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Optimizing Waste Banks for Effective Implementation of Waste Management Policy in Sungailiat City

Darol Arkum, Lisa Oktaviani, Shendy Meirinda

Institut Pahlawan 12, Kabupaten Bangka, Kepulauan Bangka Belitung 33215, Indonesia

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CORRESPONDENCE

Name: Darol Arkum
E-mail: darolarkumugm@gmail.com

A B S T R A C T

According to the National Waste Management Information System (SIPSN), Indonesia's waste generation increases annually, projected to reach 70.8 million tons by 2025. This trend highlights waste management as a critical issue, since inadequate handling creates severe environmental and social consequences. In Sungailiat City, previous studies show that Waste Banks, despite their strategic role in municipal waste reduction, have not yet operated optimally. This study aims to analyze the implementation of Waste Banks in Sungailiat using Edward III's policy implementation framework and to propose a practical model to strengthen their effectiveness. A descriptive quasi-qualitative method was applied, involving in-depth interviews, focus group discussions (FGDs), observation, documentation, and analysis of local waste management regulations. The four dimensions of policy implementation—communication, resources, bureaucracy, and disposition—served as analytical tools to assess gaps between policy and practice. The findings reveal that enhancing human resource capacity, diversifying funding, strengthening networks, providing consistent policy support with incentives, and adopting appropriate technology are crucial for improving Waste Bank performance. Implemented effectively, these measures can position Waste Banks not only as a sustainable waste management solution but also as catalysts for behavioral change and drivers of local economic empowerment.

INTRODUCTION

Waste management in Indonesia still faces various challenges, particularly due to the rapid growth of waste generation that surpasses the capacity of existing management systems (Wikurendra et al., 2024). In several regions, especially in smaller cities, waste handling efforts remain limited, resulting in frequent accumulation at final disposal sites (TPA) and causing serious environmental problems (Torang & Tuti, 2022). Data from the National Waste Management Information System (SIPSN) show that Indonesia's waste generation continues to increase annually in line with population growth. It is estimated that by 2025, national waste generation will reach 70.8 million tons. Therefore, waste management has become a crucial issue requiring serious attention, given the potential negative impacts if it is not managed properly (Pakaya et al., 2025; Syakira et al., 2025).

Similarly, waste volume in Sungailiat City has also continued to rise annually in accordance with population growth, as presented in Table 1 below:

Table 1. Waste Generation in Bangka Regency (2021-2024)

Year	Waste Generation (m³/day)	Population
2021	112,59	92.885
2022	115,37	94.190
2023	117,68	95.427
2024	120,03	96.369

Source: Environmental Institution (2025)

The increase in waste generation in Sungailiat City closely correlates with population growth during the period from 2021 to 2024. The available data indicate that as the population increases, the volume of waste generated also rises. This reflects a linear relationship between demographic dynamics and domestic waste production. In Sungailiat District, as the center of social and economic activities, daily waste generation rose significantly from 112.59 m³/day in 2021 to 120.03 m³/day in 2024, alongside an increase in population from 92,885 to 96,369 inhabitants.

Previous studies have shown that the management of Waste Banks in Sungailiat City has not yet been fully optimized, despite their strategic role in supporting urban waste management systems (Handini, 2022). Waste Banks are considered one of the alternative models for waste management in Indonesia (Suryani, 2014). They also play a vital role in reducing the volume of waste disposed of at final disposal sites (TPA) through recycling and reusing materials that still have economic value. Such efforts aim to reduce environmental pressure and minimize potential

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pollution (Nurendah et al., 2023). Another important aspect of Waste Banks is their capacity to empower local communities by encouraging active participation in waste management activities. Through this involvement, communities can gain additional income from the sale of sorted waste (Habibi & Adha, 2022). The present study seeks to explore how Waste Banks can be optimized to strengthen the implementation of formal waste management policies, thereby improving waste management in Sungailiat City.Therefore, research on waste banks is essential to identify more effective, sustainable, and contextually relevant management models tailored to local socio-economic conditions. The environmental issues especially waste problem is inherently complex, as it involves not only technical aspects but also non-technical dimensions, including governance, community participation, and stakeholder engagement (Mease et al., 2018). Moreover, the increasing waste volume, driven by population growth, further exacerbates the challenges. Strengthening the role of Waste Banks within the formal waste management sector could serve as a viable solution to optimize policy implementation (Utami et al., 2024). The central research question addressed in this study is: How can Waste Banks be optimized to maximize the implementation of waste management policy in Sungailiat City.

This study focuses on the need to strengthen the role of Waste Banks in enhancing the effectiveness of waste management policy implementation in Sungailiat City in a sustainable and comprehensive manner. The problem-solving approach was carried out through an analysis of Waste Bank management patterns, taking into account both theoretical and practical dimensions within the framework of public policy. The primary objective is to analyse the implementation of waste bank in Sungailiat city (Using Edward III Theory) and to formulate contextually relevant and applicable alternative solutions ((in form of waste bank Model) to address various challenges in Waste Bank management and the urban waste management system more broadly. The study employs Edward III's policy implementation theory, which consists of four key components: communication, resources, bureaucratic structure, and disposition. Empirical field data were qualitatively analyzed by comparing actual conditions in Sungailiat with the theoretical framework. Through this approach, the study aims to generate policy recommendations that are relevant, applicable, and aligned with local dynamics and needs in order to optimize Waste Bank management in Sungailiat City.

Several studies on waste management in Bangka Belitung Province have been conducted, particularly in Pangkalpinang City and Sungailiat City. However, for Sungailiat, the number of studies remains limited. The researcher identified only four studies specifically related to waste management in Sungailiat City. These include research on the general waste management flow in Sungailiat, a study on medical waste management that analyzed the transportation and handling of hazardous and toxic waste (B3) from Depati Bahrin Hospital and other stakeholders (Handini, 2022), a study on marine debris in tourism areas (Utama et al., 2022), and research on the design of a plastic waste shredding machine (Sopyan & Suryadi, 2022). The newest publication on waste management is about Optimizing Waste Management Through Multilevel Community Participation (Alimoradiyan et al., 2024). Nevertheless, no study to date has specifically examined the optimization of Waste Bank management in Sungailiat City. This represents the novelty of the present research.

This study not only fills the research gap in the limited academic discourse on Waste Banks in Sungailiat City but also introduces an analytical approach to assessing the effectiveness of Waste Bank programs as a strategy for community empowerment in community-based waste management. Furthermore, the study aims to provide both empirical and practical contributions to the implementation of waste management policies that are more participatory, sustainable, and contextually aligned with the socio-cultural characteristics of Sungailiat society through Waste Bank Management Model.

METHOD

This study employs a descriptive method with a quasi-qualitative approach grounded in a post-positivist paradigm. Within this paradigm, theory is positioned as an essential element from the outset of the research. Theory functions as a conceptual tool to understand the social reality under investigation, thereby providing a framework that guides the process of data interpretation. In practice, a post-positivist approach enables the researcher to interpret phenomena through an established theoretical lens, ensuring that the analysis proceeds within a systematic conceptual framework. Consequently, the quasi-qualitative format of this study is characterized by the explicit use of theory as a foundation for interpreting and explaining empirical findings (Bungin, 2022).

The research was conducted in Sungailiat City, Bangka Regency, Bangka Belitung Islands Province, Indonesia. The main focus of this study is to examine strategies for optimizing the role of Waste Banks in enhancing the effectiveness of waste management policy implementation at the local level. Data collection was carried out through various qualitative techniques, including in-depth interviews with key informants, participatory observation, focus group discussions (FGDs), and document analysis. This multi-method approach aims to provide a comprehensive understanding of the dynamics of waste management policy implementation in Sungailiat City.

According to Law No. 18 of 2008, every municipal and district government in Indonesia is mandated to fulfill its responsibility in waste management to improve community welfare. Waste management is thus delegated to local governments in accordance with their respective authorities. Public policy evaluation serves to measure the extent to which policies achieve their intended objectives. A policy can be considered successful when there is a strong alignment between the implementation process and the policy goals that have been previously formulated. Within this context, policy implementation represents a crucial stage in the policy cycle, since without effective implementation, a policy will remain a normative document without tangible societal impact (Widodo, 2021). The analysis of Waste Bank optimization in strengthening the implementation of local waste management regulations in this study is examined through four dimensions of Edward III's Policy Implementation Theory (1980): communication, resources, bureaucratic structure, and disposition (Edward III, 1980).

The research process was carried out in several stages.The first stage involved a review of recent and relevant literature from credible scientific sources to formulate the state of the art and identify the novelty of the study. The research team read, analyzed, and summarized references related to urban waste

management issues (Mardalis., 2017). The second stage consisted of primary data collection through in-depth interviews with key informants from the Bangka District Environmental Agency (DLH) including the Head of DLH, the Head of the Waste Management Division, and waste collection staff—as well as representatives from the Regional Development Planning Agency (Bappeda). In addition, observations and focus group discussions (FGDs) were conducted to capture the complexity of waste management issues in Sungailiat City.

The third stage involved the collection of secondary data through a document study, particularly local regulations on waste management in Sungailiat City. Informants were selected purposively based on their relevance and competence. All data from interviews, observations, FGDs, and document analysis were then processed qualitatively to generate meaningful findings (Miles & Huberman, 2014). The fourth stage focused on data compilation and processing. Both primary and secondary data were systematically organized and prepared for deeper analysis. At this stage, data reduction and data display were conducted. Data reduction aimed to organize and categorize data based on their relevance to the research focus. This process involved selection, simplification, abstraction, and transformation of raw field data into a more structured form that provided direction for further data exploration if required (Patton, 2015).

The fifth stage was the presentation of data in descriptive narrative form, complemented with visual elements such as figures, tables, or diagrams to enhance clarity. Data were structured systematically to facilitate interpretation and understanding of the research findings. Representations included narrative descriptions, flowcharts, and relationships among identified categories. The sixth stage comprised drawing conclusions and formulating policy recommendations for local government stakeholders. At this phase, the researchers consolidated the main findings based on the most relevant data to produce conclusions that were meaningful and aligned with the research questions (Cope, 2014). The final outputs were:

A detailed description of the implementation of waste management policies, particularly Waste Banks in Sungailiat City, based on local regulations (PERDA). This included descriptions of policy content, implementation processes, and empirical evidence, supported by narrative and tabular presentations. An analysis of key aspects of policy implementation related to Waste Banks, including bureaucracy, organizational structure, resources, and communication.

RESULTS AND DISCUSSION

Implementation of Waste Bank Management Policy

At the national level, the regulatory framework for waste management is established under Law No. 18 of 2008 and the National Policy and Strategy (Jakstranas) on the Management of Household Waste and Similar Types of Household Waste. This framework serves as a guideline for local governments across Indonesia to actively reduce waste generation and improve waste governance.

In Bangka Regency, waste management is regulated by Regional Regulation (Perda) No. 8 of 2015 on Household Waste and Similar Waste, which stipulates principles of management, the responsibilities of government and society, licensing, retribution, supervision, and sanctions. This regulation is further reinforced by Regent Regulation No. 43 of 2018, outlining the waste management policy and strategy for the 2018–2025 period. The regulation sets a target of 30% reduction in household and similar waste through waste minimization, recycling (e.g., small-scale composting and waste bank units), and reuse practices. Meanwhile, the remaining 70% of waste is to be managed by the government, mainly through collection, transportation, and final disposal.

In practice, the waste management system in Sungailiat City still follows a collect–transport–dispose pattern. Household waste is transported by residents to Temporary Disposal Sites (TPS) and subsequently collected by the Environmental Agency trucks for direct disposal at the Final Disposal Site (TPA). However, this system does not yet fully support the 3R principles (reduce, reuse, recycle) and faces several challenges.

First, waste segregation at the source remains limited; most households dispose of mixed organic and inorganic waste without separation efforts. Second, collection trucks transport mixed waste, reducing opportunities for recycling. Third, TPS facilities do not provide segregated bins, causing even pre-sorted waste to become mixed again upon disposal. Fourth, integration with waste banks is still underdeveloped. In Sungailiat, both government-initiated and privately established waste banks operate independently without strong systemic linkage.

These findings indicate that the implementation of waste management policy in Sungailiat City still faces significant challenges, particularly in operational practices, coordination among stakeholders, and the effectiveness of segregation mechanisms. Although the regulatory framework is already in place, further strengthening of implementation, integration, and community participation is essential to achieve the 30% reduction and 70% handling targets by 2025.

Waste Banks and Recycling Units in Bangka Regency

Bangka Regency operates a number of community-based recycling units initiated by both the government and local organizations. As of the latest data, the government has established five waste banks, six TPS3R (Reduce–Reuse–Recycle Integrated Waste Processing Sites), two composting houses, and one Recycling Center (PDU), amounting to a total of 14 recycling units. In addition to these, several community-initiated waste banks have also emerged, such as Bank Sampah Becak Babel and Bank Sampah Revhobia, initiated by youth groups and private organizations.

One of the most prominent government-initiated facilities is the Basayan Lestari Waste Bank, located at Rusunawa Nelayan 2 in Sungailiat. This waste bank has received multiple awards for its achievements and is managed through collaboration between the local government and the community, with operations carried out by a Community Self-Help Group (Kelompok Swadaya Masyarakat/KSM). Currently, it has more than 200 registered members, each of whom is provided with a passbook as proof of transactions. The facility operates weekly, every Saturday from 09:00 to 12:00, and is managed by 11 staff members.

The waste collection process follows a structured routine. On operational days, residents deliver pre-sorted waste to the waste bank, where it is further segregated into categories such as plastic bottles, cardboard, and other recyclables. The sorted materials are then transported to large-scale collectors in Bangka Regency for resale. While some waste is repurposed into household decorative items available for purchase by the community, the majority is sold to collectors. Waste is typically sold to collectors

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in Rambak, who visit the facility periodically. Customers receive either savings deposits or cash payments, depending on the weight and type of waste delivered. For organic waste, a separate collection system is in place, particularly in the Nelayan 2 settlement area. Trained staff collect household organic waste directly from residences and deliver it to TPS3R units for further processing. This activity is supported through coordination between the Department of Housing and Settlement and the Environmental Agency (DLH), ensuring an integrated approach to both dry and wet waste management.

Another notable initiative is the Becak Babel Waste Bank, established by local environmental activists under the community group Bangka Environment Creative Activist of "Kawa" (Becak) Bangka Belitung. Located in the Taman Pesona Bangka residential area, Sungailiat, this community-driven waste bank focuses on transforming waste into economic value, including the utilization of organic waste through maggot cultivation. In addition to recycling, the group actively organizes various environmental activities such as community training, coastal clean-up campaigns, and educational programs aimed at fostering creative waste management practices among residents and youth. Since its establishment in 2015, Becak Babel has continuously promoted community-based waste management and environmental education, including Adiwiyata-based school programs. The waste bank also partners with diverse stakeholders, including government agencies, private institutions, village administrations, youth organizations, university students, and schools, thereby strengthening collaborative environmental conservation efforts.

Figure 1. Waste Bank (Basayan) in Sungailiat

Source: processed by researchers (2025)

In addition to formal and community-based initiatives, Sungailiat also relies heavily on informal waste pickers (pemulung), who play a significant role in the local waste management system. Approximately 60 waste pickers, mostly residing in Kampung Jawa, collect recyclable materials such as plastic bottles and cardboard from temporary disposal sites (TPS). These materials are stored in their homes for up to two weeks before being sold to larger collectors (pengepul) in Jelitik, Rebo, and Sungailiat, at an average price of IDR 500 per kilogram, with potential accumulation reaching half a ton per cycle. The collected waste is subsequently transported to Jakarta for further processing, including remelting or remanufacturing into reusable raw materials.

Waste pickers generally work from 09:00 until late afternoon, operating independently without formal organizational structures or guidance from government authorities. Besides collecting recyclables from TPS, they also provide household waste collection services, charging residents between IDR 35,000 and 50,000 per month, with a frequency of three times per week. As part of their operations, waste pickers contribute a monthly fee to the Bangka Environmental Agency (DLH) for the use of collective TPS facilities. Despite their critical role, waste pickers face significant challenges, particularly the lack of waste segregation at the source and the persistence of illegal dumping, which complicate their recycling efforts.

Description of key aspects in the implementation of waste Bank Management policy

1. The first aspect is communication

In Bangka Regency, communication between the local government and waste bank managers is generally facilitated by the Environmental Agency (DLH) through both formal and informal channels. Formally, the government disseminates information and directives through socialization programs, workshops involving waste bank representatives, and official circulars outlining programs, targets, and reporting requirements. Waste banks are also required to submit regular reports, such as the volume of waste collected, the types of waste processed, and the number of registered members, which are subsequently consolidated by DLH.

Informal communication is often conducted through WhatsApp or Telegram groups involving waste bank managers, environmental cadres, and DLH officers, enabling faster and more responsive information exchange. In addition, routine field visits are carried out to monitor performance, provide technical assistance, or collect specific waste targeted under special programs. The coordination pattern generally follows a top-down approach from DLH to sub-districts, then to villages, and finally to waste bank managers. However, in certain grant schemes or CSR partnerships, DLH may directly coordinate with waste banks. This communication structure aligns with Bangka Regency Regulation No. 8 of 2015 and Regent Regulation No. 43 of 2018, which mandate the local government to foster, facilitate, and monitor waste bank performance as part of achieving regional waste reduction targets.

2. The second aspect is resources.

Bangka Regency possesses a variety of resources that support waste bank operations, including institutional, infrastructural, and community capacities. Institutionally, the Environmental Agency (DLH) empowers community self-help groups (KSM) to manage waste bank units and TPS3R (Reduce, Reuse, Recycle Waste Processing Units) spread across several sub-districts. Waste banks primarily serve as collection points for non-organic waste to be sold, while organic waste is processed into compost. In terms of human resources, approximately 150 field sanitation workers manage an average of 60 tons of waste per day, forming an integral part of the regional waste management chain. To strengthen managerial capacity, DLH regularly organizes workshops, training sessions, and technical assistance. Moreover, partnerships with private companies such as PT Timah and civil society organizations have been established to revitalize inactive waste banks. Recognition and awards are also provided to outstanding waste banks as a form of appreciation and motivation for sustained performance.

3. The third aspect is bureaucracy.

Waste bank management in Bangka Regency is governed and implemented through a structured bureaucratic mechanism under the authority of the Environmental Agency (DLH). DLH is responsible for formulating technical policies, providing guidance, and issuing recommendations regarding the establishment and operation of waste banks initiated by community groups or private actors. In practice, DLH organizes training, technical assistance, and outreach activities for waste bank managers as part of its mandate to enhance capacity and optimize the role of waste banks in promoting a circular economy. Regarding infrastructure provision, DLH conducts procurement processes in accordance with regional government administrative procedures. Reporting, evaluation, and monitoring mechanisms are also carried out by DLH, which include establishing partnerships with various stakeholders, preparing performance reports, and conducting periodic evaluations of program implementation.

4. The fourth aspect is disposition.

Disposition in the management of waste banks in Bangka Regency relates to the attitudes, commitment, and willingness of policy implementers, particularly DLH officials, village or sub-district governments, and waste bank managers, in executing community-based waste management. DLH demonstrates a positive disposition by actively supporting waste banks through outreach, training, and technical assistance. Officials also maintain close communication with waste bank managers through both formal coordination meetings and informal online communication groups, allowing field-level issues to be addressed promptly.

Moreover, local government support is evident through partnerships with private actors and recognition awards for high-performing waste banks, reflecting a willingness to motivate and appreciate community-level managers. Nevertheless, such positive attitudes require consistency, as program success depends not only on regulations and resources but also on the commitment of officials to sustain mentoring and ensure program continuity in line with Bangka Regency Regulation No. 8 of 2015 and Regent Regulation No. 43 of 2018.

Studies of collaborative governance in Indonesia have demonstrated how meaningful partnerships between local governments, private stakeholders, and communities can strengthen waste bank management. For instance, research in Ngargosari Village, Gresik Regency, found that waste bank operations benefited from a well-structured collaboration involving the government, the private sector (PT Surabaya Mekabox), and community actors a model that supports effective program continuity and economic sustainability (Hertati & Arif, 2022).

However, other evaluations emphasize that mere policy endorsement is insufficient without follow-through in institutional capacity and resource commitment. An assessment of Jakarta-based waste banks noted that although government regulations like Ministerial guidelines exist, actual support particularly in financing, citizen participation, product marketing, and land ownership remains suboptimal. The researchers pointed out that consistent external mentorship, such as via university partnerships, could help address these gaps (Ahmad, 2022).

Based on the description of waste bank policies, operational flows, implementation processes, communication, resources, bureaucracy, and disposition, it is evident that integration between waste collection and recycling remains a critical gap. At present, waste collection systems often bypass waste banks or TPS3R units and are transported directly to final disposal sites (TPA). Addressing this issue requires interventions at the early stages, particularly by enhancing community participation and awareness in waste separation, as well as by improving sorting facilities, including at TPS units. This would ensure that waste supplied to waste banks is not limited to community drop-offs but also derives from an integrated transportation system involving waste collection trucks.

Furthermore, waste bank management requires stronger governmental intervention. Rather than relying solely on the proactive efforts of waste bank administrators, the government must take an active role by facilitating operations and, importantly, by strengthening the legal status of waste banks. Effective management also necessitates strong institutional and regulatory support from both central and regional governments to enhance their function as drivers of social change and local economic activity. To achieve this, stakeholders must prioritize capacity-building initiatives for human resources in both technological and managerial domains, ensuring that the direction and progress of waste banks remain aligned with broader policy goals.

Based on Edward III's theoretical framework, the implementation of waste bank policies in Bangka Regency can be analyzed through four key aspects. From the perspective of communication, the implementation demonstrates positive steps in synergizing formal and informal channels. Formal mechanisms include public outreach, coordination meetings, and circular letters that refer to Regional Regulation No. 8/2015 on Waste Management and Regent Regulation No. 43/2018 on Waste Banks. Meanwhile, informal channels utilize digital platforms such as WhatsApp and Telegram, which enable faster and more responsive communication between the Environmental Agency (DLH) and waste bank managers. This combination aligns with Edward III's argument that effective implementation requires communication that is clear, consistent, and easily understood. In terms of resources, Bangka Regency has facilities to support recycling activities, particularly through waste banks, and regularly conducts mentoring and training. However, several waste banks remain inactive due to insufficient resources and limited budget allocations for their operations.

The disposition aspect, referring to the attitudes and commitment of policy implementers, appears positive. DLH officials demonstrate commitment by providing guidance, facilitating equipment, and establishing partnerships with private actors. Nevertheless, this commitment needs to be further strengthened so that the government plays a more dominant role in advancing waste bank operations. Regarding bureaucratic structure, Bangka Regency applies a relatively structured workflow with DLH acting as the main coordinator, overseeing establishment, capacity building, and evaluation of waste banks. Procurement of facilities follows local government administrative procedures, ensuring accountability but often slowing responsiveness to urgent needs. Edward III notes that overly rigid bureaucratic structures can hinder policy implementation, highlighting the need for institutional innovations, such as

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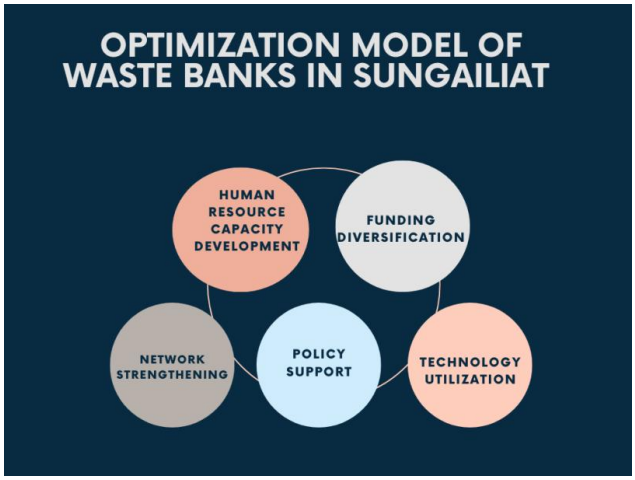
strengthening cross-sectoral collaboration and leveraging public–private partnerships to accelerate processes.

Overall, several strategic improvements are necessary to enhance the capacity of waste banks in Bangka Regency. First, capacity building for human resources is crucial, given that limitations in technical and managerial skills remain a key barrier. This may include training in 3R (Reduce, Reuse, Recycle), financial management, recycled product marketing, and the use of simple technologies, as well as community-based cadre development to ensure leadership regeneration. Second, diversification of funding sources is required, such as utilizing village funds or regional budgets through environmental and community empowerment programs, forging partnerships with private companies through CSR and extended producer responsibility (EPR), and developing supporting business units within waste banks, such as recycled product sales or inorganic waste collection services.

Third, strengthening networks and collaboration by establishing waste bank forums or associations at the regency level to share resources, market opportunities, and funding information, and collaborating with schools, community groups, and religious organizations to expand community participation. Fourth, policy support reinforcement by encouraging local governments to adopt incentive regulations, such as reducing waste collection fees for residents who actively deposit waste in waste banks. Fifth, technology utilization, including the use of digital applications or platforms for transaction recording, recycled product marketing, and public education, as well as leveraging social media to promote waste banks and engage wider community participation.

Figure 1. Optimization Model of Waste Bank in Sungailiat



Source: processed by researchers

Conclusion

The management of waste banks in Bangka Regency has demonstrated notable progress through the implementation of policies based on local regulations, the use of both formal and informal communication channels, and the commitment of local government in providing guidance and facilities. Nevertheless, challenges remain in terms of limited human resources, funding constraints, and the insufficient integration of waste management systems.

To enhance effectiveness, it is essential to integrate transportation and recycling systems so that waste streams, whether originating from households or collection trucks, are directed to waste banks or TPS3R facilities rather than directly to final disposal sites. The government must assume a more dominant role, not only as a facilitator but also as a legal enabler, a provider of training, and a driver of cross-sectoral collaboration.

Key strategies for sustainability and advancement of waste banks in Bangka Regency in form of Waste Bank Model (implication of theory) include strengthening human resource capacity, diversifying funding sources, reinforcing networks, establishing incentive-based policy support, and leveraging technology. Through these measures, waste banks can function optimally as a sustainable waste management solution, a catalyst for social change, and a driver of local economic empowerment.

This study acknowledges limitation such as the scope of the research, which is confined to waste bank management in Sungailiat City, that limits the generalizability of the findings to other regions with different social, economic, and cultural characteristics. For future research, it is recommended to expand the study area by comparing multiple districts or cities, allowing for a more holistic understanding of variations in waste bank management.

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