



Empowering the Pipitan Lestari Sejahtera Waste Bank in Food Waste Management to Promote Environmental and Economic Sustainability

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Abstrak

Program pengabdian masyarakat ini dilaksanakan di Kampung Wisata Pipitan dengan tujuan meningkatkan kapasitas masyarakat dalam mengelola limbah makanan melalui pemberdayaan Bank Sampah Pipitan Lestari Sejahtera. Metode kegiatan mencakup sosialisasi, pelatihan teknis pembuatan kompos bokashi, workshop desain kemasan, serta praktik pemasaran digital yang dilakukan dengan pendekatan partisipatif. Hasil kegiatan menunjukkan peningkatan pengetahuan dan keterampilan masyarakat dalam mengolah limbah organik menjadi pupuk kompos yang bernilai jual, lahirnya inisiatif kewirausahaan baru, serta terbentuknya kesadaran kolektif mengenai pentingnya pengelolaan limbah berkelanjutan. Kesimpulan dari program ini menekankan bahwa integrasi teknologi tepat guna dengan partisipasi aktif masyarakat mampu menghadirkan solusi praktis untuk mengurangi timbulan limbah makanan sekaligus membuka peluang ekonomi lokal.

Kata kunci: *Pengabdian Masyarakat, Limbah Makanan, Kompos Bokashi, Pemberdayaan Masyarakat, Ekonomi Sirkular.*

Abstract

This community service program was carried out in Kampung Wisata Pipitan with the aim of enhancing local community capacity in managing food waste through the empowerment of Bank Sampah Pipitan Lestari Sejahtera. The activities included socialization, technical training on bokashi composting, packaging design workshops, and digital marketing practices using a participatory approach. The results demonstrated improved knowledge and skills among participants in processing organic waste into marketable compost, the emergence of new entrepreneurial initiatives, and the development of collective awareness regarding sustainable waste management. The program concludes that integrating appropriate technology with active community participation provides a practical solution to reduce food waste while simultaneously creating new local economic opportunities.

Keywords : *Community Service, Food Waste, Bokashi Compost, Community Empowerment, Circular Economy*



Introduction

Food waste is a significant environmental issue in Indonesia. Based on data from the National Waste Management Information System (SIPSN) and media reports, of the total national waste generated in 2024, around 39–41% consisted of food waste (Petriella, 2025). This phenomenon reflects the high level of food wastage that negatively impacts the environment, society, and the economy. Research conducted by (Rahmaniya et al., 2025) found that households remain one of the main contributors to food waste, influenced by consumption behavior and poor food purchasing planning. Meanwhile, a study by (Fatimah & Baliwati, 2022) estimated that food waste not only causes economic losses but also leads to the loss of nutritional potential that could support community food security. This condition shows that food waste is not merely seasonal but is closely related to community consumption patterns, thus highlighting the urgency of more effective management.

In addition to household consumption factors, the high level of food waste in Indonesia is also caused by inefficiencies in the supply chain, inadequate storage facilities, and community habits that are not yet prudent in food management. A report by FoodCycle Indonesia and DBS Bank through the Food Rescue Warrior program noted that a large amount of surplus food from the hotel, restaurant, café, and retail (HoReCa) sectors is poorly managed, often due to improper distribution or unsold stock, and is eventually discarded, even though vulnerable communities could benefit if this surplus were redistributed (DBS Indonesia, 2025). This phenomenon is further exacerbated by regulations that have not fully encouraged food waste reduction, leaving the potential for converting waste into valuable products, such as compost, largely untapped.

In the context of tourism, Kampung Wisata Pipitan in Serang faces additional challenges. The increasing tourism activities have significantly raised the volume of food waste, while the capacity of local waste management remains limited. The lack of technical skills in processing food waste and the absence of effective marketing strategies for processed products are the main obstacles to creating added value from food waste. Therefore, a holistic and integrated approach is needed. Research by (Saputro et al., 2024) illustrates this through community education programs on converting food waste into organic fertilizers and pesticides in Tulusrejo Village, the application of appropriate technologies for household waste treatment such as composters, biopores, and aerobic decomposers, as well as marketing strategies for compost and other value-added products, so that waste management efforts are not only environmentally oriented but also generate sustainable economic benefits.

Although the issue of food waste has been widely studied in both national and global contexts, most research and community service programs still focus on reducing waste generation through awareness campaigns and supply chain efficiency (Lehtokunnas et al., 2022). While this approach is important, it does not fully address the needs of local communities in transforming waste into resources with economic value. Moreover, the application of appropriate technologies such as the bokashi method is already well known, but its utilization at the scale of tourism communities such as Kampung Wisata Pipitan remains very limited (Setyadi & Syaifudin, 2022). Previous studies have rarely highlighted the integration between waste processing technologies and product marketing strategies, leaving the economic potential of waste management underutilized (Keng et al., 2020). Another gap can also be seen in the lack of participatory community involvement, as many programs focus solely on technical training without incorporating aspects of social empowerment and sustainable business innovation (Normelani et al., 2023).

This community service program aims to enhance the technical skills of Kampung Wisata Pipitan residents in processing food waste using the bokashi method, strengthen the capacity of Bank Sampah Pipitan Lestari Sejahtera through training in packaging design and marketing strategies, and encourage active community participation in waste management. The expected benefits include reducing food waste generation and greenhouse gas emissions, increasing community awareness of responsible waste management, and creating new economic opportunities through marketable compost products. Thus, this program not only addresses environmental challenges but also supports local economic independence and competitiveness through environmentally friendly product innovations driven by community participation.

Implementation Method

This community service program was implemented at Bank Sampah Pipitan Lestari Sejahtera, located in the Kampung Wisata Pipitan area, Serang City, Banten, during the period of May–September 2024. The activity partners were the management and members of Bank Sampah Pipitan Lestari Sejahtera, selected based on their active involvement in local waste management and their readiness to participate in training and mentoring.

The implementation method integrated a participatory approach with systematic stages of activities, consisting of: (1) socialization, including the presentation of objectives, targets, and partner needs assessment; (2) training, comprising pre-test, technical training on bokashi compost production, workshops on packaging, product design, marketing strategies (both offline and online), and post-test; (3) technology implementation, involving the direct application of the bokashi method, construction of simple facilities, and production demonstrations; (4) mentoring and monitoring, including supervision, packaging design evaluation, market testing, and documentation of technical challenges; and (5) sustainability planning, through the development of a simple business model, digital marketing channels (Shopee, Tokopedia, TikTok Shop), and collaboration with local farming communities.

Success indicators were measured by improvements in partners' technical and managerial skills, the quality of compost produced, the creation of marketable packaging designs, and the success of compost product marketing. Evaluations were carried out periodically through observation, interviews, surveys, and product quality testing. The final assessment emphasized the sustainability of program impacts, particularly the independence of partners in producing and marketing compost on a continuous basis.

Result and Discussion

The community service activities carried out since July 2025 demonstrated significant progress in the technical capacity and awareness of the Kampung Wisata Pipitan community. Initial surveys found that most household food waste was still mixed with inorganic waste, and there was no practical skill in processing it. This condition aligns with the study by (Muliarta et al., 2023) which showed that the lack of waste separation practices at the household level contributes to the high volume of food waste in urban areas.

Through counselling activities, the community began to understand that food waste is not only a source of environmental pollution but also a potential resource if managed properly. Interactive discussions revealed that the main obstacles were the lack of processing facilities and limited technical knowledge. This finding reinforces

the study of (Campbell et al., 2025), which emphasized the importance of community-based programs in building awareness and changing community behavior toward food waste management.



Figure 1. Preparatory activities and problem identification discussions

The enhancement of technical capacity was realized through training on the production of compost using the bokashi method. Participants were directly involved in the process of mixing materials, monitoring fermentation, and processing the results into solid compost and liquid fertilizer. The outcomes showed an increase in the community's ability to produce compost independently, consistent with the findings of (Keng et al., 2020) which demonstrated that community-based composting can generate quality products while reducing dependence on chemical fertilizers.



Figure 2. Capacity Building and Introductory Session on Bokashi Fertilizer

In addition to technical proficiency, the community was also equipped with packaging design and printing skills to enhance the attractiveness of compost products. Through workshops, participants learned to select packaging materials, create informative labels, and design appealing visuals using simple design applications. This activity continued with the printing of packaging prototypes, which were then tested both visually and functionally. As a result, the community was able to produce packaging that not only preserved product quality but also increased its market value. This aligns with the study of (Apriliyanti & Randelli, 2020), which emphasized that packaging innovation is a key factor in strengthening the competitiveness of eco-friendly products in tourism villages.



Figure 3. Seminar and Outreach on Organic Waste and Bokashi Compost

The next stage was the marketing of compost products. Participants were introduced to offline marketing strategies through local farming community networks, as well as online strategies using digital platforms such as Shopee, Tokopedia, and TikTok Shop. This activity sparked social entrepreneurial spirit among residents, who began to recognize digital marketing as a gateway to broader markets. This experience is consistent with the findings of (Leksono & He, 2025) which emphasized that consumer behavior in Indonesia can be directed toward eco-friendly products through appropriate promotional strategies, including the use of digital media.



Figure 4. E-commerce-based Marketing and Promotion of Bokashi Compost Products

Overall, this community service activity successfully demonstrated tangible changes in the technical capacity and mindset of the community. Food waste management, which was previously considered merely a burden, has begun to be perceived as a new and beneficial opportunity. Through bokashi training, packaging design, and digital marketing strategies, residents not only became capable of producing quality compost but also confident in marketing their products to a wider audience. This shows that a participatory approach combining education, appropriate technology, and simple business innovation can serve as an effective model for promoting environmental sustainability while strengthening the economic independence of the Kampung Wisata Pipitan community.

Conclusion

The community service program in Kampung Wisata Pipitan, through the empowerment of Bank Sampah Pipitan Lestari Sejahtera, introduced a new innovation in the form of food waste processing into compost using the simple yet effective bokashi method. This activity not only enhanced the community's technical skills in compost production, packaging design, and marketing strategies, but also fostered collective awareness of the importance of sustainable waste management. The benefits included a reduction in food waste generation, the creation of new economic

opportunities, and the strengthening of social values based on community participation. Theoretically, this program reinforces the relevance of circular economy concepts and participatory approaches in local-scale waste management. For sustainability, post-training support is recommended in the form of business legalization facilitation, institutional strengthening of the waste bank, and assistance with digital marketing strategies so that partners can develop products independently and professionally. Replication of the program in other areas with similar conditions is also recommended to expand its positive impact on the environment and the local economy.

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