlay brick method uses perforated bricks as the main component to provide optimal aeration during the composting process. The tools and materials used include overlay bricks, household organic waste, and composting microbial starters. The following are the implementation steps:

1. Prepare a compost hole in the designated land.
2. Arrange the overlay bricks in a certain pattern to form an aeration cavity.
3. Put the chopped organic waste into the hole, coated with a microbial starter.
4. Monitor temperature and humidity every 3 days to ensure the process runs optimally.

The picture below shows active community participation, especially in the process of collecting waste and preparing compost tools.

Fugure 1. active community participation

The Results Achieved

The results of this activity indicate that most participants from the targetd community are able to understand the basic concept of the overlay brick method. This is indicated by an increase in scores on the pre and post evaluation tests given. The diagram below shows the participant knowledge improvement.

Diagram 1. diagram illustrates the average scores of participants before and after the program

The diagram illustrates the average scores of participants before and after the program, along with the minimum and maximum score ranges. The average initial score is depicted in blue, while the average final score, which shows improvement, is in green. Error bars highlight the range of scores from the lowest to the highest. This visual representation emphasizes that all participants experienced an increase in their scores, with noticeable variations in individual performance improvements.

However, in the implementation, this method has not been directly applied by the targeted community. Several factors that hinder direct practice include limited time and the low priority of the targeted community towards organic waste management in everyday life. Nevertheless, this program has succeeded in contributing to increase public awareness and knowledge about the importance of organic waste management. Based on a satisfaction survey, as many as 50% participants felt that the material presented was relevant and useful, although most acknowledged the need for further assistance for direct implementation. The diagram below illustrates the participant satisfaction in detail.

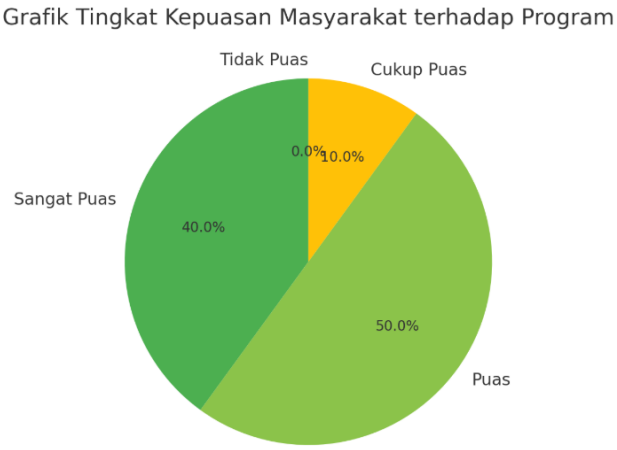

Diagram 2. The diagram below illustrates the participant satisfaction in detail

These results indicate the need for further strategies to ensure that knowledge transfer can develop into real action. Approaches such as direct training, ongoing assistance, or the provision of supporting facilities can be alternatives that need to be considered in the next program. Thus, the sustainability of this program can answer the needs of the community not only in terms of education, but also in real implementation.

CONCLUSION

The community service program introducing the overlay brick method for composting has succeeded in increasing the targeted community knowledge about organic waste management. Although practical implementation has not been carried out, this program has created a strong foundation for independent implementation in the future. This method is expected to be further developed by adding direct practice sessions in subsequent implementations.

RECOMENDATION

Further progaram is expected to load more practical activity related to the organic waste management system. The cooperation with local geverenment is highly recommended to promote more sustainable practice. This movement needs to supported by the rules postulated by government whether in local level or in bigger scale.

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