



## Empowering Rural Communities Through Waste Bank Socialization for Sustainable Environmental Management

<sup>1)</sup>Ivan Fauzani Raharja, <sup>2\*)</sup>Eko Nuriyatman, <sup>3)</sup>Rustian Mushawirya, <sup>4)</sup>Fauzi Syam, <sup>5)</sup>Akbar Kurnia  
<sup>1,2,3,4,5)</sup> Faculty of Law, Universitas Jambi, Jambi, Indonesia

\*Corresponding E-mail: [ekonuriyatman@unja.ac.id](mailto:ekonuriyatman@unja.ac.id)

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### ABSTRACT

This community service initiative aimed to increase environmental awareness among residents of Pelayang Raya Village, Indonesia, through a socialization program focused on the establishment of a community-based waste bank. The activity involved 60 participants, including village officials, women's groups, youth organizations, and traditional leaders. The program introduced key concepts of waste management based on the 3R principles—reduce, reuse, and recycle—while also outlining the operational mechanisms for forming and managing a waste bank. As a result, participants reached a consensus to formally establish a waste bank and agreed to follow up with student-assisted implementation through the MBKM KKN-T program. The project succeeded in fostering collaboration between community stakeholders, raising awareness, and laying a foundation for sustainable waste governance. However, the initiative was limited by its one-time implementation, uneven community participation, and the absence of a formal legal framework. Future programs should include ongoing training, regulatory support, and strategies for waste valorization to maximize the impact. Overall, the activity demonstrated the potential of participatory, community-driven environmental initiatives to build sustainable local systems and support rural circular economy models.

**Keywords:** Community Participation; Environmental Management; Rural Development; Socialization; Waste Bank

### INTRODUCTION

Pelayang Raya Village, located in Sungai Bungkal Sub-district, Sungai Penuh City, has a population of 2,257 residents within an area of 1.2 km<sup>2</sup> (Laurentika et al., 2021). The increasing population has led to a corresponding rise in the volume of waste generated (Brown, 2015), which in turn contributes to growing waste accumulation (Wikurendra et al., 2023). Therefore, an effective waste management system is urgently needed. One practical solution is the establishment of a waste bank to collect household waste, which can be recycled before disposal at the final waste disposal site (Viginta et al., 2019).

According to Article 1, paragraph (1) of Law of the Republic of Indonesia No. 18 of 2008 on Waste Management, waste is defined as the residue of daily human activities and/or natural processes in the form of solid matter (UU No. 18 Tahun 2008, n.d.). Syafrini (2013) and Mmereki et al. (2016) explain that waste is the end product of human consumption activities and must be managed in a systematic and comprehensive manner, including reduction and handling efforts.

Article 3 of the same law mandates that waste management must be carried out based on principles of responsibility and sustainability. Therefore, good governance in waste management is essential to prevent long-term

negative impacts. Adequate knowledge and community awareness are crucial to ensuring waste is managed using the 3R principles—reduce, reuse, recycle—which also offer economic value to the community. Muslim (2021) emphasizes that village governments should implement waste bank programs to facilitate proper and effective waste management behavior.

Waste management remains an important topic for comprehensive research (Karagoz et al., 2020). The issue not only involves technical and procedural aspects, but also the community's awareness and willingness to change lifestyles towards more environmentally responsible behavior (Atmojo et al., 2022). Based on a preliminary assessment conducted by the Community Service Team (Tim PKM), it was found that human resources (HR) in Pelayang Raya Village are still limited in terms of waste utilization and management. Furthermore, there is a prevalent perception that waste management is solely the responsibility of the village government—from temporary waste collection sites (TPS) to the final disposal site (Sakir & Setianingrum, 2021). In reality, however, waste management is a shared responsibility between the community and the government.

Thus, the establishment of a waste bank in Pelayang Raya Village is expected to shift community perspectives and enable waste to be perceived as a source of income (Muslim, 2021). Waste banks are believed to offer a viable solution to environmental problems (Khair, 2019). A well-managed waste bank can encourage the active participation of villagers in waste management and generate positive environmental impacts. Public outreach and education on the benefits and establishment of a waste bank are essential steps to support clean and sustainable waste management practices (Sekarningrum et al., 2017; Setianingrum & Ariyani, 2023).

The objective of this community service activity is to enhance the awareness of residents in Pelayang Raya Village regarding waste management through the establishment of a

waste bank. It is expected that this initiative will reduce the volume of waste and improve environmental quality. Additionally, the program aims to encourage behavioral change in the community by promoting the use of waste as a resource with economic value, thereby contributing to the creation of a cleaner and healthier environment.

## **METHODS**

This community service program was carried out through a structured series of activities designed to raise awareness and build community capacity in managing household waste through the establishment of a waste bank. The methods employed involved on-site engagement, stakeholder participation, and step-by-step socialization tailored to the local context. The following sections describe the location, target participants, and implementation stages of the activity.

### **1. Location and Time of Activity**

The community service activity conducted by the community service team regarding the socialization of waste bank establishment was held at the Village Office of Pelayang Raya, Sungai Bungkal Sub-district, Sungai Penuh City, Jambi Province. The event was attended by 30 participants, consisting of village officials, members of the Family Welfare Empowerment Group, youth organization, neighborhood heads, traditional leaders, and several village residents who were willing to participate.

### **2. Target Audience**

The objective of this activity was to raise public awareness about the importance of proper waste management through the establishment of a waste bank, in order to achieve clean and healthy environmental governance.

### **3. Implementation Stages**

#### **a. Socialization on Waste Bank Establishment**

The activity began with a socialization session focused on the establishment of a waste bank. This session aimed to foster awareness and sensitivity among participants about the importance of having a waste bank in the village as an effort to maintain environmental cleanliness and public health.

b. Mechanism of Waste Bank Establishment  
 Following the socialization, the next session provided materials on the mechanism of waste bank establishment. This session aimed to offer an understanding of the procedures for establishing a waste bank, from the neighborhood (RT) level to the village level, as well as guidance on financial management related to the operation of the waste bank.

## RESULTS AND DISCUSSIONS

The implementation of this community service activity was carried out through a series of structured stages, starting from socialization, participatory dialogue, and technical guidance related to the establishment of a waste bank. This section presents the outcomes and key discussions resulting from each stage of the program. The focus is on evaluating stakeholder engagement, knowledge transfer, and the formulation of sustainable waste management mechanisms that emerged throughout the activity.

1. Socialization on Waste Bank Establishment  
 The socialization activity was conducted on Friday, July 28, 2023, from 09:00 AM to 03:00 PM (WIB). The event was attended by various elements of the Pelayang Raya Village community, as presented in Table 1 below:

**Table 1.** List of Participants

Description	Number of Participants
Village Officials	10
Family Welfare Group	8
Youth Organization	15
Neighborhood Heads	15
Traditional Leaders	3
Community Members	9
Total	60

Figure 1 illustrates the socialization session led by the speaker, Ivan Fauzani Raharja. He presented the benefits of establishing a waste bank for both the community and the village, including its economic and environmental advantages.



**Figure 1.** Presentation of the Socialization Material on Waste Bank Establishment

The primary issue raised in the session was environmental pollution caused by unmanaged waste, which can result in unpleasant odors, soil contamination, and potential sources of disease (Sudiro et al., 2018). To address this, the waste bank initiative encourages the community to “deposit” waste that holds economic value.

Solihin et al. (2018) explain that, in general, the operational process of a waste bank includes waste sorting, waste handover by customers, weighing and recording the waste, managing the collected waste, documenting transactions in a savings book, and distributing the proceeds from waste processing between customers and waste bank managers.

According to Wijayanti and Suryani (2015), waste can have significant economic value when it is in a condition suitable for sale or use as raw material in commercial activities, both in terms of quantity and quality. Therefore, customers are advised to sort their waste prior to depositing it at the waste bank. Syafrudin et al. (2019) state that waste banks represent an effective and environmentally friendly waste management approach, helping to reduce the volume of waste generated and to minimize direct disposal at final waste sites.

Various types of waste need to be sorted into specific categories to meet environmental protection standards (Wu et al., 2021). For this program, it was agreed that the types of waste to be accepted include solid organic waste that can be processed into compost or liquid fertilizer. This initiative also holds potential to reduce the volume of waste sent to final disposal sites.

Previously, the Kerinci Police Department had deployed personnel to clean up several waste hotspots in Sungai Penuh, including in Pelayang Raya Village (Desman, 2023). This highlights the urgency of addressing the growing volume of waste in the area.



**Figure 2.** Kerinci Police Officers Participating in a Community Clean-Up Activity

As a follow-up, the Community Service Team and the Village Government committed to conducting ongoing assistance through the MBKM KKN-T program (a thematic community service program under Indonesia's "Merdeka Belajar Kampus Merdeka" policy that enables students to contribute directly to community development) during the second semester of the 2023/2024 academic year. Students from relevant study programs will be trained to develop village-level waste management systems. According to Sakir and Setianingrum (2021), this activity aligns with efforts to improve community knowledge, skills, and behavior related to waste management.

## 2. Waste Bank Establishment Mechanism

A waste bank can be established with six key management roles: a Chairperson, a Treasurer, and heads of the Recording, Administration, Weighing, and Packaging Divisions.

The steps for establishing a waste bank include:

- Agreement on the establishment at the neighborhood, community unit, or village level.
- Formation of an organizational structure.
- Designation of a name for the waste bank.
- Identification of a location or storage facility.

- Recruitment of members through outreach initiatives.
- Collaboration with waste collectors.
- Development of a simple administrative system.

Drafting bylaws (Constitution and Articles of Association) to ensure organizational sustainability. According to Arifin et al. (2020), the establishment of a waste bank requires the formation of a team or management board responsible for operations. This organizational structure must be mutually agreed upon and officially authorized through a decree issued by the local leadership.



**Figure 3.** Explanation of the Waste Bank Establishment Mechanism

The establishment of a waste bank aligns with the principle of "save the rivers, save the sea," which emphasizes community empowerment (Wynne et al., 2017). Raising awareness and strengthening community understanding through local community-based initiatives is a key solution to waste issues, especially when applying the waste bank model (Wulandari et al., 2017). Waste banks not only serve as platforms for economic empowerment but also as educational tools that promote responsible and sustainable waste management (Sakir & Setianingrum, 2021).

This activity has achieved several key outcomes, including:

- Increased community environmental awareness, as evidenced by the diverse participation of stakeholders (see Table 1) and the community's collective agreement to establish a waste bank.
- Cross-sector commitment built among village authorities, academics, and

community members to implement a sustainable program.

3. An operational mechanism and organizational structure for the waste bank ready for implementation, as illustrated in Figure 1 and the outlined technical stages.

Concrete contributions from this initiative include delivering data-informed material and best practices, facilitating discussions to reach community consensus, and preparing a follow-up action plan involving continued mentoring through the KKN-T program. These demonstrate that the program goes beyond mere dissemination—it fosters participatory spaces and real community empowerment.

From a sustainability perspective, the waste bank is intended to be a long-term initiative. The jointly agreed organizational statutes and structure provide a strong foundation. The MBKM KKN-T program will support early-stage implementation and enhance the capacity of the local community in managing and innovating waste processing. Scheinberg et al. (2010) and Topic and Biedermann (2015) emphasized that successful changes in waste management require a deep understanding of local contexts. Yukalang et al. (2018) added that broad community consultation and engagement with experts are necessary to understand the area and its waste-related challenges.

In developing countries with large populations, human resources are considered key development assets. Human involvement is crucial in managing waste systems in such settings (Dhokhikah et al., 2015). The success of a waste bank depends on household-level waste sorting and the active role of government in encouraging 3R behavior (Reduce, Reuse, Recycle) among communities (Aisyah et al., 2018). For instance, Shentika (2016) found that community participation in waste banks in Probolinggo, East Java, contributed significantly to reducing local waste generation.

Furthermore, the Regulation of the State Minister for the Environment of the Republic of Indonesia No. 13 of 2012 on Guidelines for the Implementation of Reduce, Reuse, and Recycle through Waste Banks outlines the operational mechanism as described in Article 3. This

includes: waste separation, delivery of waste to the bank, weighing and recording, deposit of sales value into savings books, and profit-sharing between depositors and waste bank managers.

However, this activity also faced several limitations. The outreach was conducted only once, which restricted the reach and depth of information dissemination. Uneven community participation during the initial implementation created challenges, and the lack of formal legal status for the waste bank from the village government may hinder future access to funding and partnership programs. Future studies should focus on conducting periodic evaluations of the effectiveness of the established waste bank, developing integrated training models for waste bank managers and community members, exploring the potential for advanced processing of organic waste into commercial products, and formulating local regulations that support circular economy initiatives at the village level.

## CONCLUSION

This community service project successfully enhanced environmental awareness and mobilized key stakeholders in Pelayang Raya Village through a targeted socialization program on establishing a community-based waste bank. The initiative resulted in a shared agreement among local government, youth groups, and residents to develop and manage a waste bank structure that aligns with 3R (reduce, reuse, recycle) principles. Concrete outcomes included the development of a management mechanism, active stakeholder engagement, and integration with the MBKM KKN-T university program for future support. However, the project faced several limitations. It was conducted through a single intervention session, limiting its reach. Community participation was uneven, and the absence of formal legal status for the waste bank may hinder access to funding or partnerships. Future studies should include periodic evaluations of waste bank effectiveness, the development of integrated training modules for stakeholders, the exploration of composting innovations, and

the creation of localized circular economy regulations tailored to rural contexts.

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