

RESEARCH ARTICLE



Implementation of a Waste Bank Program in Support Zero Waste at Urban Area

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ABSTRACT

Background: The waste bank is located in the Srengseng Village. Waste bank is still very active in carrying out this program, so it has become one of the leading Unit Garbage Banks in Kembangan District. In the implementation of the waste bank, there are still many that are not in accordance with the existing guidelines, so there are still many obstacles that occur. **Methods:** This research wants to know the implementation of the waste bank program that is already running at the waste bank. This study uses a qualitative approach and purposive sampling technique to determine research informants. Data obtained through interview techniques, observation and review of documents. **Results:** The results of this study indicate that in the process of implementing a waste bank, the process of sorting waste and handing over waste is still not in accordance with existing guidelines. Meanwhile, the process of weighing waste, recording and transporting waste is in accordance with existing guidelines. Waste bank customers only get counseling once at the beginning of the waste bank implementation and also customers do not get the equipment needed for sorting waste. In the handover process, it is known that waste bank does not have a fixed schedule for the delivery of waste and there are also many customers who do not sort before handing the waste to the officers. **Conclusion:** Researchers suggest that counseling be carried out according to schedule and provide appropriate equipment to customers so that customers can properly sort waste.

INTRODUCTION

Waste remains a problem experienced by nearly all communities in Indonesia and can therefore be regarded as a national issue, arising as a by-product of everyday human activity. As the population grows, waste management in Indonesia remains inadequate: households typically only collect waste at home before it is picked up by local waste workers and transported to a temporary waste collection point, from which it is later carried to the landfills (1).

Mixed organic and inorganic waste gives rise to pollution of odor, soil, and water. When dumped into rivers or riverbanks, it forms so-called “waste islands” and contributes to flooding, while landfilled plastic and glass waste reduces soil fertility (2). Odor pollution from decomposing waste, water pollution from river dumping, leachate seepage into settlements and residents’ water sources, and air pollution from waste burning are further consequences, with river pollution in particular contributing to rising rates of diarrheal disease and increasing the cost of treating raw water for drinking (3).

Waste management remains one of Indonesia’s greatest challenges, with daily waste generation reaching approximately 175,000 tonnes (around 64 million tonnes per year), requiring an appropriate management model. More than 90% of districts and cities in Indonesia still rely on open dumping, in which waste is simply deposited at a final disposal site without further treatment, while efforts at sorting and processing remain minimal. Law No. 18 of 2008 mandates national and local governments to ensure the implementation of proper, environmentally sound waste management (4). To operationalize the 3R principle (Reduce, Reuse, Recycle), the Ministry of Environment issued Regulation No. 13 of 2012 concerning Guidelines for the Implementation of Reduce, Reuse and Recycle through Waste Banks, which provides the legal basis for the waste bank as a policy instrument (5).

A waste bank is a community-based concept in which sorted waste – rather than money – is “deposited” and managed with banking-like administration. It emerged as a grassroots initiative to address the waste problem while changing public perception of waste as an item with economic value. In West Jakarta, a Central Waste Bank named Buah Hati was established in 2017 to help Unit Waste Banks across the area obtain better prices than ordinary waste collectors and to attract more customers. In Kembangan Sub-district specifically, waste banks began operating in 2014 with six units, one per village, and had grown to 98 active units by 2020, managed by 490 residents and serving a total of 2,237 customers, processing an average of 12,568 kg of waste per month.

Waste Bank in Srengseng Village is one of the leading waste banks in Kembangan Sub-district and remains highly active; beyond addressing the waste problem, it also raises residents’ awareness of the importance of contributing to waste management through the waste bank mechanism. Nevertheless, several aspects of its implementation are not yet consistent with Regulation No. 13 of 2012 – for example, officers do not consistently use proper personal protective equipment, many customers still submit unsorted waste, and the storage facility does not fully meet the recommended construction standard. Visible impacts in the field include the accumulation of waste at the unit due to limited storage space and irregular collection timing. Based on this background, the researchers were interested in analyzing the implementation of the waste bank program as a form of community-based waste management.

MATERIAL AND METHOD

This study used a qualitative descriptive design intended to provide a detailed picture of the implementation of the waste bank program. It was conducted at the Bumi Lestari Unit Waste Bank, Jl. Buni RW 07, Srengseng Village, Kembangan Sub-district, West Jakarta, from November 2020 to January 2021. Data were obtained from primary and secondary sources. Primary data were collected through in-depth interviews with predetermined informants and direct observation of the variables studied. Secondary data were obtained from a review of documents related to the implementation mechanism of the Bumi Lestari Unit Waste Bank in 2020.

Informants were selected using a purposive sampling technique and grouped into three categories. Main informants were those directly involved in the waste bank program, namely the management (chairperson, vice-chairperson, secretary, treasurer, and one member). The key informant was the Kembangan Sub-district officer responsible for the waste bank program. Supporting informants were waste bank customers residing around the unit. Five variables were assessed – waste sorting, handover, weighing, recording, and transport – each examined from the aspects of personnel, management, and work environment. Instruments used were interview guides, observation checklists, and document-review checklists, supported by a voice recorder and stationery.

Data validity was established through two forms of triangulation. Source triangulation involved in-depth interviews with key, main, and supporting informants to verify specific information from multiple sources. Method triangulation combined in-depth interviews, observation, and document review, with the results compared across methods to obtain accurate information. Data analysis followed several steps: all data

obtained from interviews, document review, and observation were compiled; interview transcripts were prepared in written form; data matrices were constructed to give a clear overview; data were then interpreted; similarities, differences, and tendencies across variables were identified; and data validity was verified through source triangulation using information from different informants. This study was approved by the Ethics Committee of Esa Unggul University.

RESULTS

The results of observations and in-depth interviews at the waste bank regarding the processes of waste sorting, collection, weighing, recording, and transportation are presented in the following table.

Table 1. Summary of Findings on Waste Bank Process Implementation at the Bumi Lestari Unit Waste Bank

Process	Conformity	Key Finding
Sorting	Not Appropriate	Counseling given only once at program start instead of every three months; customers not provided with sorting containers.
Handover	Not Appropriate	No fixed schedule for waste handover; many customers still submit unsorted waste.
Weighing	Appropriate	Officers correctly performed the weighing procedure using standard equipment and complete records.
Recording	Appropriate	All informants understood the recording procedure; cash book and savings book complete.
Transport	Appropriate	Transport carried out by the Central Waste Bank (BSI) and waste collectors using their own vehicles; no obstacles identified.

Source: Primary data (in-depth interviews)

A summary of the findings for each waste bank process, compared against Ministry of Environment Regulation No. 13 of 2012, is presented in Table 1.

Waste Sorting

In-depth interviews with all informants indicated that officers and customers received training and counseling only once, at the beginning of the program, before the waste bank became operational. Officers were not provided with adequate equipment or personal protective equipment, relying only on gloves, masks, and a cutter. Although officers found it somewhat difficult to briefly explain the sorting procedure, observation showed that they were able to sort waste correctly and without error.

"We did a comparative study visit to the waste banks in Joglo... it was about waste sorting: this type of waste is called this, boxes like these are called this, buckets are like this... a clean, already-washed cup is called 'glass A', and a bottle with its label removed is called a 'bodong' (delabeled) bottle" (Main Informant 1).

"Yes, there was training on how to sort waste" (Main Informant 2).

Document review confirmed that a sorting guideline existed, but no photographic evidence of the training could be found. In summary, officers received initial training, but customers did not receive the counseling required once every three months, and the absence of sorting containers meant that many customers handed over unsorted waste, shifting the sorting task to the officers.

Waste Handover

Interviews indicated that there was no fixed schedule for waste handover; customers could submit waste on any day, and neither officers nor customers reported this as an obstacle, although two main informants gave slightly differing accounts.

"It's not scheduled for handover" (Main Informant 1).

"The schedule isn't really fixed" (Main Informant 2).

Observation and document review confirmed that no formal handover schedule had been established, although a complete equipment list and handover records were maintained. The main obstacle identified was that many customers still submitted unsorted waste, requiring officers to re-sort it before it could be weighed.

Waste Weighing

All informants could briefly explain the weighing process: waste is sorted by type, weighed, and the result recorded in the savings book.

"The weighing process covers all items that have already been sorted; each item is weighed separately and then recorded in the ledger" (Key Informant).

"The weighing is divided into two: cardboard and delabeled plastic bottles I sell to BSI, while other items such as buckets, cans, and so on go to the waste collector, so I split it in two" (Main Informant 1).

Document review confirmed the availability of standard equipment (large and small scales and customer savings books) and complete weighing records. No obstacles were identified, and the process was found to be consistent with the applicable guideline.

Waste Recording

All informants, including customers, were able to explain the recording process: waste type, weight, and customer name are recorded at the time of weighing, followed by conversion of the weight into a monetary value.

"What is recorded at weighing is the type of waste, its weight, and the customer's name; the price is then recorded after being converted into rupiah" (Key Informant).

"It's the weight of each item brought by the residents that's recorded" (Main Informant 3).

Equipment used included a cash book and customer savings books. Document review confirmed complete recording equipment and records, and no obstacles were identified in this process.

Waste Transport

Officers reported that transport was coordinated with the Central Waste Bank (BSI) and waste collectors, who were notified whenever weighing took place and would then come to collect the weighed waste using their own trucks, at no cost to the waste bank.

"Usually the officer will inform the collector and BSI when weighing is taking place, and then BSI and the collector will come to pick up the waste" (Key Informant).

"We call the collector and BSI, and later they come here to pick it up; so the truck comes from them too, free of charge" (Main Informant 1).

All informants, including customers, understood this process, and observation confirmed that it was carried out consistently. No transport records were maintained, though officers were able to clearly explain the procedure, and no obstacles were reported.

DISCUSSION

Waste Sorting

Findings show that officers received training on the waste bank only at the start of the program, and customers likewise received counseling only once. This is not in accordance with Ministry of Environment Regulation No. 13 of 2012, which requires that waste bank customers receive counseling at least once every three months, whereas officers had already met the training requirement. The same regulation also stipulates that each customer should be given three separate waste containers and a savings passbook, and that officers should use personal protective equipment while serving customers. In practice, officers at the Bumi Lestari Unit only used minimal equipment (plastic gloves and masks), while customers received only a savings passbook without separate sorting containers, leaving them to use whatever containers they already had at home.

This finding is in line with Kusumaningtiar (6), who found that community understanding of waste categories, sources, management, and the 3R approach improved through lecture, question-and-answer, and simulation methods of socialization. Kusumaningtiar (7) similarly emphasized that ongoing outreach and training – for example through webinars – remain necessary, given that public understanding of managing

waste contaminated by COVID-19 in households and public spaces is still limited. The lack of sorting containers made it difficult for customers to sort their own waste, even though officers themselves understood the sorting procedure well but struggled to explain it briefly. Overall, the main problems identified in the sorting process were insufficient counseling for customers and inadequate provision of sorting equipment. To address this, it is recommended that the responsible government office conduct counseling according to the mandated three-month schedule, and that both officers and customers be provided with the equipment specified in the guideline, particularly sorting containers, so that customers are able to sort their own waste and officers no longer need to re-sort it.

Waste Handover

Officers and customers were able to explain the handover process well, and the required equipment list and handover records were both available; the storage area also met the construction requirements of Regulation No. 13 of 2012, including a strong, clean, water-resistant, level, and non-slip floor, sturdy and clean walls, ventilation, a sound and leak-free roof, and supporting facilities such as a fence, yard, parking area, drainage, and a customer service space. However, the regulation also requires a fixed, mutually agreed operating schedule for waste handover, which the Bumi Lestari Unit does not yet have; officers reported that customers may submit waste at any time as long as they first contact the officer.

This finding is consistent with Saputro (8), who reported that many customers found it difficult to submit waste on a fixed weekly schedule due to time constraints, particularly among customers who depended on a spouse or child to help deliver the waste; in response, waste bank management in that study made the handover schedule flexible to accommodate customers' capacity. The main problems identified in the handover process were the absence of a fixed schedule – attributed to officers' concern that a fixed schedule might conflict with residents' or officers' personal activities – and the continued submission of unsorted waste by customers, which requires officers to sort it themselves. It is recommended that officers and customers jointly agree on a fixed handover schedule and reach an agreement that waste submitted must already be sorted, so that officers no longer need to perform this task.

Waste Weighing

The weighing process at the waste bank was found to be consistent with the applicable guideline: a regular weighing schedule was in place, results were consistently recorded, and the necessary equipment was complete. Officers explained – and were observed to perform – the procedure of sorting waste by type before weighing and recording the results in the savings book. This is in line with Purbasari (9), who found that waste is weighed according to type by the waste bank's weighing officers, with the results recorded and the corresponding value credited to the customer's savings account. Document review confirmed that the required equipment – large and small scales and customer savings books – was available, and that weighing records were properly archived. No obstacles were identified in this process.

Waste Recording

The recording process was also found to be consistent with the applicable guideline. Regulation No. 13 of 2012 specifies that the equipment required for recording includes a customer savings book, a treasurer's cash book, and a waste-deposit record book, all of which were available at the Bumi Lestari Unit. This finding is consistent with Saputri (10), who reported that recording was carried out in a customer savings book and a treasurer's cash book, with customers also receiving a waste-deposit receipt slip. Both officers and customers were able to explain the recording process well, and observation confirmed that it was carried out correctly, with no obstacles identified.

Waste Transport

Transport of waste from the waste bank Unit was provided by the central waste bank and waste collectors, who were contacted by officers whenever weighing was taking place and who then transported the weighed and priced waste using their own trucks. This is consistent with Saputri (10), who found that the facilities required for waste bank operations include small and large scales, customer savings books, an administration book, and a vehicle for transport – with the transport vehicle at the Bumi Lestari Unit provided

by BSI and the waste collector rather than by the waste bank itself. No obstacles were identified in this process.

CONCLUSIONS

Based on the findings of this study at the waste bank, the following conclusions can be drawn. First, the waste sorting process has not fully complied with existing guidelines: counseling for customers was not delivered on the required three-month schedule, and inadequate sorting equipment was a key reason customers did not sort their own waste. Second, the waste handover process has not complied with existing guidelines, owing to the absence of a fixed schedule and the continued need for officers to sort unsorted waste submitted by customers. Third, the waste weighing process was already consistent with existing guidelines and was carried out on a regular schedule (in the third week of each month). Fourth, the waste recording process was already consistent with existing guidelines, using a cash book and savings book as the primary instruments. Fifth, the waste transport process was already consistent with existing guidelines, with transport facilities provided by the Central Waste Bank (BSI) and waste collectors.

Based on these findings, it is recommended that the sub-district waste bank program holder conduct counseling for customers according to the mandated schedule so that customers better understand the implementation process; that waste bank management provide the necessary sorting equipment, such as sorting containers, to help customers sort their own waste; and that officers and customers jointly agree on a fixed waste-handover schedule and on the expectation that waste submitted has already been sorted, so that officers no longer need to re-sort it.

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Conflicts of interest

The authors declare that there is no conflict of interest in this project. Declared individual interests are recorded under team member details. No additional interests are recorded for this review.

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