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Waste Bank: A Blessing for Environmental Sustainability

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Abstract

This study purpose to analyse the form of collaboration, the role of waste banks, and identify the underlying motives, particularly in the context of preparing environmental sustainability reports. Collaboration between government agencies, in this case ministries/institutions, and local waste banks has become an increasingly popular model for implementing *environmental sustainability* CSR. Using a descriptive qualitative approach, this study found that such collaboration is motivated not only by regulatory compliance but also by the need to build social self-reliance and increase community participation in environmental responsibility. This study found that the theory of waste blessings can be presented from spiritual, economic, environmental accounting, and social capital perspectives. The collaboration programme with waste banks provides measurable and easily reportable outcomes, such as reduced waste volume, increased community income, and contributions to the circular economy. This analysis concludes that this collaboration is multidimensional, encompassing transformative collective action that turns environmental problems into opportunities that simultaneously improve welfare, environmental awareness, and social cohesion, as well as providing clear evidence of environmental accounting as a shared responsibility to demonstrate a real contribution to the Sustainable Development Goals (SDGs).

Keywords: Role of Waste Banks, Sustainable Environment, Sustainable Development Goals, Waste Bank, Waste Blessing,

1. Introduction

Waste is used goods or materials that are no longer needed or wanted. These items are discarded because they no longer function or have no value (Kaur & Kaur, 2024) Data shows that 72% of the population is not aware of the need to process waste. The increase in public consumption is not in line with optimal waste management capacity, resulting in environmental pollution

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(Susilawati et al., 2024). Densely populated cities contribute substantially to waste production. However, disposal strategies that along with limited land and financial resources, exacerbated by unorganised public behaviour, have resulted in ineffective policies. (Therefore, strategic efforts are needed, namely empowering sustainable waste management to reduce waste volume by raising awareness of the 5M concept: Reduce, Sort, Utilise, Recycle, and Save Waste, as well as increasing the role of Waste Banks and focusing on the essence of independence.

Based on data from the Yogyakarta City Environment Agency (DLH), waste accumulation in Yogyakarta City shows a continuing upward trend. In 2023, the average waste accumulation reached 800-850 tonnes per day, an increase of around 5-7% compared to the previous year. This trend continued in 2024, with an average volume of around 850 tonnes per day. Waste in Yogyakarta City can increase to 950-1,000 tonnes daily on specific days, particularly during weekends and public holidays. Several factors contribute to these variations, including seasonal changes, public holidays, and tourism, which are all features of Yogyakarta City. Currently, the amount of municipal waste from Yogyakarta Province entering the Piyungan landfill reaches around 470 tonnes per day, consisting of 77% organic fraction and 23% inorganic fraction. Each year, there is an increase of 8% (Sudibyo, et al, 2017) The amount of organic waste in Yogyakarta City is 61.12%, and the total amount of food, vegetable, and fruit waste is 30.30%. (Utami, 2018) An examination of waste composition trends indicates that organic waste remains the most prevalent, averaging 62%. Specifically, waste in Yogyakarta City is primarily composed of organic waste (61.12%), followed by paper (6.18%), plastic (10.79%), textiles (0.68%), rubber (0.13%), metal (2.12%), glass (10.66%), hazardous waste (3.70%), and residue (4.63%). Plastic waste has demonstrated a notable increase of 2-3% over the past three years. Additionally, there has been a discernible rise in packaging waste, particularly following the pandemic, which reflects alterations in consumer behavior. This data underlines the importance of comprehensive waste management, with a focus on waste reduction at source, especially for food waste and plastic, which are the main contributors to waste accumulation in the city of Yogyakarta. Most of the waste comes from households. Waste that is not managed properly will impact the environment and the health of the surrounding community(Putri Rachmawati & Desi Susilawati, 2020)

Data from the Yogyakarta City Environment Agency reports that around 10-15% of the total inorganic waste collected and recycled by the waste bank system and recycling communities means that inorganic waste processing is still low. In mid-2024, waste accumulation in Yogyakarta reached around 5,000 tonnes, prompting the DIY Regional Government to declare a waste emergency and make its management a strategic issue.

The establishment of waste collection and processing centres within communities has also been carried out as a proactive measure (Adeniyi & Olatunji, 2025) to serve as centres for managing waste generated in the surrounding environment. In an effort to resolve waste issues, the government has taken various measures, including the formulation of a law regulating waste management, namely Law No. 18 of 2008. The new paradigm of waste management is based on

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integrated waste reduction and handling from upstream to downstream, particularly the involvement of the community, especially households, as the largest producers of waste. This means that the community needs to reduce waste generation and have the ability and knowledge to handle waste properly (Paradita, 2018). Effective solid waste management has become a crucial challenge for achieving sustainable development. As a result, numerous nations have implemented "Zero Waste" policies that encourage recycling and resource recovery while lowering reliance on waste landfilling and incineration (Cai et al., 2025).

Encouraging resource recovery and recycling (Cai et al., 2025).
A theoretical foundation for comprehending the potential of trash as a resource is provided by the circular economy concept, which was first presented in Circular Economy: Business Rationale For An Accelerated Transition, by Ellen MacArthur Foundation, 2014 quoted (Heading, 2021). Designing methods that do away with the idea of "waste" is another aspect of the circular economy in waste management, in addition to recycling. Waste has been transformed into a blessing and a potential resource opportunity. This transformation requires collaboration between business, policy, and community innovation – where waste banks can be a strategic entry point, especially in developing countries. UNEP 2024 for Waste Management: Reduce plastic waste generation at source, improve inclusive collection and recycling infrastructure, support more environmentally friendly material innovations, engage all stakeholders, including the informal sector such as waste banks. Waste banks are a practical example of a community-based approach that is in line with the principles of the circular economy.

A socio-ecological perspective, the *common-pool resources* (CPR) theory emphasises that when resources are non-exclusive (available to all), reducing resource consumption by one person reduces the limited resources available to all, and renewable (resources can be regenerated over time), the dilemma of common-pool resources(Hansen et al., 2025). This underscores the importance of considering ecological and behavioural feedback in raising user awareness, which can significantly strengthen sustainability efforts, knowledge feedback, improve system resilience and sustainability, and offer insights into more effective CPR management strategies.(Tu et al., 2025). Effective waste management requires collaboration between the government, the community, and the private sector.

However, behind these massive environmental challenges lies untapped potential for "blessings." The *Linear Economy* paradigm of "*take-make-dispose*" is slowly being replaced by the *Circular Economy* approach, which views waste not as final waste, but as a misplaced resource(Kirchherr et al., 2017). This paradigm shift has given rise to the concept of "Waste Blessing", a phenomenon where residual materials from production and consumption processes can be transformed into new economic value, while also contributing positively to environmental sustainability.

The role of waste banks can be examined from the *value-belief-norm* (VBN) theory by(Stern, 2000) explains that pro-environmental behaviour occurs through a causal sequence: personal values (such as concern for the environment) influence individuals' beliefs about environmental

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threats and their impacts, which then activate personal moral norms (feelings of obligation), which ultimately encourages environmentally friendly behaviour. In short, this theory proposes that pro-environmental actions arise when individuals have values, believe in environmental threats, and feel morally responsible to act. The majority of 3R (Reduce, Reuse, Recycle) waste management programmes focus on technological development, resulting in limited references regarding user awareness of waste management. (Indroyono & Alfarizi, 2024)This study highlights waste from four perspectives of blessing, namely spiritual, economic, environmental accounting, and social capital. This study emphasises the integration between a *top-down* approach through government regulations and *a bottom-up* approach through public awareness, as stated by is the key to waste management transformation. Collaborative programmes or partnerships between stakeholders in managing waste that are implemented appropriately. Promoting the principles of the circular economy, where there is an increase in the economic benefits of waste. Thus, waste is not considered a burden but also as a potential resource that can be realised through the role of waste banks as social engineering.

The formal definition of a waste bank according to Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number 14 of 2021 is as follows:

A waste bank is a waste management facility based on the 3R principle (reduce, reuse, and recycle). Waste banks serve as a means of education, encourage behavioural change in waste management, and facilitate the implementation of a circular economy. Waste banks are established and managed by the community, business actors, and/or local government.(Budiyarto et al., 2025)

The following are the roles of waste banks: a) As a new node that changes the flow of plastic waste. Waste banks become formal collectors and mobile intermediaries by offering higher and stable prices to households and regular collection schedules. b) They have limited network power in the recycling chain, namely, influencing households through financial incentives, thereby changing their behaviour in sorting waste. c) They collaborate with informal actors such as waste pickers and cartmen because of the financial advantages and regularity offered by waste banks. d) 4. Contributing to Environmental Impact Reduction by reducing open waste burning practices and diverting waste from waste accumulation at final disposal sites, e) Strengthening Power Concentration at the Intermediary Level with the government(Leeuwen & Surya, 2025)
The importance of the role of waste banks as an implementation of community-based environmental management. Waste banks, as business entities owned by communities that view waste as a valuable economic commodity and savings, have instruments that involve community participation as social engineering that encourages community independence in environmental management. The existence of waste banks is very important as a form of synergy between the community, government, and private sector in implementing waste banks to create effective and collaborative environmental management. (Retno & Suryani, 2015)

Waste banks are a form of community self-help that acts as a synergistic partner with the government in managing waste. They can be defined as a means of sorting and collecting waste

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that can be recycled or reused because it still has economic value (Minister of Environment, 2014). Waste banks support the government's 3R programme, namely reduce, reuse, recycle, which consists of activities to limit waste, reuse waste and recycle waste. These activities include reducing anything that can cause waste, reusing waste for the same or other functions, or processing waste to produce new products. In June 2025. There are 701 waste banks in Yogyakarta City. These are spread across the city, exceeding the number of neighbourhood associations, which is 616. These waste banks contribute to a 1.7% reduction in national waste (Minister of Environment and Forestry, 2022). The purpose of waste banks at the RT/RW level is crucial in waste management from the source and changing community behaviour.

Based on a review of the literature, transforming waste from a problem into a blessing requires a multidimensional approach that integrates: *policy intervention* through extended producer responsibility regulations, *technological innovation* in processing and recycling, *social engineering* through education and environmental awareness, *and economic incentives* to encourage a circular economy. As stated in *the Sustainable Waste Management Framework* by Wilson (2022, cited in (Anuardo et al., 2022), the success of waste management lies in the ability to view waste not as refuse, but as a resource with economic and ecological value.

Sustainability has emerged as a central topic in contemporary global discourse due to its critical importance for the long-term survival of humanity, the resilience of ecosystems, and the stability of socio-economic systems (Listyorini & Falikhatun, 2025) (Ranjbari et al., 2020)Environmental accounting is defined as the process of integrating environmental costs into financial management practices, ensuring that environmental impacts are considered in budgeting, planning, and reporting(Liu et al., 2018) On the other hand, waste management refers to the collection, transportation, and disposal of waste materials in a manner that minimises their impact on the environment(Ranjbari et al., 2020). However, a thorough grasp of financial management concepts and environmental conservation techniques is necessary for the successful application of environmental accounting in waste management. Environmental accounting is still not widely used in public sector (Rahmawati et al., 2024). Waste management, particularly in developing nations, despite its increasing significance financing, demonstrates how trash banks not only manage garbage but also generate social and economic value that is sometimes disregarded in conventional metrics. "waste".

Therefore, this study will examine in more depth the relationship between the concept of environmental accounting and waste management practices through the role of waste banks. The application of Environmental Accounting to measure the economic contribution and added value of waste banks in Indonesia, an informal recycling model that integrates environmental and social aspects with finance, shows how waste banks not only manage waste but also create economic and social value that is often overlooked in traditional measurements.

In this context, *Environmental Accounting* emerges as a crucial instrument for quantifying these "benefits." Environmental accounting is not merely about recording waste management costs, but rather a system of information that identifies, measures, and reports the economic costs and

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benefits of a company's activities on the environment. Through the lens of environmental accounting, waste material flows can be tracked, management costs can be optimised, and the value created from recycling, reuse, and *reduction* can be formally recognised in financial statements and sustainability reports.

Therefore, this study aims to investigate further how environmental accounting practices can reveal and optimise the economic value of waste management, so that the "blessing of waste" is not just a discourse, but can be measured, reported, and managed in an accountable manner. Sustainable waste management, particularly through circular economy approaches such as recycling and waste banks, directly strengthens the three pillars of the Triple Bottom Line (TBL): People, Planet, and Profit. (Elkington, 1997) From a People (social) perspective, this system creates green jobs, raises community environmental awareness, and improves community health through a cleaner environment. For the Planet pillar (environment), reducing waste that ends up in landfills means reducing methane emissions, groundwater pollution, and ecosystem damage, thereby reducing the ecological footprint. Meanwhile, from the Profit (economic) perspective, the economic value lost from waste can be capitalised into a new source of income for households through the sale of recycled materials, as well as saving local budgets for landfill transportation and management. Thus, well-managed waste is no longer a cost, but rather an asset that can generate comprehensive social, environmental, and economic benefits.

The United Nations Sustainable Development Goals (UN SDGs) related to waste management issues have a close and multidimensional correlation with the achievement of the Sustainable Development Goals (SDGs). Directly, effective waste management is an explicit target of SDG which focuses on reducing negative environmental, by paying attention to air quality and urban waste management. In addition, its contribution is cross-sectoral. Good waste management supports SDG 3 (Good Health and Well-being) by reducing sources of disease, SDG 8 (Decent Work and Economic Growth) through the creation of a creative economy in the recycling sector, SDG 12 (Responsible Consumption and Production) by encouraging sustainable consumption patterns and waste reduction, SDG 13 (Climate Action) through reducing greenhouse gas emissions from the waste sector. Therefore, interventions in the waste sector are not isolated actions, but rather a strategic step to accelerate progress towards various development goals simultaneously and SDG 17 Partnerships for the Goals.

2. Method

The Waste Bank Activists community is the centre of this study's case study methodology and qualitative research strategy. Based on the Triple Bottom Line (TBL) concept, this study attempts to offer a thorough understanding of organic and inorganic waste management techniques and their connection to social capital and sustainability. The banks Sampah Berseri 35 and Bank Sampah Jantra, which are situated in Bumijo Village, Yogyakarta, Indonesia, are the subject of this case study. This study investigates how local communities (waste banks) function, how community and government cooperation can manage waste as a blessing in daily life, and how the social capital created supports sustainability in all spheres: social (people), environmental (planet), and economic (profit).

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2.1 Data Collection

In addition to in-person interviews at the informants' places of business, participatory activity observation was employed. Understanding trash as a blessing and evidence of business actors' individual experiences with sustainability measures was made possible by this approach. The research questions were semi-structured. The research informants were selected using purposeful sampling according to the following criteria: 1) Be directly involved in a range of social and community activities, such as participating in environmental awareness programs or human resource capacity building training; 2) Be actively interested in organic waste and trash management; and 3) Be managers and members of waste banks. Secondary data came from pertinent books, journal articles, and media articles. An overview of the duties and characteristics of the informant's responsibilities and traits is provided in Table1

Table 1. Informants

Informant	Name of Waste Bank	Position
Anik Purwamti, S.Sos	Sub-district	Head of Bumijo Village
Tri Wijayanti	BS Berseri 35	General Manager BS Berseri 35
Badriyah	BS Berseri 35	Treasurer
Murtika	BS Berseri 35	Member of BS Berseri 35
Tugiyem	BS Jantra	Chairperson of BS Jantra
Atun	BS Jantra	Member of BS Jantra

The interactive model created by (Hashimov, 2015) which consists of three primary interconnected components—data condensation, data display, and conclusion drawing/verification—is referred to as the data analysis process in this qualitative study. These three phases are cyclical and iterative rather than linear, allowing researchers to actively switch between them as they confirm and expand on their discoveries. This systematic approach, raw data from in-depth interviews is processed in stages until it can be presented in the form of reliable and meaningful findings. Thus, through verifiable conclusion drawing, qualitative data from interviews is successfully transformed into a coherent, structured, and accountable narrative of findings.

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Research Stages

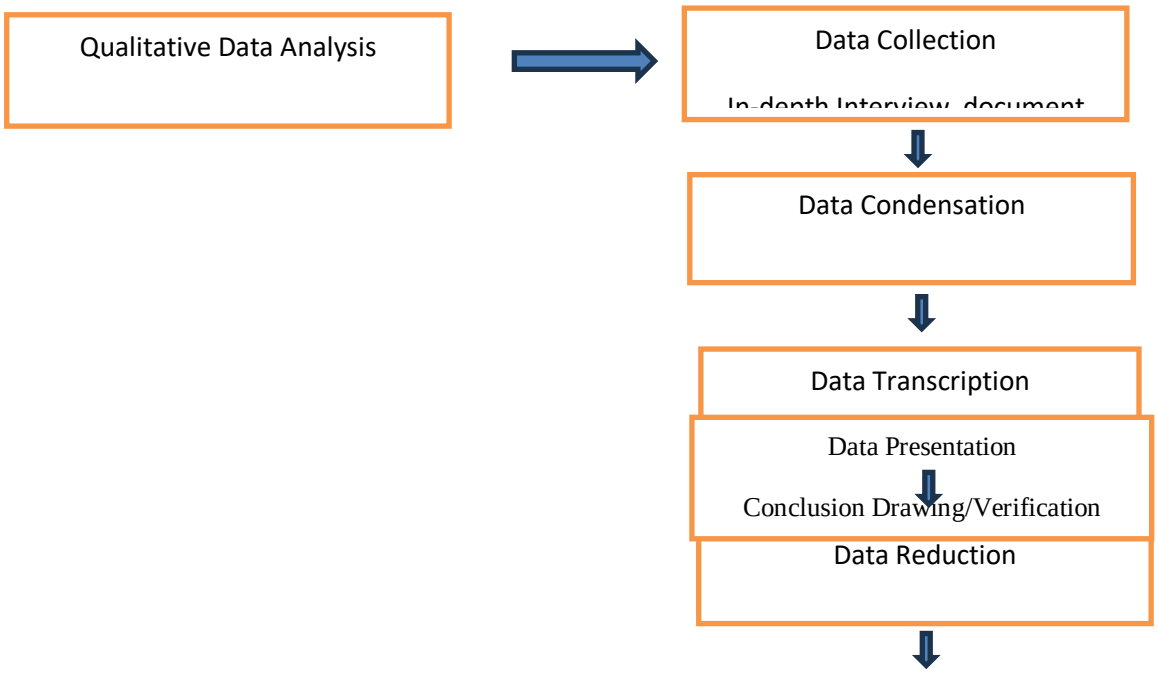

Figure 1. Qualitative data analysis flow (Miles et al., 2014)

3. Results

Based on data from the Yogyakarta City DLH showing that waste accumulation reaches 850 tonnes per day, this phenomenon can be analysed using Icek Ajzen's (1991) *planned behaviour* theory, as cited in(Rose et al., 2024) , which explains how human habits are formed from intentions influenced by attitudes, subjective norms, and behavioural control. *The* consumptive *habitus* of modern society in the household sector is one area that contributes to significant food waste. Household behaviour is considered the largest contributor to food waste(Hadari & Barat, 2025) . Behaviour shows significant differences in the amount of food waste produced by households. In consumption society theory, this has created a *throw-away society* culture, where objects are easily discarded and replaced. Society tends to ignore the impact of residual consumption materials that are difficult to decompose and have an impact on the environment.

The sectors that contribute the most food waste in Indonesia are households (47%), restaurants (37%), and offices and public services such as hospitals, schools, and hotels (11%).4 Currently, the government is striving to reduce food waste as part of its low-carbon development efforts. Indonesia is committed to reducing waste, including food waste, by 30% and aims to achieve 70% waste management by 2025(Aprilia, 2022).

Many waste disposal efforts are carried out by the community, one of which is by burning. Disposing of waste by burning, especially plastic waste, can cause pollutants from exhaust

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emissions, namely CO2, CO, NOx, and SOx, as well as other pollutants(Sari, 2022).(Purwaningrum, 2019) shows that dependence on single-use plastics in Indonesia has increased by 25% in the last decade, in line with economic growth and urbanisation. Plastic is highly flammable, which increases the risk of fire. The smoke produced by burning plastic is very dangerous because it contains toxic gases such as hydrogen cyanide (HCN) and carbon monoxide (CO). Hydrogen cyanide comes from acrylonitrile-based polymers, while carbon monoxide is a product of incomplete combustion. This is what causes plastic waste to be one of the causes of air pollution and results in long-term effects in the form of global warming in the Earth's atmosphere. The Intergovernmental Panel on Climate Change (2022)Roberts,(2022) states that human activities, particularly the burning of fossil fuels and changes in land use, are the main causes of global warming today**.**

Microplastic waste contains hazardous substances that can cause human health problems. Plastic waste, when released or discarded into water as sediment with more dangerous concentrations, will automatically form in seawater. Some metals that pollute water due to plastic waste contamination, such as heavy metals and organic chemicals, can poison humans who consume contaminated marine life(Aulia et al., 2023)

Profile and Operations of the Waste Bank

The establishment, objectives, and operations of the Waste Bank began with concerns about the impact of waste on health and the environment, as stated by Mrs. Tri Wijayanti, General Manager of the BS Berseri 35 Waste Bank (24 November 2025).

The establishment of the BS 35 Waste Bank originated from a deep concern about the increasingly alarming negative impact of waste. Groundwater pollution, overflowing landfills, flooding due to clogged drains, and health threats from accumulated waste. The initial stage of establishing the waste bank was discussed during a meeting of the PKK mothers' group. BS Berseri 35 was formed in 2018 with 24 members. The next stage , involved establishing the structure, which included selecting a location, a weighing station in Cakruk, appointing managers, and drafting simple operational rules. The third stage was operationalisation, where the community began sorting waste (mainly plastic, paper, metal, and glass) at home. Each household was given a bag to collect waste, which they then deposited at the waste bank. The collected waste is then weighed and its value is recorded in a savings book, just like saving money, and it is agreed to be distributed before Eid al-Fitr. The fourth stage is further processing, where the collected waste in large volumes is sold to collectors or recycling industries, so that its economic value is fully realised. Weighing of organic waste is carried out in the second week of each month. Weighing division officers contact the collectors. Each member has a savings book, and the officer (treasurer) records the weight of the waste weighed and immediately converts it into money. The waste bank also brings blessings because it is able to employ waste collectors as machine operators and maggot farmers.

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Tugiyem (24 November 2025)

The establishment of the Jantra Waste Bank in 2020. The fundamental reason behind this concept is a paradigm shift from disposal to management. The waste bank is not merely a technical solution but also an instrument for education and economic empowerment. By assigning direct economic value to waste, the waste bank creates concrete incentives for the community to sort and reduce waste at its source. In fact, if we manage waste optimally, waste can become a blessing and an additional income for housewives. Weighing is carried out once a month in the first week. Currently, there are 60 members, but only around 24 members actively weigh their waste every month. Many members are still inactive, still thinking that since they have paid the waste collector, they do not want to bother sorting waste.

Ani Purwanti (24 November 2025)

There are 16 waste banks in Bumijo Kemantern Jetis Yogyakarta sub-district, 13 of which are RW-scale waste banks and 3 are RT-scale waste banks. Bumijo sub-district independently manages 250 kilograms of waste per day, which means that around 7,500 kilograms or 7.5 tonnes of waste are managed every month. This amount is calculated by multiplying the daily volume by the number of days in a month. The role of the sub-district in establishing waste banks is fundamental as a facilitator, regulator, and main driver. The sub-district issues a decree institutionally. The first step taken is usually socialisation and education to build collective awareness of the importance of community-based waste management. The sub-district acts as a bridge connecting the aspirations of residents with the policies and resources of the city/sub-district government. Based on the results of the development deliberations*, one of the sub-district budget allocations is for strengthening and improving the capabilities of the human resources managing the waste bank. The sub-district assigns a sub-district facilitator to monitor the operational activities of the waste bank. The facilitator often acts as an initiator and mediator by identifying and recruiting potential community cadres to be trained and assigned as waste bank managers. The sub-district can request periodic reports—both simple financial reports and physical reports on the waste collected—to monitor the health of the organisation. Through its monitoring function, the sub-district can identify problems as early as possible, such as a decline in community participation, capital constraints, or management issues, and then intervene to help find solutions. Additionally, the sub-district office acts as a liaison with relevant agencies (such as the Environmental Agency) to facilitate technical assistance, advanced training, or access to broader recycling markets. By performing this supervisory role, the Waste Bank truly functions as the spearhead of effective and independent waste management at the grassroots level and sustainable environmental programmes.*

Waste Management/Treatment

Based on its nature, waste is generally classified into two main types, namely organic and inorganic waste. Organic waste is waste that comes from living things, such as leaves, wood, and food scraps, which can be decomposed naturally by microorganisms in a relatively short time. This decomposition process produces compost and methane gas. In contrast, inorganic waste is waste that comes from non-living sources, such as plastic, glass, metal, and rubber, which is very

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difficult to decompose naturally in the environment and requires special handling such as recycling. A report from the World Bank (2018) in the document *"What a Waste 2.0: A Global Snapshot of Solid Waste Management"* reinforces this classification and emphasises the global composition of waste, which is dominated by organic materials, followed by plastic and paper, which require fundamentally different management strategies. How waste management or treatment is carried out according to waste type, as explained by Badriyah, a member of the Berseri 35 Waste Bank under the Rumah Kreasi division (24 November 2025)

Murtika Rachmi (24 November 2025)

The treatment of waste varies depending on the type, shape and physical characteristics of the waste. I have sorted the waste and put it into bags based on type from each member's home. For plastic bottles, I made piggy banks for the children and decorated them with flannel, adding robot characters or attractive floral decorations. Kitchen waste such as sachets or food wrappers are washed thoroughly and dried in the sun to prevent mould, then cut into small pieces and made into ecobricks. Usually, mothers and the elderly cut the sachets while relaxing and chatting in the backyard. This reflects friendship and social interaction in an indirect way. Craft products include shopping bags and mobile phone cases, various flowers, wall clocks, wall decorations, glass drink holders and serving covers. The sachet material is woven first, and we have to be patient in finding similar sachets, such as coffee or drink wrappers, so that the bag patterns are more attractive. Organic waste, such as food scraps from cooking, is placed in a communal bin. Every three houses share one communal bin. The result of the communal bin is liquid organic fertiliser (POC), which is used to fertilise plants. Kitchen waste, such as kangkong stems, spinach stems, and other unprocessed vegetables, is placed in LOSIDA. Leaf waste is placed in Biopori. BS series 35 also utilises food scraps for breeding or raising Black Soldier Flies (BSF) into maggots. Maggots are a high-protein feed for pets such as chickens and catfish. Mrs. Ibe submits ecobricks to the waste bank and receives a service fee of Rp. 3,000 per ecobrick. Alhamdulillah, it can be saved. Craft products made from organic waste are sold online via social media and at exhibitions organised in collaboration with Bumijo Village, Jetis Sub-District, and the Military District Command. We also sell products when participants visit BS Berseri 35 for study tours.

Tri Wijayanti (24 November 2025)

BS Berseri 35 has a maggot breeding division that focuses on BSF breeding and maggot sales. The leftover maggot food at harvest time produces kasgot, which can be used as plant fertiliser. BS has an agricultural division that includes raising chickens and catfish in buckets. We do not yet have a catfish pond, so catfish farming is still done in buckets. Catfish are also fed maggots. Organic waste no longer rots and becomes a breeding ground for flies because it is used as maggot feed. It is clear that organic waste, when treated optimally or what we call waste management, provides outcomes not only in additional family income but also in food security. BS Berseri conducts training facilitated by partner institutions. The training is related to maggot cultivation. The resource person stated that chickens fed with maggots produce more eggs during their productive age, increasing from the usual 15 eggs to 20-25 eggs. I have verified this

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by asking Mr. Anto, a regular maggot consumer/customer, who stated that chickens eagerly consume maggots and the eggs produced are of higher quality because the feed is free from chemical prebiotics, making them healthier due to natural prebiotics. Thus, organic and inorganic waste, when managed optimally, become potential business initiatives and s supporting the zero-waste programme. Through the waste bank, we, as God's creations, strive to preserve the environment for future generations. Each waste bank member deposits their waste during weighing, and residents work together to manage waste at the RT/RW level, fostering good relationships with neighbours.

Atun (24 November 2025)

Usually, residents burn rubbish indiscriminately, especially plastic waste, which can cause respiratory tract infections. However, with the existence of waste banks, plastic waste has become saleable and is no longer burned. Accumulated rubbish rots and can contaminate groundwater. This is dangerous and threatens access to clean water and causes diseases such as diarrhoea. Rubbish accumulates because it takes too long for the scavengers to collect it, causing it to rot and become a breeding ground for mosquitoes (Dengue fever), flies (diarrhoea, typhoid), and rats (leptospirosis). This increases the burden of infectious diseases in the surrounding community. With the establishment of a waste bank, residents sort waste from their homes, and organic waste no longer decomposes because it is collected and used as maggot feed.

Recording Income as Environmental Accounting

Comprehensive questions are presented regarding the income recording of waste banks, which will not only provide an overview of how waste banks operate, but also the values and accountability they apply. This will provide deep insight into whether waste banks are managed professionally, transparently, and sustainably.

Badriyah (24 November 2025)
BS Series 35 records income from creative units, maggot houses, and agricultural houses. Through a simple system, residents can exchange inorganic waste for savings or household needs. Usually, a member savings book is used every time the waste is weighed or an Excel spreadsheet is used. Most still use physical savings books similar to bank savings books, where each customer (waste saver) has their own book. Recording is done upon deposit, including: Date, Type of Waste (e.g., PET bottles, cardboard, metal), Weight (kg), Price/kg, and Total Value Saved. The Manager (Tri Wijayanti) then compiles the waste management reports and submits the monthly total waste received using an Excel spreadsheet from the Environmental Agency (DLH), which is reported to the sub-district office as part of the monitoring process.

The sale of crafts made from organic waste is certainly an income source for the members. The fee distribution is based on the products sold, with a 60% share for the maker and 40% for BS ( ). Part of this income is also used to purchase supporting materials such as glue guns, paper

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panels, and binding ropes for decoration. A common issue faced is high demand but difficulty in obtaining materials, such as flowers from nata de coco packaging, which are hard to source.
The recording system for financial transactions and material flow (waste) is done using manual books and detailed in Excel spreadsheets. We have not recorded carbon calculations in detail, but we record how many kilograms of waste we have successfully reduced from the landfill. The main focus is on reducing the volume of waste (in kilograms) that is successfully collected and sold to collectors/recycling industries and has a direct impact on the environment. In addition to recording income and expenses, the waste bank also records in detail the type, quantity (kg), and price per kg of each type of waste received and sold.

Atun (24 November 2025)
The selling price for each type of waste fluctuates. Prices follow the market rates set by large collectors/recycling industries. We obtain information about market price changes from the Environmental Agency (DLH). Market prices for plastic and paper are highly influenced by the demand from the recycling industry. Quality and Cleanliness of Materials: Clean, transparent plastic bottles command a higher price than coloured or dirty ones. White paper has a different price than grey paper. Therefore, if a member submits used books, we remove the covers because the covers and white paper have different prices. When the waste collector comes to collect the waste, the price has already been agreed upon to minimise the risk of a lower price. A profit margin is added as a business sustainability strategy. This margin is for the manager's fee and is used for operational costs.

Financial Report
The questions above are very comprehensive. By asking these questions, you will not only gain an understanding of how the waste bank operates but also the values and accountability they uphold. The answers to these questions will provide deep insights into whether the waste bank is managed professionally, transparently, and sustainably.

Badriyah (24 November 2025)
We create a simple report, listing income and expenses (Profit/Loss). We present the report to members during regular meetings. Income from selling waste is reduced by operational costs such as materials and consumption costs. Cash flow reports are usually very simple (money in vs money out) and show the balance. Balance sheets are rarely prepared because assets are limited (such as scales, books, display shelves). Report recipients are members, which is the main form of accountability and transparency. Reports are read during monthly routine meetings or displayed on notice boards. Reports are beneficial for internal managers: for performance evaluation and village/sub-district governments because sometimes BS receives capital assistance, facilities and infrastructure from grants or government assistance, reports must be submitted as accountability and transparency.

Ani Purwannti (24 November 2025)
The Waste Bank is not merely a place to save money from waste, but it is a tangible manifestation of "Environmental Accounting" at the grassroots level.

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Environmental accounting is a concept that goes beyond recording money. The Waste Bank has put it into practice in a very concrete way: Recording "environmental assets": Every kilogram of plastic, paper, and metal that is successfully saved is an asset for the preservation of our environment. This is a record whose value is priceless. Measuring "Social Impact" in the form of increased community income, strengthened mutual cooperation, and environmental education is a "social profit" that we feel directly. Reporting Sustainability Performance in the form of a simple report is the first and foremost sustainability report for a beautiful environment. The role of the Waste Bank and community participation demonstrates the real contribution of citizens to sustainable development.

In this context, the synergy between the sub-district government and the Waste Bank is key. The government cannot work alone; it needs parties who are directly involved in the field. Therefore, our commitment is to strengthen this partnership by integrating Waste Bank data into sub-district development planning and encouraging supportive regulations at a higher level. We will strive to provide guidance through training to enhance the capacity of managers, both in terms of management, technical processing, and more accurate reporting. And opening markets and networks. Neighbourhood governments will strive to become a bridge connecting the Waste Bank with the industrial world, MSMEs, and broader markets for recycled products. Good waste management begins with our collective awareness and is accelerated by solid collaboration between the community and the government.

Data Reduction

The Role of the Waste Bank	*Statement from Informant 1*	*Statement from Informant 2*	*Relevance*
Spiritual value	*The waste bank also brings blessings because it employs waste collectors as machine operators, which is a form of worship in seeking a livelihood for their families.*	Through the waste bank, we, as God's creations, strive to preserve the environment for future generations *Humans do not destroy the earth*	*Spiritual Dimension SDG 8*
Ecological Values (Environment)	Waste banks, residents sort waste from their homes, and organic waste no longer rots because it is collected and used as maggot feed.	*Organic waste no longer rots and becomes a breeding ground for flies because it is used as maggot feed.*	SDG 3 (Good Health and Well-being) by reducing sources of disease,

The Value of Cooperation or Mutual Assistance	*Measuring "Social Impact" in the form of increased community income, strengthened mutual aid, and environmental education is the "social profit" we directly experience.*	Each member of the waste bank deposits waste during weighing, and residents work together to manage waste at the RT/RW level, fostering good relations with neighbours.	*SDG 17 Dimension: Social Capital*
Environmental Accounting (Accountabilit y)	*We prepare a simple report, listing income and expenses (Profit/Loss). The report is presented to members during regular meetings.*	There is a profit margin added as a business sustainability strategy. This margin is for the manager's fee and is used for consumption costs.	*Waste Asset Recording*
Environmental Conservation Value	*For organic waste such as food scraps from cooking, these are placed in a shared compost bin. Every three households share one compost bin. The output from the compost bin is liquid organic fertiliser (POC), which is used to fertilise plants.*	*For plastic bottle waste, I make piggy banks for children and decorate them with flannel fabric, adding robot characters or attractive floral decorations.*	*SDG 13 Climate Action*
Food Security	*It is evident that organic waste, when managed optimally or what we call waste management, yields outcomes not only in additional family income but also in food security.*	*Maggots are a high-protein feed for pets such as chickens and catfish. Maggot casings can be processed into organic vegetable fertiliser.*	*SDG 12 Responsible Consumption and Production*

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4. Discussion

4.1. The theory of blessings: Waste as a form of human responsibility to the God

An Islamic perspective, waste can actually be a "hidden blessing" if humans fulfil their role as stewards of the earth (QS. Al-Baqarah: 30), tasked with prospering and maintaining the balance of nature. Allah has created everything with purpose and justice (QS. Al-Mulk: 3), including waste, which essentially tests humans to manage the gift of resources wisely. With the principle of "not causing corruption on earth" (QS. Al-A'raf: 56), humans are called upon to transform waste from a problem into a solution—through recycling, composting, or creative utilisation—as a form of gratitude and stewardship of the environmental sustainability entrusted to them by the Creator. Thus, responsible waste management not only cleans up the environment but also becomes a concrete act of worship in carrying out the divine mission to care for the earth. The role of the waste bank employs waste collectors as machine operators and maintains maggot cultivation as a means of worship because it is a source of income for family livelihoods. Islamic religious community

is a potential community group based on 3 aspects, including: 1) aspects of responsibility as caliph; 2) the aspect of hifdzu al bi'ah (maintaining balance environment); 3)Taharah as well as aspects of personal purity (Nazar et al., 2024). Miao et al., (2025) examine the effect Tibetan Buddhism on attitudes towards household waste separation. Result show attitude Littering offends the gods and brings misfortune. Tibetan Buddhism maintaining cleanliness brings bless ings, These narratives reflect a common interpretation of waste separation practices through the lens of karmic causality and ritual purity. This belief system provides a moral framework to help explain the significant influence of Tibetan Buddhism on attitude and subjective norma. Specifically, religious teachings emphasize that maintaining cleanliness is a spiritual obligation

4.2 The theory of blessings: Waste as a form of ecological (environmental) responsibility

An ecological perspective, based on the awareness of every citizen to manage waste from its source, namely households, waste is essentially a matter of human responsibility as stewards of the earth. Blessings do not lie in the waste itself, but in humanity's ability to transform problems into solutions, with humans taking an active role in those solutions. Every material considered "waste" is actually an ecological mandate that invites humans to think about managing restoring, not destroying, and changing their lifestyle by applying the 3R principle. By managing waste wisely through recycling, composting, or minimising waste, humans not only maintain the balance of the ecosystem but also affirm their dignity as rational beings responsible for the harmony of the universe and the environment. In the ritual of ethical waste management lies an ecological act of worship: caring for the earth is a form of gratitude and recognition that the blessings of life can only exist in a sustainable environment. By improving municipal waste management practices, municipalities can contribute to broader environmental sustainability goals. Effective waste management reduces environmental degradation, which can enhance the quality of life for residents and promote social well-being. Additionally, municipalities with better waste management practices may benefit from improved public perception and increased trust in local governance(Christofi, 2025).

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4.3 The theory of blessings: Waste as a form of economic value added

According to a sustainable economic viewpoint, garbage is a hidden source of wealth and an untapped economic asset. When people use their intelligence and creativity—gifts from God—to turn something deemed "worthless" into something of great value in line with the circular economy and zero waste principles, economic benefits result. Recycling is an important way to reduce environmental waste. Recycling is the process of taking products that are no longer useful and converting them into materials to make new, more useful products. Controlled recycling processing can have economic value and improve the community's economy (Nazar et al., 2024) Through recycling, employment creation, boosting the local economy, lowering reliance on new raw materials, and income generation, every waste material has the potential to provide economic value. To make money, organic waste is turned into a variety of handicrafts and sold. Thus, wise waste management not only cleans up the environment but also becomes a means of economic multiplier effect, where blessings flow not only materially but also in the form of strengthening community resilience and social justice—a tangible manifestation of fulfilling the role as a productive and innovative steward. Waste Banks play a role in strengthening the resources and capabilities of residents (Waste Bank members) such as education on waste management and training in making crafts from waste and organic materials.

4.4 The theory of blessings: Waste as a form of social capital

A sociological and religious perspective, garbage can be viewed as a means of creating social capital that actualises the societal virtues of ta'awun (mutual aid) and ukhuwah (brotherhood). The community can collaborate to create a waste management system through community-based projects, recycling campaigns, waste banks, and community service when waste acts as a catalyst for cooperation called as Gotong Royong. Community participation is particularly important to waste management, because public and private sector resources are limited. Social capital (SC) can be defined as both the nature of relationships and the structure of networks in a community. Social capital is an important component of com munity resilience (Kawamoto & Kim, 2016).

These activities not only clean up the environment but also strengthen collective solidarity, human bonds, and create mutual benefits. By making waste a means of mutual cooperation, the community not only improves the quality of the environment but also invests in sustainable "social capital." The role of waste banks is a blessing that gives rise to a more resilient, participatory, and caring community. With thus, waste becomes a way to reaffirm the essence of humans as social beings connected by responsibility and concern for others and nature. After data reduction, the interpretation of the role of waste banks in relation to sustainable environmental blessings was presented and analysed. This interpretation is summarised visually in the chart below:

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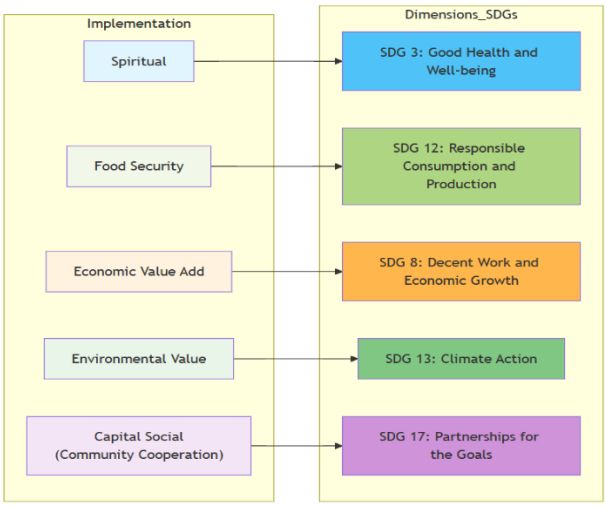

Figure 2. Implementation of environmental sustainability and its relationship with the role of waste banks

The increase in waste accumulation, which is not balanced with an adequate management system, will cause accumulation problems. Therefore, the Yogyakarta City Government continues to strive to optimise waste management and encourage the community to participate in movements such as "Mas Jos" or the Jogja Waste Management Community, as well as efforts to process waste from households. Several programmes have been launched by the government to manage waste. These include a) Environmentally Friendly Innovation with the Waste Lodong Movement, abbreviated as Ragelo Innovation, which is one solution to the waste problem. This innovation is inspired by losida (kitchen waste), which is biopores planted in the ground. b) Household waste management: fruit peels can be processed using the eco-enzyme method, while vegetable stems, which are quite abundant, can be used for liquid organic fertiliser or the stacked bucket method. The liquid organic fertiliser produced is used to fertilise urban plants that have limited land, so even if they are only planted in pots, the harvest is not inferior to those planted in fertile soil. The harvest can be consumed, thereby impacting food security. c) Inorganic waste in the form of plastic or paper is used to make handicrafts or sold to waste banks. Residual waste is made into bricks. The handicrafts have economic value and can be sold to generate income. Paper and plastic bottles from the waste bank are recycled into Eco bricks for a variety of applications. This plan demonstrates that the waste issue may be resolved at the household level if waste management is done creatively and cooperatively. Additionally, the economics and food security are improved by this kind of waste management.

Practical Implications

The the community learns how to manage resources, establish accountability frameworks, and turn waste into revenue. This type of social capital is transformed into economic capital. Local knowledge is in line with the circular economy through trash banks. In addition to improving the

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soil, neighbours who collaborate to turn organic waste into compost also "enrich" their relationships with one another.

The Waste Bank is an of effective role of waste management governance that incorporates accountability, transparency, and public involvement. By working together and using an environmental accounting method, we not only address waste issues but also strengthen community resilience and leave a better environment for next generations.

Theoretical Implications

The Value-Belief-Norm (VBN) theory was adopted to theoretically ground our interpretation, explaining how the observed effects are driven by the internalization of values into personal moral norms.(Miao et al., 2025)

Collaboration between Wate Bank and Government is encouraging integrated waste management systems and mandated, quantifiable Extended Producer Responsibility (EPR) programs that assist the concurrent accomplishment of SDG targets and are socially equitable. An informal recycling model that combines environmental and social aspects with finance is used to measure the economic contribution and added value of waste banks. It shows how waste banks not only manage waste but also generate social capital and economic value through the application of transparency, accountability, and public participation. By working together effectively and using an environmental accounting method, we not only address waste issues but also strengthen community resilience and leave a better environment for next generations. The Role of waste bank is an informal organisation cooperation that integrate environmental accounting, creating add value of waste as product and enlarge Society capability as social engineering

Regulatory Implications

Waste Banks cannot succeed on their own. The primary basis for attaining sustainability is symbiotic-mutualistic cooperation between the government and waste banks. By establishing a supporting ecosystem through regulations, guidelines, and data integration, the government serves as a catalyst, facilitator, and regulator. Strengthening Social Ethics through Education like Educational Campaigns, launch awareness initiatives that empha size the significance of social ethics linked to solid waste manage ment. These initiatives can showcase how waste affects health, the environment, and the well-being of communities (Alipour et al., 2025).

Proactive circular economy-based policies that view waste as a resource flow that has to be optimised through integrative policy design rather than as waste that needs to be disposed of. In regional planning, regulators are urged to develop a legal framework that fosters a cooperative ecosystem for community-based waste management systems and supports data openness and accountability among all stakeholders.

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5. Conclusion

Effective waste management starts with our shared awareness and is expedited by strong community-government cooperation. Waste banks have a multifaceted, strategic purpose that extends much beyond simple waste collection. When this position is connected to the idea of environmental accounting and collaboration with the government, it becomes even more powerful.

Waste banks are active participants in environmental accounting and are leading the way in putting the idea into practice. Each trash type, quantity, and value record represents a "record of environmental performance" as well as an economic transaction. This data provides hard proof of the lessening of the strain on landfills, the preservation of natural resources, and the decrease of carbon emissions. Put differently, Waste Banks act as environmental asset accountants.

The Waste Bank's job is to use partnerships to realise the Trilogy of Sustainable Development (ESG). The three pillars of sustainable development are directly embodied in this partnership: a) Environment: Preserving the cleanliness and health of the environment through appropriate waste management; b) Social: Promoting a feeling of community, mutual trust, and collaboration while raising environmental awareness; c) Economy: Making money from garbage, which boosts local revenue and promotes the circular economy.

Additionally, the Culture-Based Waste Bank integrates sustainable zero-waste campaigns with traditional values and contemporary practices, utilising traditional social structures for environmental education and adapting the spirit of mutual collaboration for rubbish sorting.

Recommendations

Further research could examine the effectiveness of policy models that combine *top-down regulation* (e.g. Extended Producer Responsibility/EPR) with *bottom-up social capital* (community movements such as waste banks) in achieving waste reduction targets.
Creating a digital platform for waste recording and tracking, as well as a specialised marketplace for recyclable waste, can increase citizen participation and the efficiency of the recycling value chain.

Limitations and Suggestion

Rapidly Changing Policy Dynamics: Waste and environmental regulations in Indonesia are frequently updated, making research at risk of becoming irrelevant by the time it is completed.
Suggestions for further research examine the adaptive capacity of waste banks to policy changes. Further research can use the "Future-Proof" approach by examining the institutional capacity of waste banks in responding to changes and identifying the resilience factors of waste bank organizations to regulatory dynamics.

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