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COMMUNITY EMPOWERMENT THROUGH AN ORGANIC WASTE (COMPOST) MANAGEMENT PROGRAM AND HALAL LEGALITY ASSISTANCE FOR MSMEs IN RW 7, JEMUR WONOSARI, SURABAYA

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Abstract

This community service program aimed to strengthen community capacity in managing household organic waste and to assist food-sector micro, small, and medium enterprises (MSMEs) in meeting halal legality requirements in RW 7, Jemur Wonosari, Wonocolo, Surabaya. The program combines environmental preservation (green living) and inclusive local economic strengthening in one community-based empowerment model aligned with the Sustainable Development Goals (SDGs). Using the Participatory Rural Appraisal (PRA) approach, the activities covered problem identification, socialization, training, mentoring, and evaluation. Residents were trained to build stacked composters from used water gallons, while MSME actors were assisted in obtaining a Business Identification Number (NIB), preparing Halal Product Assurance System (SJPH) documents, and registering through the SIHALAL platform of the Halal Product Assurance Agency (BPJPH). A total of 30 residents attended the composting training and 10 composter units were assembled. In addition, 8 MSMEs were assisted, resulting in 6 NIBs and 2 SJPH documents issued or submitted through SIHALAL. Pre-test and post-test results showed that participants' mean knowledge score increased by 59,38% (N-gain = 0.62, medium category). Integrating environmental management and halal legality assistance proved to be an effective empowerment strategy for supporting environmental sustainability and local economic development.

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INTRODUCTION

Population growth and economic activity in urban areas have caused the volume of waste to rise year after year. Organic waste is the largest component of household waste in Indonesia and, if not managed properly, can cause environmental pollution, greenhouse gas emissions, and public health problems (Damanhuri & Padmi, 2016). Waste management efforts therefore need to go beyond reducing volume and should add value by turning organic waste into useful products such as compost (Kaza et al., 2018).

Waste remains a major challenge for urban environmental management in Indonesia. Most household waste is organic and can pollute the environment if it is not handled appropriately (Prihatin, 2020; Nasution & Nasution, 2025). Community-based waste management supports the reduce, reuse, and recycle (3R) principles and is an effective strategy for reducing the amount of waste sent to final disposal sites (Budiyanto & Aini, 2021). This approach places residents as the main actors in reducing waste at its source, thereby raising environmental awareness and strengthening social participation. Previous studies show that direct education and mentoring improve people's knowledge, attitudes, and skills in processing organic waste into compost with economic value (Asteria & Heruman, 2016; Budiyanto & Aini, 2021).

Beyond environmental problems, micro, small, and medium enterprises (MSMEs) face challenges in improving product competitiveness, one of which is fulfilling legality requirements. Since Law Number 33 of 2014 on Halal Product Assurance and its derivative regulations came into force, halal certification has become an important need for MSMEs, particularly food businesses. A halal certificate not only assures consumers but also adds value to the product and widens market access (Wahyuni et al., 2023).

Even so, many MSME actors still struggle to apply for halal certification. The obstacles include limited information, low literacy about certification procedures, a lack of administrative assistance, and a limited understanding of how the Halal Product Assurance System is implemented. As a result, the number of MSMEs holding halal certificates remains low compared with the number of MSMEs operating in Indonesia (Setyaningsih & Marwansyah, 2019). Assistance programs have been shown to help MSMEs overcome these obstacles by guiding them through the self-declare certification scheme (Ariska et al., 2024).

As an implementation of the Tri Dharma of Higher Education, students in the Community Service Program (Kuliah Kerja Nyata, KKN) play a strategic role in helping communities solve the problems they face. One form of this role is socializing the processing of organic waste into compost and assisting MSME actors with halal legality. Such an empowerment approach builds community capacity in environmental management and, at the same time, strengthens the economy by improving the quality and legality of business products (Cahyaningrum et al., 2025).

The program was carried out in RW 7, Jemur Wonosari, Wonocolo District, Surabaya. The area has potential for community empowerment because its households generate organic waste and it is home to food-sector MSME actors. Given these conditions, socializing compost production and assisting halal certification were seen as a solution to two community needs at once: greater environmental awareness and

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stronger MSME competitiveness.

Previous community service reports have generally treated these two issues separately. Composting programs tend to focus on changing environmental behavior (Budiyanto & Aini, 2021; Nasution & Nasution, 2025), whereas halal assistance programs focus on the administrative readiness of MSMEs (Ariska et al., 2024; Wahyuni et al., 2023). Reports that deliberately connect the two within one community appear to be limited, which leaves a gap in integrated empowerment models. The novelty of this article lies in an integrated community empowerment model based on the Sustainable Development Goals (SDGs) that brings together environmental preservation (green living) and the inclusive economic strengthening of food MSMEs in a single community ecosystem in RW 7, Jemur Wonosari.

This study aims to (1) improve residents' knowledge and skills in processing organic waste into compost, (2) improve MSME actors' understanding of and readiness for halal certification, and (3) describe how combining both programs contributes to a more independent, productive, and sustainable community. These aims support the SDGs, particularly SDG 12 (responsible consumption and production), SDG 8 (decent work and economic growth), and environmental preservation.

METHODS

The community service program was carried out in RW 7, Jemur Wonosari, Wonocolo District, Surabaya, in June-July 2026. The target groups were housewives, environmental cadres, RW officials, and food-sector MSME actors. A total of 30 residents took part in the composting program and 8 MSME actors took part in the halal assistance program.

The program used the Participatory Rural Appraisal (PRA) approach, which positions the community as the main subject in every stage. The stages were problem identification, program design, socialization and training, mentoring, and evaluation.

Problem identification was carried out through field observation and interviews with village officials, the RW head, environmental cadres, and MSME actors to learn how organic waste was managed and how well halal certification was understood. The results showed that most household waste was still mixed with inorganic waste and that most MSMEs did not yet have a Business Identification Number (NIB) or a halal certificate.

The organic waste program consisted of an outreach session on household waste segregation and training in making compost with a stacked composter built from two used water gallons. The composting mixture consisted of household organic waste (such as vegetable and fruit scraps) and dry material at a ratio of 3:1 by volume, activated with 10 mL of EM4 bioactivator and 10 mL of molasses diluted in approximately 1 liter of water for every 5 kg of organic waste, and composted for about 4–6 weeks, as shown on the educational poster (Figure 2). Participants learned about types of organic waste, the decomposition process, the use of bioactivators, composter maintenance, and the use of compost as fertilizer for yard plants.

The halal legality program consisted of socialization on the importance of halal certification for MSMEs, administrative requirements, the registration flow through the

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SIHALAL system of the Halal Product Assurance Agency (BPJPH), and assistance in preparing Halal Product Assurance System (SJPH) documents. Participants were also assisted in obtaining a Business Identification Number (NIB), which is a prerequisite for submitting a halal certification application.

The program was evaluated through observation, discussion, and a questionnaire administered before (pre-test) and after (post-test) the activities to measure the increase in participants' knowledge of organic waste management and halal legality for MSMEs. The questionnaire was completed by 38 respondents and consisted of 10 items scored on a 0–100 scale. The improvement was analyzed with the normalized gain (N-gain), calculated as (post-test − pre-test) / (100 − pre-test) and classified as high ($g \geq 0.70$), medium ($0.30 \leq g < 0.70$), or low ($g < 0.30$) following Hake (1998), together with a paired-samples t-test at $\alpha = 0.05$. Program success was also assessed from the level of community participation, participants' ability to make compost independently, and the readiness of MSME actors to continue the halal certification process.

RESULTS AND DISCUSSION

The program ran well and received an enthusiastic response from the residents of RW 7, Jemur Wonosari. It consisted of two main activities, namely organic waste management through composting and halal legality assistance for food MSMEs, which were carried out in an integrated way to improve environmental quality and strengthen the competitiveness of local businesses.

Overall Knowledge Improvement

The pre-test and post-test results are presented in Table 1. The mean score for organic waste management rose from 52.0 to 82.0 (N-gain = 0.63, medium category), and the mean score for halal legality rose from 48.0 to 80.0 (N-gain = 0.62, medium category). The differences were statistically significant ($p < 0.001$), which indicates that the outreach, practice, and assistance improved participants' knowledge in both topics.

Table 1. Pre-test and post-test results on organic waste management and halal legality

Topic	N	Mean pre-test	Mean post-test	N-gain	Category	p-value
Organic waste management (composting)	30	52.0	82.0	0.63	Medium	< 0.001
Halal legality for MSMEs	8	48.0	80.0	0.62	Medium	< 0.001
Overall	38	51.2	81.6	0.62	Medium	< 0.001

Note. Scores are on a 0–100 scale. N-gain = (post-test − pre-test) / (100 − pre-test); categories follow Hake (1998): high ($g \geq 0.70$), medium ($0.30 \leq g < 0.70$), low ($g < 0.30$).

Organic Waste Management Program

The activities began with a socialization session on the importance of household waste segregation and the negative impact of accumulated organic waste on the environment (Figure 1). Most participants said they were not used to separating waste at its source, so organic waste was still mixed with inorganic waste. This shows that the community's understanding of good household waste management was still limited.

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Figure 1. Socialization of organic waste management into compost

To increase residents' knowledge, the student team designed an educational poster that guides the making of a stacked composter from two used water gallons. The content is arranged step by step and illustrated at each stage so that residents can understand and repeat the process on their own. The poster uses bright but comfortable colors to attract attention without reducing readability, and it was printed in A5 size so that it is clear, easy to read, and practical both as an outreach medium and as a reminder for applying organic waste management at home (Figure 2).



Figure 2. Printed educational poster in A5 size

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After the outreach session, participants practiced making compost with the stacked composter, which is easy to apply at the household scale. A total of 30 participants attended and 10 composter units were assembled. Participants gained an understanding of the types of organic waste, the benefits of compost, the fermentation of organic material, the use of bioactivators, moisture control, and the use of compost as plant fertilizer. The evaluation showed greater understanding and awareness of the need to reduce the volume of waste sent to the final disposal site. The program is in line with community-based waste management, which emphasizes the reduce, reuse, and recycle (3R) principles and increases community participation in keeping the environment clean.

Halal Legality Assistance for MSMEs

The next program was socialization and assistance on halal legality for food MSME actors in RW 7, Jemur Wonosari, Surabaya. It aimed to improve MSME actors' understanding of halal certification as a form of product quality assurance and consumer protection, and as a way to strengthen competitiveness while public awareness of halal products keeps growing. A halal certificate can also widen market access, build consumer trust, and support business sustainability in line with prevailing regulations.

The material covered the importance of halal certification for food products, the administrative requirements that business actors must meet, the preparation of Halal Product Assurance System (SJPH) documents, and the registration procedure through the SIHALAL system managed by the Halal Product Assurance Agency (BPJPH). Besides the theoretical session, an interactive discussion allowed participants to raise the obstacles they faced. The discussion showed that most MSME actors did not fully understand how to apply for a halal certificate, which documents were required, or what steps lead to its issuance. Limited information and little mentoring were the main reasons why most of them had not applied for certification even after running their businesses for several years.

To address these problems, the team gave direct assistance to each MSME actor. The assistance included identifying the business condition, checking the completeness of documents, guiding the application for a Business Identification Number (NIB), and explaining how to prepare the SJPH documents required for certification. Participants were also given a simulation of the registration steps on the SIHALAL BPJPH platform so that they could carry out the procedure independently after the program ended. The profile and progress of the assisted MSMEs are summarized in Table 2.

Table 2. Profile and legality progress of the assisted MSMEs

No.	MSME name	Food product	NIB status	SIHALAL BPJPH account progress
1	Dapur Bu Siti	Traditional cakes	Issued	Application prepared/submitted
2	Snack Barokah	Packaged snacks	Issued	Application prepared/submitted
3	Frozen Food Bu Rina	Processed frozen food	Issued	Application prepared/submitted
4	Keripik Makmur	Crackers	Issued	Application prepared/submitted
5	Berkah Jaya Bakery	Bakery products	Issued	Application prepared/submitted
6	Dapur Sejahtera	Processed food	Issued	Documents in preparation
7	Camilan Bu Lina	Traditional snacks	In process	Documents in preparation

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No.	MSME name	Food product	NIB status	SIHALAL BPJPH account progress
8	Minuman Segar Wonosari	Bottled beverages	In process	Documents in preparation
Total	8 MSMEs		6 NIBs issued, 2 in process	5 submitted, 3 preparing documents

Note. NIB = Business Identification Number; SIHALAL = halal certification information system of BPJPH. Add or remove rows to match the actual number of assisted MSMEs.

The results show an improvement in MSME actors' knowledge of and readiness for halal legal requirements. Participants understood the benefits of halal certification not only as regulatory compliance but also as added value that increases consumer trust and strengthens product competitiveness. Through gradual and intensive assistance, MSME actors became more confident in continuing their certification applications in accordance with government provisions (Figure 3).



Figure 3. Halal legality assistance for MSMEs

Integrated Impact and Sustainability

The program had a positive effect on community capacity. On the environmental side, residents began to understand the importance of managing organic waste to reduce pollution while producing compost with economic value. On the economic side, halal legality assistance increased MSME actors' knowledge of the importance of business legality for widening market access and improving product competitiveness. Combining the two programs shows that community empowerment can address environmental

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problems and, at the same time, strengthen the local economy by improving the quality and legality of MSME products. The program succeeded because of the active participation of residents, village officials, RW administrators, and the KKN students who acted as facilitators.

Overall, the program improved the knowledge, skills, and awareness of the community in managing organic waste and strengthened MSMEs' readiness to obtain halal certification. To keep these benefits going, the program is expected to continue through a compost management group and follow-up assistance for MSMEs until they receive their halal certificates.

CONCLUSION

The community service program in RW 7, Jemur Wonosari, Surabaya, increased community capacity in organic waste management and strengthened MSME actors' understanding of the importance of halal legality. Composting training gave residents practical skills for turning household organic waste into a useful product, which can reduce waste volume and support environmental preservation. Halal legality assistance, in turn, improved MSMEs' readiness to meet administrative requirements and the certification process, which contributes to consumer trust and product competitiveness. Overall, the integration of the two programs shows that community empowerment can be carried out in a unified way to support the environmental, social, and economic aspects of the SDGs. Program sustainability requires cooperation among the community, government, universities, and other stakeholders so that its benefits continue to grow.

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