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Education on household waste sorting and recycling through the installation of waste education signs in RT 06, RW 02, Sawah Lebar Baru Village

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ABSTRACT
The problem of household waste accumulation is often caused by low public awareness and understanding of the importance of sorting waste at the source. This Thematic Community Service Program (KKN-T) aims to educate residents of RT 06, RW 02, in the Sawah Lebar Baru neighborhood about sorting and recycling household waste in order to reduce the volume of waste disposed of at the landfill. The program was implemented using a participatory approach comprising three main stages: outreach, a joint community service activity, and the installation of environmental education signs at strategic locations within the community. These signs were designed to be visually engaging and informative, featuring practical guidelines for separating organic and inorganic waste, as well as simple recycling ideas. The results of the program demonstrated an increase in residents' understanding of waste categories.Furthermore, the environmental education signs have proven to be an effective visual reminder to help residents consistently sort their waste in their daily lives. This program is expected to foster new, environmentally friendly, and sustainable habits at the household level.

Keywords: Environmental Education Signs; Household Waste; Recycling; Waste Sorting.

INTRODUCTION

The issue of household waste remains one of the main challenges in environmental management in Indonesia. Population growth, changing consumption patterns, and low awareness of waste management have caused the volume of waste to continue to rise year after year. Most household waste is still a mixture of organic and inorganic materials, making it difficult to process or recycle. This situation contributes to increased environmental pollution, declining public health, and an increased burden on final disposal sites (landfills).

One approach to mitigating these issues is through education on waste sorting and recycling starting at the source—households. Waste sorting is the first step in a sustainable waste management system because it facilitates processing, reuse, and recycling. However, the practice of sorting waste among the public remains relatively low, primarily due to a lack of knowledge, limited access to information, and the absence of an established culture of environmental awareness.(Pengelolaan et al., 2023)

Waste is unwanted or no-longer-used material generated by human activities or originating from nature, whether in solid, liquid, or gaseous form, and can come from various sources such as households, industry, agriculture, and commercial activities. Waste has no value; it can be said to be worthless for general or specific use in production or consumption, and includes damaged or defective items that have no practical (Sari et al., 2024)

One of the largest sources of waste comes from household activities. This is supported by data from the Ministry of Environment and Forestry's (KLHK) National Waste Management Information System (SIPSN) for 2023, which shows that 60.44% of waste is generated by household activities, followed by market activities at 11.63% (Asri, 2025). Waste-related issues are becoming increasingly complex due to

limitations in waste management and disposal systems, as well as a lack of education and awareness regarding waste management. This is compounded by low public participation in maintaining environmental cleanliness and disposing of waste properly, making waste management problems even more difficult to address (Noviriana et al., 2026)

This lack of understanding means that many people are not yet aware that different types of waste have different characteristics and decomposition times. For example, organic materials such as leaves and food scraps can decompose quickly, while plastic, glass, and metal take a very long time—even hundreds of years.(Studi et al., 2026) Various previous community service activities have shown that visual educational media play a role in improving the community's environmental literacy.(Oktaviani et al., 2026) One of the key strategies for improving the effectiveness of conveying environmental messages. Arsyad (2019) states that educational media serve to clarify information, attract attention, and enhance the target audience's understanding. Visual media, particularly educational boards, are considered capable of presenting information concisely and concretely. In line with this, Daryanto (2016) argues that simple and easily accessible learning media can increase the target audience's interest in and understanding of the material being presented(Daulay et al., 2026)

Signs installed at strategic locations serve as both a direct reminder and an educational tool for the community (Suryani, 2021; Prasetyo & Nugraha, 2023). With short, clear, and easy-to-understand messages, these signs can consistently reinforce the importance of cleanliness without requiring repeated verbal interaction. Trash signs also serve as a symbol of residents' collective commitment to maintaining environmental cleanliness. Their presence can foster a shared awareness that cleanliness is the responsibility of every individual. Furthermore, signs designed with eye-catching visuals can capture attention and motivate the public to care more about their environment. This aligns with research indicating that visual media have the power to influence public behavior because they are easily visible, simple, and repetitive.(Sosial et al., 2025)

Given these conditions, the KKN-T Program launched an educational initiative on household waste sorting and recycling by installing environmental education signs as a form of intervention to raise public awareness of sustainable waste management. This article aims to describe the program's implementation, evaluate the benefits of installing educational signs as a medium for environmental outreach, and identify their impact on increasing the community's knowledge and commitment to implementing household waste sorting and recycling.

COMMUNITY-SERVICE METHODS

This community service activity was carried out in RT 06 RW 02, Sawah Lebar Baru Neighborhood. The program focused on creating and installing educational signs to provide information on household waste management and sorting.

This study employed a descriptive method with a participatory approach. The study began with an observation of household waste management practices in RT 06 RW 02, Sawah Lebar Baru Village. Next, educational signs were installed to provide information on waste sorting and recycling. Data were collected through observation, brief interviews, and documentation. The results of the study were analyzed descriptively to determine the increase in the community's understanding of and awareness regarding household waste management.

RESULTS AND DISCUSSION

The A community service activity themed "Education on Household Waste Sorting and Recycling Through the Installation of Waste Education Signs in RT 06 RW 02, Sawah Lebar Baru Village" was carried out as part of an effort to raise public awareness of the importance of waste management starting at the source—households. The main problem identified at the activity site was the community's low level of understanding regarding waste sorting by type, resulting in most household waste still being disposed of in a single container without separating organic, inorganic, or residual waste. This situation results in an ineffective waste management process, increases the volume of waste sent to landfills, and reduces opportunities to recycle waste that still has economic value.

Based on the results of initial observations conducted by the team, it was found that most residents are aware of the importance of maintaining environmental cleanliness but do not yet understand how to properly sort waste. Additionally, there are currently no informational media or educational resources that can consistently remind the community about the different types of waste and how to

manage them. Therefore, the installation of educational signs was chosen as a permanent, easily readable information medium capable of providing ongoing education to all residents.

The project began with a site survey to identify locations for the signs that are easily accessible and frequently passed by the community. Locations were determined in coordination with the Head of RT 06 and local community officials so that the signs could be placed in strategic locations, such as along the neighborhood's main roads, near temporary waste collection sites, or in areas that are often the center of community activity. Placing the signs in strategic locations aims to ensure that the educational messages reach all segments of the community as effectively as possible.

The information presented on the educational signs is written in simple, concise language that is easy for people of all ages to understand. In addition to explaining what waste is, the signs also describe the classification of waste by type: organic waste, inorganic waste, and residual waste. These explanations are accompanied by examples of waste commonly generated in daily life, such as food scraps, dry leaves, plastic bottles, paper, cans, glass, disposable diapers, and sanitary pads. The information is presented using eye-catching images and colors to help the public more easily grasp the message being conveyed.

In addition to installing the educational signs, the team also conducted direct outreach to the community regarding the importance of sorting household waste. During these sessions, it was explained that organic waste can be turned into compost through a simple composting process at home. Meanwhile, inorganic waste such as plastic bottles, cardboard, cans, and paper still has resale value if properly sorted and delivered to waste banks or recyclers. Residual waste, on the other hand, is waste that is difficult to recycle and must therefore be disposed of at a landfill in accordance with applicable procedures.

The results of the activity showed that the community responded very positively to this educational program. This was evident from the residents' enthusiasm both during the outreach sessions and when they examined the educational signs that had been installed. Residents asked various questions about how to sort different types of waste, techniques for turning organic waste into compost, and ways to repurpose plastic waste to generate economic value. This enthusiasm indicates that the community genuinely wants to manage waste more effectively but still needs guidance and easily accessible information sources.

The installation of educational signs serves as a long-term learning tool. Unlike outreach events, which only take place for a limited time, these educational signs can be read by the community every day, serving as a reminder to make waste sorting a habit starting at home. The presence of these visual aids also helps children, teenagers, and adults understand the importance of maintaining a clean environment. Thus, the educational message does not end once the community service activity is over but continues to reach the community on an ongoing basis.



Figure 1. Community Outreach and Unveiling of Waste Education Signs

An outreach event featuring waste education signs was held in RT 06, RW 02, Sawah Lebar Baru Village as part of an effort to educate the community about the importance of sorting and managing household waste. The event coincided with the unveiling of the educational signs, which had been installed to serve as a source of information for residents. The event was attended by the RT chairperson, community leaders, and local residents.



Figure 2. Installation of Waste Education Signs in RT 06 RW 02, Sawah Lebar Baru Village

The installation of waste education signs in RT 06 RW 02, Sawah Lebar Baru Village, is one of the environmental education initiatives aimed at increasing the community's knowledge and awareness of the importance of sorting and managing household waste. The signs are placed in locations that are easily visible to residents so that the information provided can be read and understood by people from all walks of life.

In addition to enhancing community knowledge, this initiative also improves environmental cleanliness. Through waste sorting, recyclable materials are no longer mixed with organic waste, thereby improving the quality of recyclable materials. On the other hand, organic waste can be used as compost, which is useful for residents' garden plants and ornamental plants. This use reduces the amount of waste sent to landfills while providing both economic and environmental benefits.

A discussion of the activity results shows that the success of an environmental education program is not only determined by the delivery of content but is also influenced by the educational media used. Educational signs have proven to be an effective form of visual communication because they convey information in a simple, easy-to-understand manner and are accessible to the public at any time. The use of illustrations, colors, and real-life examples on the signs makes it easier for the public to remember the different types of waste and the steps for managing them.

Nevertheless, the implementation of the program still faces several challenges. One of them is the long-standing habit of the community to mix all types of waste together. Behavioral change requires time and continuous guidance to become a new cultural norm within the community. Furthermore, the lack of separate waste collection facilities in all homes and public spaces is a major obstacle to the optimal implementation of waste sorting. Therefore, support from the sub-district government, neighborhood association (RT/RW) leaders, and active community participation is needed to provide the necessary infrastructure for waste management.

The sustainability of the program is a crucial aspect to ensure that the benefits of the activities are not limited to the short term. Neighborhood leaders can use the educational signs as a medium for ongoing environmental cleanup campaigns. Additionally, follow-up activities such as composting workshops, turning plastic waste into crafts, establishing waste banks, and organizing environmental cleanup contests can serve as strategies to maintain community participation in waste management.

Overall, the educational activities on household waste sorting and recycling—carried out through the installation of educational signs in RT 06 RW 02, Sawah Lebar Baru Village—successfully increased community knowledge and awareness regarding the importance of waste management starting at the source. The educational signs served as an effective information medium in fostering new habits among residents to sort waste by type. Although behavioral changes have not yet fully taken hold among all residents, the results of the initiative indicate a positive response and the emergence of initial awareness—which serves as a crucial foundation for creating a cleaner, healthier, and more sustainable environment. With a shared commitment among the community, local government, and various stakeholders, it is hoped that the culture of sorting and recycling waste will continue to grow, thereby reducing environmental pollution and improving the community's quality of life

CONCLUSION AND RECOMMENDATIONS

The Community service activities through an educational program on household waste sorting and recycling involving the installation of waste education signs in RT 06 RW 02, Sawah Lebar Baru Village—have successfully increased community knowledge and awareness regarding the importance of

waste management starting at the source: households. The installation of these educational signs, accompanied by outreach activities, provided easy-to-understand information on the classification of organic, inorganic, and residual waste, as well as how to utilize them through recycling and waste processing.

These educational signs serve as a permanent information medium, continuously reminding the community to adopt the habit of sorting waste in their daily lives. The results of the initiative show a positive response from the community, marked by increased understanding and a growing awareness of the need to separate waste by type before disposal. Although behavioral changes have not yet been fully adopted by all residents, this initiative has been a good first step toward building a culture of more responsible waste management.

This program also contributes to efforts to maintain environmental cleanliness by encouraging a reduction in the amount of waste sent to landfills through the recycling of both organic and inorganic waste. The program's success is greatly influenced by active community participation, support from RT/RW leaders, and the availability of educational materials that are easily accessible to all residents.

Therefore, follow-up efforts are needed in the form of ongoing education, the provision of facilities for separated waste collection, the establishment of waste banks, and training in waste management so that changes in community behavior can continue to develop and become a sustainable culture. Thus, proper household waste management is expected to create a cleaner, healthier, more comfortable, and more environmentally friendly environment in RT 06 RW 02, Sawah Lebar Baru Village.

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DECLARATIONS

1. **Statement on the Use of Artificial Intelligence.** o artificial intelligence (AI) tools were used in the preparation of this manuscript. All content, data interpretation, and references are the responsibility of the authors.
2. **Author Contribution.** YF: Conceptualization, Supervision, Methodology, Writing review & editing. CA: Supervision, Methodology, Writing review & editing. FY: Investigation, Community engagement, Data collection, Documentation, Writing original draft. DC: Investigation, Community engagement, Data collection, Documentation. FNL: Investigation, Community engagement, Data collection, Documentation. CA: Investigation, Community engagement, Educational media preparation, Documentation. TI: Supervision, Resources, Project administration, Writing review & editing. LY: Supervision, Validation, Resources, Writing review & editing. All authors contributed to the implementation and completion of the community service program and approved the final version of the manuscript.
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4. **Conflict of Interest.** The authors declare no conflict of interest.
5. **Ethics and Participant Consent.** This activity constituted a low-risk community service and environmental education program involving household waste sorting and recycling education and the installation of waste education signs in RT 06, RW 02, Sawah Lebar Baru Village. The implementation of the activity was coordinated with the Head of RT 06 and local community officials. The activities consisted primarily of community education, observation, brief interviews, documentation, and installation of educational media, with no clinical intervention reported. No formal ethics committee approval number is stated in the manuscript; therefore, no approval number has been fabricated. Participation in community activities should be regarded as voluntary, and the authors are responsible for ensuring appropriate permission, privacy protection, and consent for the publication of identifiable photographs or other participant information.

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