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Dr. Rois Harliyanto, S.H., M.Kn
rois.harliyanto@ugj.ac.id
Law Faculty
Swadaya Gunung Jati University

Muhammad Rafli Miftahudin
rafli5422@gmail.com
Law Faculty
Swadaya Gunung Jati University

Syifa Aulia Nugraha
syifaaulian406@gmail.com
Medicine Faculty
Swadaya Gunung Jati University

Fitri Dwi Jayanti
fitridwijayanti355@gmail.com
Education and Science Faculty
Swadaya Gunung Jati University

Panji Muhammad Ramdan
panjimuhammadramdan@gmail.com
Medicine Faculty
Swadaya Gunung Jati University

Azmi Azzahra
azzazmi41@gmailcom
Medicine Faculty
Swadaya Gunung Jati University

Azka Zakiyah
azkazakiyah911@gmail.com
Medicine Faculty
Swadaya Gunung Jati University

Aliya Rohmah Aliyati
aliyaraliyati14072004@gmail.com
Medicine Faculty
Swadaya Gunung Jati University

Nur Khopipah Endah Parawangsa
nnrkhofifahh@gmail.com
Education and Science Faculty
Swadaya Gunung Jati University

Mochamad Fachrurozi
mochfachrurozi721@gmail.com
Law Faculty
Swadaya Gunung Jati University

Syifa Maliyatul Husna
syifamlyhsn@gmail.com
Law Faculty
Swadaya Gunung Jati University

Fairuz Azhar Pratama
faazpratama@gmail.com
Education and Science Faculty

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Swadaya Gunung Jati
University

Rama Yuda Nur Prayoga
sultanegg19@gmail.com
Faculty of Engineering
Swadaya Gunung Jati
University

INCREASING AWARENESS OF WASTE SORTING THROUGH THE PROVISION OF FACILITIES AND COMMUNITY-BASED EDUCATION IN MANDIRANCAN VILLAGE

Rois Harliyanto[1], Azmi Azzahra[2], Azka Zakiyah[3], Syifa Aulia Nugraha[4], Aliya Rohmah Aliyati[5], Noor Hasan Said[6], Panji Muhammad Ramdan[7], Muhammad Rafli Miftahudin[8], Novy Ayu Silvayani Daniar[9], Bella Putri Nabillah[10], Ega Putri Wijaya[11], Mochamad Fachrurozi[12], Syifa Maliyatul Husna[13], Ratu Citra Fatihanisa[14], Ari Rafsanjani[15], Dicky Rasmana Putra Anjasmara[16], Fairuz Azhar Pratama[17], Fitri Dwi Jayanti[18], Nur Khopipah Endah Parawangsa[19], Rizky Marcelino[20], Rama Yuda Nur Prayoga[21]

[1,8,9,10,11,12,13,14,15]Faculty of Law, Swadaya Gunung Jati University, Cirebon, Indonesia
[2,3,4,5,6,7]Faculty of Medicine, Swadaya Gunung Jati University, Cirebon, Indonesia
[16,17,18,19]Faculty of Education and Science, Swadaya Gunung Jati University, Cirebon, Indonesia
[20,21]Faculty of Engineering, Swadaya Gunung Jati University, Cirebon, Indonesia

Abstract

Background: Waste management problems still become a challenge in the community, especially due to low awareness of waste sorting. In Mandirancan Village, most of the community still mixes organic and inorganic waste and has not utilized the inorganic waste that has economic value.

Aim: This research aims to increase community awareness of waste sorting by providing inorganic waste bin facilities and accompanying community-based education.

Methods: This activity used a Participatory Action Research (PAR) approach, with data collection techniques including observation, interviews, and documentation of 20 respondents. The activity stages included coordination, construction of waste bins, socialization, and evaluation of facility utilization.

Results: The results showed an increase in several indicators, namely waste sorting practices from 12% to 48%, community understanding of waste types from 25% to 68%, and the utilization of waste bin facilities from 8% to 52%, based on the results of observation and interviews

Conclusion: The program for the provision of inorganic waste bins accompanied by education is proven to improve community understanding and behavior in waste management, although the changes that occurred are not yet evenly distributed and still require a process of habituation

Implication: Further efforts are needed, including ongoing education, community assistance, and the development of a community-based waste management system, to ensure behavior changes are consistent and sustainable.

Keywords: waste management, waste sorting, community participation, inorganic waste bins, environmental education

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INTRODUCTION

The problem of waste management has become one of the increasingly complex environmental issues, alongside population growth and the surge in community activities (Sari et al., 2025). In Indonesia, the amount of waste reaches around 25 million tons each year. Still, more than 60% of it is not properly managed, posing risks of environmental pollution, health problems, and a decline in environmental quality. In Kuningan Regency, waste production reaches 182,181.87 tons per year, with the largest contribution coming from household waste. Of this total, the management carried out remains very limited, at around 11%, so more effective handling measures are needed (SIPSN KLHK, 2025).

Waste is residual material that is no longer used, whether produced from human activities or natural processes. In daily life, every human activity is inseparable from the production of waste (Indah, 2020; Mandira et al., 2024). One of the crucial steps in waste management is sorting, the process of separating waste by type and characteristics to facilitate processing. Household waste is generally classified as organic and inorganic, with inorganic waste being more difficult to decompose, whereas organic waste is more easily degraded naturally (Windraswara & Prihastuti, 2017; Febriadi, 2019; Yusra et al., 2024). Proper waste management not only has an impact on environmental cleanliness but also increases economic value through waste reuse (Muyasaroh, 2025).

However, in its implementation, community awareness of waste sorting remains relatively low. This condition causes waste to be mixed frequently, complicating management and recycling processes. The low level of community involvement in waste management can be explained by behavior change theory, which posits that changes in individual behavior occur through gradual stages influenced by knowledge, attitudes, and environmental support (Wang et al., 2025). Therefore, the provision of adequate facilities and ongoing education is an important element in encouraging changes in community waste management behavior.

In addition, waste management is closely related to the concept of the circular economy, which emphasizes the reuse of resources; thus, the waste generated can be minimized as much as possible (Geissdoerfer et al., 2017). In this concept, waste is no longer considered just waste but a resource with economic value when managed properly. The

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implementation of the principles of Reduce, Reuse, and Recycle (3R) is essential to supporting the circular economy (Sya'bani et al., 2024).

Various previous studies show that household waste sorting can increase the effectiveness of waste management and facilitate the recycling process (Asteria & Heruman, 2016; Mandira et al., 2023; Sari et al., 2025). In addition, the provision of simple tools such as separate waste bins can increase community involvement in waste management (Febriadi, 2018; Yusra et al., 2023). This indicates that the combination of education and facility provision is the key to the success of community-based waste management.

This condition is also observed in Mandirancan Village, which is still facing obstacles in waste management, especially in sorting between organic and inorganic waste. Although programs such as Friday Clean-Up and the establishment of a waste bank have been planned, their implementation has not been optimal. This is due to the still-low level of community participation and reliance on the village government to address environmental problems.

To address these problems, a step is needed that involves active community participation through a community-based approach. Through the Community Service Program (Indonesian: *Kuliah Kerja Nyata*; KKN) activity, an initiative was implemented to construct special inorganic waste bins, accompanied by community-based education, in Mandirancan Village. This program aims to increase community awareness of waste sorting, facilitate the community's disposal of inorganic waste separately, and support the collection process for collectors. In addition, this activity is expected to be an initial step toward encouraging changes in community behavior toward more effective and sustainable waste management.

METHODS

This research used a Participatory Action Research (PAR) approach applied through community service activities within the Community Service Program (Indonesian: Kuliah Kerja Nyata; KKN). This approach emphasizes the community's active involvement at every stage of the activity, from planning to implementation and evaluation. The subjects in this research were 20 community members in Manis Hamlet, Mandirancan Village, who were selected purposively based on their involvement and availability to participate in the activity.

Data collection techniques included observation, interviews, and documentation. Observation was used to examine the initial conditions of waste management and changes in community behavior after the program was implemented. Interviews were conducted to

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explore the community's understanding, attitudes, and waste-sorting habits. Documentation was used as supporting data, including activity photos and the program implementation process.

The implementation of the activity was carried out through several stages: coordination with village officials, construction of inorganic waste bins using recycled materials, community socialization on the importance of waste sorting, and evaluation of facility use.

The indicators used in the evaluation included the level of community understanding of waste types, waste-sorting behavior, and the use of inorganic waste bin facilities. Data analysis was conducted descriptively by comparing conditions before and after the program's implementation, using results from observations and interviews.

DISCUSSION

Initial Condition of Waste Management in Mandirancan Village

Based on observations and interviews with 20 respondents in Manis Hamlet, Mandirancan Village, it is evident that waste management has not been carried out optimally. Most of the community still mixes organic and inorganic waste without sorting. Household waste is generally directly disposed of or burned.

The results of the interviews show that low waste-sorting practices are driven by a lack of community understanding and the assumption that waste management is entirely the responsibility of the village government. In addition, some community members also do not yet know that inorganic waste, such as plastic and bottles, has economic value if managed properly.

Quantitatively, only around 12% of respondents have carried out waste sorting, while the level of understanding of waste types remains at around 25%. The utilization of waste management facilities is also relatively low, at around 8%, indicating limited facilities and a lack of established waste management habits in the community.

Implementation of the Waste Bin Construction Activity

The implementation of the program was carried out through a Participatory Action Research (PAR) approach, which involved the community actively in every stage of the activity. The activity began with coordination with village officials to determine the location for the placement of the waste bins. Based on the coordination results, Manis Hamlet was

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selected as the implementation location because it has a relatively larger population and waste management problems that are still not optimal.

Figure 1. Coordination with village officials

Next, the construction of inorganic waste bins was carried out over six days, using an old iron frame as the primary material. The construction process included drilling and welding on parts of the frame that had become fragile, as well as painting to improve durability and appearance. In addition, small doors were installed on both sides to facilitate waste collection. The perforated design of the waste bin is intended to keep waste dry, thereby preserving its quality.

Figure 2. Waste bin construction process

The final stage of the activity was the handover of the waste bins to the village officials, followed by socialization with the community. The socialization was conducted to provide

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an understanding of the types of inorganic waste that can be placed in the waste bins, as well as the importance of waste sorting starting at the household level.

Figure 3. Final design of the waste bin

Changes in Community Knowledge and Behavior

The evaluation was carried out by comparing conditions before and after the program's implementation, using observation and interview results with respondents. The results show an increase in several main indicators, as presented in the following table:

Table 1. Changes in Community Knowledge and Behavior in Waste Sorting Before and After the Intervention

Indicator	Before	After
Residents who sort waste	12%	48%
Residents who understand waste types	25%	68%
Utilization of garbage bin facilities	8%	52%

The data show a fairly significant increase following the intervention, including the provision of facilities and education, although the increase has not yet been evenly distributed across the entire community.

The increase in community understanding and behavior indicates that the intervention, in the form of facility provision and education, has a positive influence. However, the level of change that has not yet been optimal indicates the presence of other factors influencing community behavior.

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Based on observations and interviews, the low level of community awareness of waste sorting is influenced by several factors, including long-standing habits, limited knowledge, and a culture not yet accustomed to waste sorting. The habit of disposing of mixed waste has been passed down from generation to generation; thus, it is difficult to change in a short time.

This phenomenon can be explained by the Theory of Planned Behavior, which argues that intention, attitude, subjective norms, and perceived behavioral control influence behavior. In this context, although community knowledge has increased, previously formed social norms and habits remain obstacles to behavior change.

In addition, the concept of community-based waste management shows that the success of waste management depends heavily on community involvement. Programs that directly involve the community, such as through the PAR approach, have been shown to increase awareness. However, they still require ongoing assistance to sustain behavior changes in the long term.

CONCLUSION

The program to provide inorganic waste bins in Mandirancan Village can be an initial step toward increasing community awareness of waste sorting. Based on the results of observation and interviews with 20 respondents, there was an increase in several indicators, namely the community that carried out waste sorting from 12% to 48%, understanding of waste types from 25% to 68%, and the utilization of waste bin facilities from 8% to 52%. This shows that the intervention, in the form of facility provision accompanied by education, can positively influence changes in community knowledge and behavior.

However, the changes have not yet been fully implemented, as some community members are still not accustomed to sorting waste. This condition shows that habits, culture, and the lack of habituation become obstacles in behavior change. Therefore, this program is effective as an initial intervention, but it is not yet sufficient to create sustainable change without further support.

Implication

Although this program has a positive impact, several limitations need to be addressed. First, the implemented program remains short-term, so its sustainability cannot yet be ensured. Changes in community behavior require a longer time and ongoing intervention.

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Second, there is still a tendency for the community to rely on the provided facilities. Without internal motivation and strong awareness, the use of waste bin facilities is likely to decrease if not accompanied by continued guidance and support.

Third, additional interventions are needed, such as ongoing education, the establishment of a community-based waste management system, and support from the village government, to ensure the program is implemented more optimally and sustainably.

Therefore, this program can be considered an effective initial step, but it still requires strengthening in various areas to provide a broader, more sustainable impact.

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