



EDUCATION ON SORTING AND MANAGING ORGANIC AND INORGANIC WASTE IN SONDAKAN VILLAGE

¹Titiek Puji Astuti, ²Nur Hidayati, ³Rosi Wulandari

¹ Faculty of Business, Setia Budi University; ²Faculty of Sains and Technology, Setia Budi University; ³Faculty of Sains and Technology, Setia Budi University

¹titiekpuijastuti@setiabudi.ac.id, ²nur_hidayati@setiabudi.ac.id, ³rosiwulandari@setiabudi.ac.id

ARTICLE INFO

Article History:

Received Jun 8, 2026

Accepted Aug 5, 2026

Available Aug 10, 2026

Keywords:

FEW Sondakan Village;

Inorganic waste;

Management;

Organic waste;

Sorting

ABSTRAK

Kegiatan pengabdian masyarakat ini bertujuan untuk memberikan edukasi dan pendampingan kepada Pemberdayaan dan Kesejahteraan Keluarga (FEW) di Kelurahan Sondakan, terkait pemilahan serta pengelolaan sampah terutama sampah yang berasal dari rumah tangga baik itu sampah organik maupun anorganik. Pemilahan dan pengelolaan sampah merupakan salah satu solusi penting dalam menjaga kebersihan lingkungan dan kesehatan masyarakat. Selain itu, pengelolaan sampah yang tepat dapat mengurangi penumpukan sampah di lingkungan. Hal ini dapat menjadi langkah awal dalam pengelolaan sampah berkelanjutan dan ramah lingkungan sesuai dengan prinsip 3R (*reduce, reuse dan recycle*). Melalui program pengabdian masyarakat ini diharapkan masyarakat Sondakan dapat mengimplementasikan kegiatan pemilahan dan pengelolaan sampah di tempat tinggal masing-masing. Kegiatan dilaksanakan pada bulan Mei tahun 2026 dan dihadiri oleh perwakilan FEW Kelurahan Sondakan, dengan metode observasi, presentasi dan penyuluhan interaktif, diskusi, praktik lapangan, dan evaluasi. Hasil kegiatan menunjukkan peningkatan pengetahuan, antusias dan partisipasi FEW dalam pengelolaan sampah rumah tangga, pembuatan komposter sebagai media pengelolaan sampah organik serta munculnya inisiatif pembentukan komunitas bank sampah. Program ini memberikan kontribusi nyata dalam membangun kesadaran kolektif akan pentingnya lingkungan bersih dan pengelolaan sampah berbasis rumah tangga secara berkelanjutan.

ABSTRACT

This community service activity aims to provide education and assistance to Family Empowerment and Welfare (FEW) in Sondakan Village, regarding waste sorting and management, especially waste originating from households, both organic and inorganic waste. Waste sorting and management are crucial solutions for maintaining environmental cleanliness and public health. Furthermore, proper waste management can reduce the accumulation of waste in the environment. This can be the first step in sustainable and environmentally waste management in accordance with the 3R principles (Reduce, Reuse and Recycle). Through this community service program, it is hoped that the Sondakan community can implement waste sorting and management activities in their respective residences. The activity was carried out in May 2026 and was attended by representatives of FEW at Sondakan Village, using observation, presentation and interactive counseling methods, discussions, field practice and evaluation. The results of the activity showed an increase in knowledge, enthusiasm and participation of FEW in managing household waste, making composters as a medium for managing organic waste and the emergence of initiatives to form a waste bank community. This program makes a real contribution to building collective awareness of the importance of a clean environment and sustainable household-based waste management.

Address: L Building, Campus Sekaran, Gunungpati, Semarang,
Indonesia, 50229

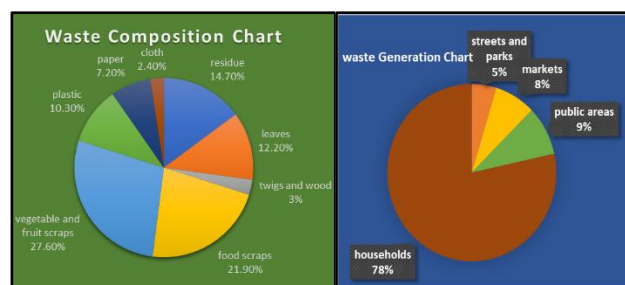
Correspondent Address

Mojosongo, Jebres, Kota Surakarta, Jawa Tengah, Indonesia.

Email : rosiwulandari@setiabudi.ac.id

INTRODUCTION

Environmental issues, particularly waste, whether organic, inorganic, or residual, have become a global concern that continues to evolve and requires solutions for positive change (Wahyuningsih et al., 2025) (Yuwana & Adlan, 2021). The increase in the world's waste is directly proportional to the increase in public consumption. In Indonesia, rapid urbanization and population growth have intensified the waste problem, with management actions still relatively low. Several Indonesian Landfills (TPA) are overloaded and cannot accommodate the increasing volume of waste. Waste, as a residue from daily human activities, consists of various materials organic, inorganic, and residual that are considered no longer useful and must be disposed of or destroyed (Willa et al., 2023) (Elystia et al., 2024).



(a)

(b)

Figure 1. Waste Composition (a) and Waste Generation (b) Chart

Surakarta comprises five districts and fifty-four sub-districts. Sondakan Village, located in Laweyan District, Surakarta City, Central Java Province, covers approximately 78.8 hectares and has a population of about 12,395 residents. Administratively, Sondakan Village includes 51 Neighborhood Associations (RT) and 15 Community Associations (RW), distributed across neighborhoods with diverse community

characteristics (Astuti et al., 2025). The substantial population in Sondakan Village correlates with increased daily waste generation. Waste management is an important thing that must be mastered by society in general (Fachrurrozie et al., 2024). Inadequate waste management practices and limited public awareness regarding waste reduction and management contribute to the growing burden on landfills. When landfills reach capacity and can no longer process waste, various forms of environmental pollution may result (Alfons et al., 2020). According to the waste composition graph in Figure 1a, vegetable and fruit waste constitute the largest proportion, followed by food scraps. Both are classified as organic waste that should naturally decompose. However, improper handling, such as the failure to separate organic from inorganic waste, results in organic waste accumulating with inorganic materials. This practice impedes the decomposition process by natural bacteria, thereby increasing the risk of environmental pollution. This is reinforced by figure 1b, where households rank first for organic waste production, up to 78%.

Spanning 17 hectares, the Putri Cempo Landfill in Surakarta City has been in operation since 1986, in figure 2. The facility is currently operating beyond its capacity, receiving a daily influx of 320 to 380 tons of waste 78.5% of which is generated by domestic households. This heavy volume has resulted in towering, landslide-prone mounds of refuse. The continuous, unmanaged accumulation of this waste poses a severe environmental hazard. This critical situation is addressed by the Indonesian Ministry of Environment's Decree No. 3531 of 2025 (LHK, 2025), which enforces administrative sanctions to halt open-dumping practices at the Putri Cempo

site in Mojosongo, Surakarta. As the population expands, the volume and variety of anthropogenic waste are forecasted to rise proportionally. Ultimately, the challenge of waste management extends far beyond industrial zones, commercial markets, and corporate offices, remaining deeply rooted at the household level (Wahyuningsih et al., 2025).



Figure 2. Putri Cempo Landfill

The persistent accumulation of waste largely stems from inadequate management and mitigation practices, originating at the micro-level of domestic households. As depicted in Figure 1b, household refuse overwhelmingly dominates the waste generation profile at 78.5%, far exceeding the contributions from public spaces, commercial markets, and municipal parks. This metric warrants critical scrutiny, as daily domestic routines such as cooking and cleaning drive a continuous and compounding surge in daily waste output. Consequently, forging a collective commitment and raising public awareness toward sustainable waste management is imperative. Strategic interventions including educational campaigns on waste segregation, community outreach regarding waste processing, and practical assistance in establishing local waste infrastructure serve as vital catalysts in cultivating a deeply

rooted environmental consciousness within the community.

Community service programs, in the form of education and assistance to the public regarding the segregation and management of waste particularly household waste aim to enhance citizens' knowledge capacity and skills in sorting and managing refuse to mitigate waste-related problems (Permatananda et al., 2023). Waste management must be systematic, comprehensive, and integrated from upstream to downstream to yield economic benefits, foster a healthier society, create a safer environment, and transform community behavior. The implementation of this activity emphasizes the critical need for synergy among the local government/sub-district administration, local communities such as the Family Empowerment and Welfare (FEW) women's groups, and academic institutions/universities. With the support of these various stakeholders, it is anticipated that a sustainable waste management model can be established. The active involvement of FEW members is the key to the program's success, as waste segregation and management initiatives must commence at the household level. Furthermore, there is a need to elevate public awareness regarding the importance of household-level waste segregation and management, enabling the community to contribute to realizing a healthier environment while mitigating the adverse impacts of improper waste handling.

METHOD

The community service activities were executed in several stages, as illustrated in Figure 3. The first stage, observation, was conducted in early May 2026 by the implementation team

through site visits, coordination with the Sondakan Village office, and identification of primary issues regarding household-level waste segregation and management practices. The observation results revealed that waste segregation had not yet become a habit among residents, and a community-based waste management system had not been established. The subsequent stage involved program planning, which included preparing presentation and counseling materials, defining target participants, and scheduling activities. The materials focused on educating participants about waste classifications, the environmental impacts of unmanaged waste, the 3R principles (Reduce, Reuse, Recycle), segregation procedures, the construction of organic waste management tools or composters, and the establishment of a waste bank as a collection point for economically valuable inorganic waste.

The counseling activity, consisting of presentations and a composting tool demonstration, took place at the Sondakan Village Hall on May 13, 2026. It was attended by 75 participants representing the Family Welfare Empowerment (FEW) women's groups from all 15 citizen associations (RW) within the Sondakan Village. The event commenced with an opening ceremony and the singing of the FEW songs, followed by the presentation and counseling session for the FEW members. The session was delivered interactively using presentation, discussion, and Q&A methods, with opening remarks provided by Mr. Agus Wahyu Purnomo Anwar, S.STP., MM., as the Head of Sondakan Village. The media utilized for this activity included PowerPoint presentations and educational videos. Following the counseling session, direct field mentoring was conducted to

demonstrate practical techniques for building composting tools and media. The final stage was evaluation, carried out by the implementation team alongside village officials and participant representatives. A qualitative evaluation was performed to assess participation, comprehension, and the initial impact of the activity on the participants' mindsets. This evaluation also serves as the foundation for designing the program's sustainability plan, including the follow-up formation of a waste bank institution within the Sondakan Village.

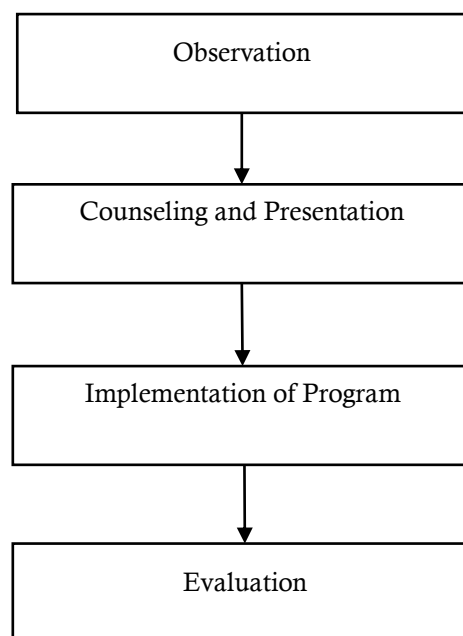


Figure 3. Flow of Community Service Activities

RESULTS AND DISCUSSION

Waste segregation entails the systematic sorting and separation of refuse according to its typology, volume, and inherent properties. Domestic waste streams are fundamentally categorized into three distinct fractions: organic, inorganic, and residual waste. This segregation mechanism is foundational to optimizing downstream waste processing. By decoupling organic and inorganic components, municipal systems can substantially curtail the environmental

degradation typically exacerbated by the accumulation of comingled waste.

Observation

The community outreach program designed to provide education and practical mentorship on domestic waste management for the FEW networks in Sondakan Village was implemented in strict adherence to the projected timeline. Diagnostic field assessments and stakeholder interviews with local authorities underscored that source-segregation remains a largely unadopted practice among local homemakers. Refuse continues to be discarded as a mixed mass, severely impeding the technical viability of subsequent resource recovery, such as recycling and composting. Within this framework, composting serves as a pivotal intervention for processing and diverting the organic waste fraction (Maulana et al., 2023)



Figure 4. Composting Tool from Used Buckets

Composting represents an aerobic biochemical process that breaks down complex organic substrates into nutrient-rich humus and compost. This organic bio-fertilizer can be synthesized from various waste streams, spanning domestic, industrial, and biogenic materials. Suitable organic feedstocks comprise vegetable scraps, fruit residues, leftover rice, and eggshells. Mechanically, this is achieved via a composter typically a plastic vessel featuring an integrated internal filtration network that segregates solid and liquid fractions. While industrial-scale composting often utilizes closed bioreactors, these systems require high capital expenditure and involve operational complexities that limit mass adoption. Consequently, at the micro-domestic level, a highly cost-effective alternative involves repurposing everyday items such as discarded buckets, used water jugs, or salvaged paint cans, in figure 4 (Akbari & Khadijah, 2024)

Counseling and Presentation

During this outreach initiative, participants engaged in a hands-on workshop to create a local composting unit, guided by the head of Sondakan Village, as shown in the figure 5. Owing to supply constraints of salvaged paint containers, attendees were instructed to bring empty, reusable water gallons instead. The fabrication protocol was demonstrated live by the Head of Sondakan Village. Because a portion of the attendees lacked the required containers on-site, they were encouraged to replicate the assembly at home. The overarching goal of this intervention is to instill localized waste-processing autonomy, equipping every household with a functional composting unit to systematically divert organic domestic streams at the source.



Figure 5. Construction of a Simple Composter

The role of housewives is very important in waste management because they regulate the flow of household waste in and out every day. In the context of empowerment, FEW group has great potential to encourage changes in community behavior in sorting and managing waste. The FEW organizations have proven effective in various family-based development programs, including environmental cleanliness activities and household waste utilization. The results of the outreach activities showed positive achievements, both in terms of participant participation, understanding and the emergence of initial initiatives in independent waste management in the household environment. A total of 75 people who are members of the FEW groups from 15 RW in Sondakan Village participated in the entire series of activities, starting from counseling sessions, discussions to practice. The participants' enthusiasm was evident from their active involvement in asking questions, sharing experiences and discussing the waste problems and how to process and sort waste properly and appropriately.

Implementation of Program

The community service team then conducted a waste segregation simulation and

designed a simple model for a waste bank system in Sondakan Village. This initiative aims to assist the Sondakan Village administration in reducing the volume of inorganic waste in the surrounding environment and fostering community awareness to maintain a clean and pleasant environment. A waste bank is a facility designated for collecting segregated waste (Maulana et al., 2023). As registered members of the waste bank, residents will receive benefits from collecting inorganic waste after depositing their refuse, one of which is cash.

The waste management model through the waste bank is managed by and intended for the community. Waste that can be deposited in the waste bank consists of categories such as plastic, paper, and glass bottles, including used cans (Maulana et al., 2023). Participants were invited to identify types of waste that possess market value and practice sorting and storing them correctly. Supporting factors for the success of this activity included the openness and active support of local officials, including the Sondakan Village administration, adequate event facilities, and the participatory approach utilized by the community service team.

Waste collection at the waste bank begins with segregation, followed by weighing. The purchase price of the recyclables is adjusted according to market rates. The proposed waste bank management model facilitates interaction, creating a reciprocal relationship and community empowerment between the customers and the waste bank institution, in figure 6. The impacts experienced by the community and customers due to the presence of the waste bank are supplemental income derived from waste and enhanced environmental cleanliness.



Figure 6. Implementation of the Sondakan Village Waste Bank

Several challenges encountered by the team during the educational and mentoring activities regarding waste segregation and management included the participants' low initial understanding of waste management principles and the persistent assumption that waste issues are entirely the responsibility of village sanitation workers. Additionally, the lack of infrastructure, such as segregated waste bins, and the urban layout characterized by numerous narrow alleys that cannot be accessed by waste collection trucks results in residents preferring to dispose of waste around their homes, such as in ditches and vacant lots, without any prior sorting.

Evaluation

The evaluation activity was conducted after all stages were completed. Several success indicators for the implementation of this activity included a participant attendance rate of >98%, the highly active enthusiasm of the Sondakan Village FEW members during the event as evidenced by the dynamic Q&A sessions and discussions during the presentation and counseling process and the structural continuation of this program through the establishment of a waste bank. Consequently, the waste management plan illustrated in Figure 9 can be executed effectively. The target achievement

level of this community service project, concerning organic waste processing via composter fabrication and inorganic waste processing for deposits in the waste bank, was successfully and sustainably realized.

CONCLUSION

This community outreach initiative focusing on domestic waste segregation and management in Sondakan Village has successfully elevated local ecological literacy and technical skills, fostering a sustainable approach to refuse management. The core framework anchors itself on active civic stewardship, prioritizing upstream source-segregation, localized organic composting, and the institutionalization of community-led waste banks for inorganic streams. Moving forward, residents are projected to progressively reap the socio-ecological and economic dividends generated by these composting and waste bank mechanisms. Ultimately, this successful pilot project serves as a scalable and benchmarking model, furthermore, this training will be recommended for replication in other sub-district in Surakarta City, to both the FEW groups and the general public.

REFERENCES

- Akbari, T., & Khadijah, A. (2024). Pengolahan Sampah Organik Rumah Tangga Menggunakan Komposter. *Jurnal Teknologi Lingkungan*, 25(2), 196–203.
- Alfons, A. B., Abrauw, A. E. S., Jikwa, S., & Anggraeni, D. (2020). Pelatihan Pengelolaan Sampah Dan Pendampingan Pembentukan Kelompok Bank Sampah Di Kelurahan Yabansai, Kota Jayapura. *Jurnal Abdimas Dinamis*, 1(1), 6–12. <http://ojs.ustj.ac.id/abdimas/article/view/568>
- Astuti, T. P., Wulandari, R., & Hidayati, N. (2025). Community Empowerment Through Assistance in The Creation of Business Identification Numbers in Laweyan Village. *Indonesian Journal of Devotion and Empowerment*, 6(2), 97–104. <https://doi.org/10.15294/amsx5d05>
- Elystia, S., Sasmita, A., Priyambada, G., Andrio, D., Reza, M., Andesgur, I., & Asmura, J. (2024). Pelatihan Pengolahan Sampah Organik dan Anorganik menjadi Produk yang Tepat Guna terhadap Siswa/i SMA N 1 Kampar Timur dalam Menciptakan Sekolah Berwawasan Lingkungan. *Jurnal Abdi Masyarakat Indonesia*, 4(2), 469–476. <https://doi.org/10.54082/jamsi.1127>
- Fachrurrozie, Martono, S., Nurkhin, A., Mukhibad, H., & Kardoyo. (2024). Improving Waste Management and Maggot Cultivation Capabilities at Pondok Pesantren As Salafy Al Asror Semarang. *Indonesian Journal of Devotion and Empowerment*, 6(1), 16–28. <https://doi.org/10.15294/xpv7h896>
- Maulana, Y., Masruroh, R., Fildzah, S., Putri, K., Yuliani, A., Kuningan, U., & Maulana, Y. (2023). Pelatihan Pengelolaan Sampah Rumah Tangga Desa Cimahi. *Reswara: Jurnal Pengabdian Kepada Masyarakat*, 4(1), 235–244.
- Permatananda, P. A. N. K., Pandit, I. G. S., Dewi, N. W. E. S., & Aryastuti, A. A. S. A. (2023). Pelatihan Pemilahan Sampah dan Eco Enzyme Guna Pengembangan dan Menggagas Rumah Kompos Menjadi Wahana Eduwisata Di Gianyar Bali. *Welfare : Jurnal Pengabdian Masyarakat*, 1(2), 382–389. <https://doi.org/10.30762/welfare.v1i2.531>
- Wahyuningsih, S., Widiati, B., Melinda, T., & Abdullah, T. (2025). Sosialisasi Pemilahan Sampah Organik dan Non-Organik Serta Pengadaan Tempat Sampah Organik dan Non-Organik. *Egyptian Journal of History and Philosophy of Science*, 1(1), 1–43. <https://doi.org/10.21608/ejhs.2025.424068>
- Willa, L., Dewi, Y., & Kusnita, K. L. (2023). Edukasi Pemilahan Sampah Sejak Dini di SDN 1 Wongaya Gede Education on Segregating Garbage at an Early Age at SDN 1 Wongaya Gede. 4(1).
- Yuwana, S. I. P., & Adlan, M. F. A. S. (2021). Edukasi Pengelolaan Dan Pemilahan Sampah Organik Dan Anorganik Di Desa Pecalongan Bondowoso. *FORDICATE (Informatics Engineering Dedication)*, 1(1), 61–69.