



## COMMUNITY EMPOWERMENT FOR SUSTAINABLE HOUSEHOLD WASTE MANAGEMENT: A COMMUNITY OUTREACH PROGRAM IN SAMARINDA, INDONESIA

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### ABSTRACT

*This community service program aimed to improve the knowledge, attitudes, and practices of household waste management among residents of Neighborhood Unit (RT) 008, Mungirejo Village, Samarinda, East Kalimantan, Indonesia. The outreach activities were conducted in August 2025 and involved local residents, community leaders, and RT/RW administrators. The program employed several approaches, including coordination with village authorities and neighborhood leaders, interactive educational sessions, practical demonstrations on waste segregation and simple household composting, and the distribution of educational materials. The activities concluded with a follow-up discussion involving the neighborhood head and key community members to initiate the establishment of a community-based waste management system. The results demonstrated strong community participation and enthusiasm toward the waste management education provided. Residents exhibited increased awareness of the importance of segregating household waste and expressed willingness to adopt waste separation practices at the household level. Furthermore, initiatives emerged to establish a neighborhood waste bank and implement a scheduled collection system for segregated waste. However, several challenges were identified, including the limited availability of waste segregation facilities, long-standing habits of disposing mixed waste, and the need for continuous motivation to ensure consistent waste separation practices. Overall, the program established a solid foundation for developing a more structured and sustainable community-based waste management system in RT 008, Mungirejo Village.*

**Keywords:** *Community Empowerment; Household Waste Management; Community Outreach; Waste Segregation*

### A. INTRODUCTION

Municipal solid waste management has become a major challenge in many urban areas across Indonesia. Rapid urban population growth, changing consumption patterns, and inadequate waste management infrastructure have contributed to a substantial increase in municipal solid waste generation over the past decade. Samarinda, one of the major economic and administrative centers in East Kalimantan, is also facing these challenges. In several urban villages, including Mungirejo, household waste management continues to encounter significant constraints, including low levels of waste segregation at the source, the common practice of disposing mixed waste, and limited local waste collection and treatment facilities. These conditions contribute to increasing pressure on landfills, environmental pollution, potential disease transmission, and the deterioration of residential environmental quality.

RT 008 is a densely populated neighborhood in Mungirejo Village, Samarinda, consisting of diverse household groups, including young families, informal workers, and elderly residents. Preliminary observations and reports from local residents indicate that household waste is predominantly disposed of as mixed waste, with limited recycling

practices and minimal composting of organic waste. Supporting infrastructure, such as neighborhood-level waste segregation bins, scheduled collection services for separated waste, and community waste banks, has not yet been optimally established. These conditions highlight the need for educational and practical interventions aimed at promoting behavioral change while establishing community-based waste management mechanisms.

At the policy level, Indonesia's national waste reduction and management strategy emphasizes the implementation of the 3R principles (Reduce, Reuse, and Recycle), waste segregation at the source, and the development of waste banks as integral components of sustainable waste management. The Samarinda municipal government, through its relevant agencies, has promoted community-based waste management programs; however, implementation at the neighborhood level is often constrained by limited systematic public outreach, inadequate supporting facilities, and insufficient community management capacity. Previous local studies have shown that participatory educational programs accompanied by practical demonstrations, such as simple household composting and waste segregation using household containers, together with economic incentive schemes through community waste banks, are highly effective in encouraging the adoption of sustainable household waste management practices. Furthermore, community-based waste management models that actively involve residents in organic compost production and recyclable waste management have been proven to generate economic benefits for local communities (Alkas dkk., 2026; Jumar dkk., 2017). Nevertheless, the long-term success of such programs depends largely on continuous education and the availability of adequate supporting facilities that enable communities to manage waste independently from its source (Indriastanti, 2012; Setiadi, 2015).

Behavioral change toward environmentally responsible practices requires a combination of knowledge, motivation, and practical capacity. According to the Knowledge–Attitude–Practice (KAP) model, increased knowledge positively influences attitudes, which subsequently encourage behavioral change when supported by adequate technical skills and appropriate facilities. Therefore, this community service program was designed to bridge the gap between community awareness and practical implementation by providing integrated household waste management training for residents of RT 008 (Azwari dkk., 2024)(Banowati dkk., 2025). The program focused on empowering community members to implement household waste segregation and simple composting techniques as practical measures to reduce the volume of waste transported to landfills (Hamsi dkk., 2025)

In addition, community empowerment theory emphasizes that the active involvement of local leaders, the establishment of community groups, and the strengthening of local social networks are essential for ensuring the sustainability of community-based interventions. Consequently, participatory outreach approaches that integrate practical learning with the facilitation of community initiatives, such as neighborhood waste banks and composting groups, are more likely to achieve long-term behavioral change than conventional top-down educational programs. Therefore, strengthening community capacity through continuous mentoring and the provision of supporting facilities is crucial

for transforming environmental awareness into consistent and sustainable waste management practices (Parira dkk., 2026; Wijayanti dkk., 2023).

Considering the existing conditions in RT 008, including the widespread practice of mixed waste disposal, limited waste segregation, and the absence of adequate supporting facilities, an immediate and well-structured intervention was considered necessary. Such an intervention aims not only to reduce the volume of waste transported to landfills but also to improve residential environmental quality, minimize public health risks, and create local economic opportunities through the utilization of recyclable materials. The outreach program was designed to provide practical knowledge on household waste segregation, compost production, and recyclable material handling, while simultaneously facilitating the establishment of local waste management mechanisms, including scheduled segregated waste collection, neighborhood temporary collection points, and the initiation of a community waste bank.

Based on these considerations, this community service program aimed to (1) improve the knowledge and attitudes of residents of RT 008 toward household waste management; (2) enhance practical skills in household waste segregation and simple composting; and (3) facilitate the initial establishment of community-based waste management initiatives, including a neighborhood waste bank or a local waste segregation center. The program was conducted in August 2025 through interactive educational sessions, practical demonstrations, the distribution of educational materials, and follow-up discussions with neighborhood leaders and key community members.

## **B. RESEARCH METHOD**

This community service program was implemented through a series of structured stages, including preparation, implementation, and follow-up activities. During the preparation stage, coordination meetings were conducted with the Mungirejo Village administration and the management of RT 008 to determine the schedule, venue, and implementation procedures of the program. Educational materials were subsequently prepared, covering household waste segregation, waste reduction at the source, household composting, and the recycling of inorganic waste. In addition, demonstration equipment was prepared, including waste segregation containers to illustrate the proper separation of organic and inorganic waste, as well as a simple composting unit for demonstrating household compost production. Invitations were distributed to residents of RT 008 through neighborhood administrators and local community groups to ensure broad community participation.

The implementation stage commenced with an interactive educational session lasting approximately 90 minutes. The materials were delivered in a concise yet comprehensive manner, covering the principles of Reduce, Reuse, and Recycle (3R), household waste segregation techniques, strategies for minimizing household waste generation, and the procedures for producing simple household compost. The session incorporated two-way discussions, allowing participants to share their experiences, discuss challenges, and raise questions regarding household waste management practices within their community.

Following the educational session, practical demonstrations were conducted to provide participants with hands-on experience in segregating organic and inorganic waste, producing compost from readily available household materials, and properly handling hazardous household waste, including used batteries, light bulbs, and pesticide containers. These demonstrations enabled participants to directly observe and practice the recommended waste management techniques, thereby enhancing their understanding and practical skills.

To reinforce the educational outcomes, supporting materials in the form of leaflets, posters, and household waste segregation guidelines were distributed to all participants. These materials were intentionally designed in a simple and user-friendly format to facilitate daily implementation at the household level. As a follow-up measure, discussions were held with the neighborhood head (RT) and several key community representatives to explore the establishment of a community-based waste management mechanism, including the development of a scheduled segregated waste collection system and the initial formation of a neighborhood waste bank.

### **C. RESULTS AND DISCUSSION**

The community outreach program on household waste management conducted in RT 008, Mungirejo Village, was attended by enthusiastic community members, including several RT/RW leaders who played an active role in encouraging public participation. The high level of attendance reflected the community's strong concern regarding household waste management issues and their willingness to improve the environmental quality of their neighborhood. Throughout the educational session, participants actively engaged with the presented materials and participated in discussions, particularly when practical examples of household waste management were introduced. This positive response is consistent with previous findings indicating that participatory educational approaches combined with hands-on demonstrations effectively enhance community understanding and readiness to adopt sustainable waste segregation practices (Antara, 2025; Idris dkk., 2026). Increased knowledge was further reflected in the comparison between pre-test and post-test results, which demonstrated a significant improvement in participants' understanding of organic, inorganic, and residual waste categories (Hapsari dkk., 2025; Karimah dkk., 2026).

The practical demonstration session was well received by the participants. Residents showed particular interest in learning appropriate techniques for separating organic and inorganic waste, as well as producing simple household compost using materials readily available in their homes. Several participants directly practiced the demonstrated procedures while asking questions regarding the feasibility of implementing these techniques under their respective household conditions. The distribution of educational leaflets, posters, and household waste segregation guidelines also provided participants with practical reference materials that could be taken home and displayed near household waste management areas to support daily implementation.

Community responses indicated a noticeable improvement in awareness regarding the importance of proper household waste management. Several participants acknowledged

that they had previously been accustomed to disposing of mixed waste due to limited knowledge and the absence of adequate supporting facilities. Following the outreach activities, they expressed greater confidence in initiating household waste segregation by separating organic and inorganic waste. In addition, several residents expressed their willingness to participate in the planned establishment of a neighborhood waste bank, expecting that such an initiative would not only improve environmental quality but also generate additional economic value through recyclable materials. These findings are consistent with previous studies reporting that educational programs accompanied by continuous community assistance can stimulate residents to actively manage household waste and create cleaner and healthier living environments (Ristya, 2020). Beyond environmental cleanliness, active community participation in independent waste management also represents a crucial component in fostering collective responsibility for long-term environmental sustainability (Pujiana dkk., 2024)

During the follow-up discussion involving the neighborhood head (RT) and several key participants, a preliminary agreement was reached to establish a scheduled segregated waste collection system and designate a temporary collection point at the neighborhood level. Although these initiatives remain at the planning stage, they represent an important first step toward developing a more organized and sustainable community-based waste management system. Several challenges were also identified, including the limited availability of facilities for segregated waste storage, long-standing habits of disposing mixed waste, and the need for sustained motivation to encourage residents to consistently practice waste segregation. Therefore, continuous mentoring through practical community engagement is essential to ensure that the program progresses beyond one-time educational activities (Setiawan & Faruq, 2025). This finding is in line with previous evidence demonstrating that sustained community participation contributes to the development of long-term responsibility in household waste management (Gunanti dkk., 2021)

Overall, the findings demonstrate that an interactive educational approach combined with practical demonstrations and the distribution of educational materials effectively improved residents' understanding and awareness of household waste management in RT 008. The initial impacts were reflected in participants' enthusiasm, the commitment of several households to begin practicing waste segregation, and the emergence of community initiatives to establish neighborhood-based waste management mechanisms. With continued support from neighborhood administrators, the village government, and relevant government agencies, these initiatives are expected to evolve into a more structured and sustainable community-based waste management program within RT 008, Mungirejo Village.

#### **D. CONCLUSION**

The community outreach program on household waste management conducted in RT 008, Mungirejo Village, Samarinda, in August 2025 successfully enhanced residents' understanding and awareness of the importance of household waste segregation and management. This achievement was reflected in the high level of participant engagement

during the educational sessions, active involvement in discussions, and the commitment expressed by several residents to begin implementing household waste segregation practices. Furthermore, the program stimulated positive community initiatives, including plans to establish a neighborhood waste bank, develop a scheduled segregated waste collection system, and promote the adoption of simple household composting practices.

Despite these positive outcomes, the sustainability of community-based waste management at the neighborhood level continues to face several challenges. These include the limited availability of facilities for segregated waste storage, long-established habits of disposing mixed waste, and the need for continuous motivation to encourage residents to consistently practice waste segregation. Therefore, further support from the village administration, relevant government agencies, and neighborhood leaders is essential, particularly in the provision of supporting infrastructure, the strengthening of community-based institutions, and the development of incentive schemes that encourage sustained community participation in proper waste management practices.

Overall, this community service program demonstrates that an interactive educational approach combined with practical demonstrations and the distribution of educational materials is effective in improving community awareness and commitment toward household waste management in RT 008. With sustained institutional support and active community participation, the initiatives introduced through this program have the potential to develop into a sustainable community-based waste management model that can be replicated in other neighborhoods within Mungirejo Village and surrounding areas.

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