

COMMUNITY ECONOMIC EMPOWERMENT THROUGH WASTE BANK INITIATIVES: A CASE STUDY OF THE BERSERI WASTE BANK IN BENGKALIS REGENCY, INDONESIA

Tengku Wikel Novryan¹, Muhammad Firdaus², Yasir³

Master's Program in Communication Studies, Faculty of Social and Political Sciences, University of Riau

E-mail: ¹ t.wikel novryan8951@grad.unri.ac.id, ² muhammad.firdaus@lecturer.unri.ac.id,
³ yasir@lecturer.unri.ac.id

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Abstract

The global paradigm shift in waste governance towards a circular economy has driven the adoption of Community-Based Solid Waste Management (CBSWM), widely manifested in Indonesia through the Waste Bank initiative. Although theoretically designed as an ecological mitigation instrument and a catalyst for economic empowerment, previous literature remains dominated by techno-ecological and urban biases. These studies often overlook the structural dynamics of community empowerment in areas lacking established recycling infrastructure. This study aims to fill this gap by investigating the economic empowerment mechanisms and institutional resilience of the Berseri Waste Bank in Bengkalis Regency, a coastal-island area facing logistical disruption constraints. This study employed a qualitative approach with a case study design, involving 10 multi-actor informants (government, managers, customers, and community leaders) selected through purposive and snowball sampling. Data were collected via in-depth interviews, observations, and document reviews, with data credibility ensured through source and method triangulation. The results reveal four main findings: (1) increased environmental awareness that reduces open burning practices; (2) increased real household income; (3) the emergence of micro-scale circular logistics practices; and (4) community participation heavily driven by social capital (trust and local leadership). Theoretically, this study extends the application of circular economy theory by proving its viability at the micro-community level in geographically isolated regions. As a practical implication, this study recommends that local governments formally recognize waste banks as legitimate circular economy entities and provide policy interventions in the form of coastal transportation logistics subsidies.

Keywords: *Waste Bank, Circular Economy, Economic Empowerment, Social Capital, Qualitative Case Study, Coastal Area.*

1. INTRODUCTION

The increase in municipal solid waste (MSW) has become a global crisis that seriously threatens ecological sustainability, particularly in developing countries (Kaza et al., 2018; Ferronato & Torretta, 2019). In response to the escalation of this crisis, the global discourse on waste management has undergone a fundamental shift from the linear “take-make-dispose” model toward the circular economy paradigm, which emphasizes resource efficiency and material recovery (Ghisellini et al., 2016; Kirchherr et al., 2017). Given that top-down waste management systems often fail due to limited infrastructure and local fiscal

capacity, Community-Based Solid Waste Management (CBSWM) has emerged as the most rational, adaptive, and inclusive alternative (Gutberlet, 2015; Wilson et al., 2015).

In Indonesia, the most prominent and widely adopted form of CBSWM is the Waste Bank. This concept engineers socio-economic behavior among the community, where residents collect and sort waste at the source to convert it into financial savings (Wijayanti & Suryani, 2015; Kubota et al., 2020). More than just a tool for reducing daily waste, waste banks are theoretically designed to serve as catalysts for community economic empowerment, particularly in creating a financial safety net for vulnerable groups and low-income households at the grassroots level (MacRae & Rodic, 2015).

Although the existence and popularity of waste banks have sparked various academic studies over the past decade, the current literature still exhibits analytical limitations that have drawn critical scrutiny. Most previous studies exhibit a techno-ecological bias, where the performance of waste bank initiatives is evaluated solely based on technical parameters such as waste reduction volume, recycling efficiency, or greenhouse gas emissions calculations (Sekito et al., 2013; Asteria & Sari, 2016; Zorpas, 2020). Such an approach reduces waste bank entities to mere waste management facilities and often overlooks the social-structural dynamics that actually drive the program. Furthermore, there is a dominant urban bias in both global and national CBSWM research.

Most studies have focused on megacities with well-developed infrastructure, such as Jakarta, Surabaya, Bangkok, or Manila, where reverse logistics and access to large-scale recycling markets are well-established (Singhirunnusorn et al., 2012; Sasaki et al., 2014; Kubota et al., 2020). On the other hand, when the literature attempts to examine economic dimensions, the analysis often gets stuck on merely calculating nominal additional income on a transactional basis (Winarso & Larasati, 2018; Retawati & Muafi, 2020), without delving deeply into how these initiatives build social entrepreneurial capacity and collective economic resilience (Gutberlet, 2021).

This situation creates a very clear research gap: the absence of a comprehensive empirical or theoretical framework to explain how the economic empowerment mechanisms of waste banks operate and sustain themselves in island or coastal regions isolated from major recycling industry hubs. In fact, peripheral coastal regions face existential challenges in the form of geographical logistical disruptions, while also facing a critical ecological urgency regarding the threat of plastic waste leakage into the open ocean (marine plastic debris) (Jambeck et al., 2015).

Building on this research gap, the novelty of this study is explicitly articulated in two main dimensions: contextual-spatial novelty and theoretical novelty. Spatially, this study takes the Bank Sampah Berseri in Bengkalis Regency, Riau Province—an archipelagic and coastal area—as its locus of study. The selection of this location offers new insights that contrast with the mainstream literature, namely regarding the resilience of CBSWM initiatives in the face of spatial constraints or geographical barriers not found in urban-centric areas. Theoretically, this study goes beyond transactional economic analysis by proposing an integrative framework that combines the concept of social capital (Putnam, 2000; Steiner et al., 2022) with the concept of structural economic empowerment. This study investigates in depth how local trust, coastal community network norms, and transformational leadership are converted into instruments of institutional resilience to ensure the long-term economic independence of their clients.

2. RESEARCH METHOD

To examine the phenomenon of economic empowerment through a circular economy approach in coastal areas, this study adopts a qualitative approach using a case study design. An embedded single-case study design was deliberately chosen as it was deemed most relevant to answer the “how” and “why” questions regarding the operationalization of Bank Sampah Berseri in the face of spatial and logistical constraints in Bengkalis Regency (Yin, 2018). This qualitative approach allows the researcher not merely to calculate waste reduction figures or the nominal rupiah generated, but to delve deeply into subjective meanings, social dynamics, institutional interactions, and the process of transforming social capital into household economic resilience aspects that cannot be captured through quantitative instruments.

Selection and Profile of Informants

The selection of informants in this qualitative study was not based on statistical representation, but rather on the depth of information relevant to the research focus. Therefore, informants were selected using purposive sampling, which was then expanded through snowball sampling in the field to ensure that all key perspectives were represented from upstream to downstream. The primary criteria established for informants were their level of understanding, intensity of involvement, and duration of interaction within the Bank Sampah Berseri ecosystem, with a total of 10 informants interviewed in depth.

The informant profiles were designed to represent four main stakeholder groups. The first group is the Environmental Agency (Dinas Lingkungan Hidup), represented by local government officials, to map regulatory support and macro-level waste management governance in Bengkalis District. The second group consists of Waste Bank Managers, namely directors and core operational staff who provide insights regarding the business model, logistical challenges, and institutional management strategies. The third group, which is the primary focus of the empowerment analysis, is Customers. The selected participants met specific criteria: they had been actively saving waste for at least one consecutive year and represented a diverse range of economic backgrounds to assess the initiative’s actual financial impact. Finally, community leaders were involved to assess the dynamics of social capital, the level of community trust, and sociocultural acceptance of the initiative.

Informan	Total
Environmental Agency	3
Waste Bank Managers	2
Customers	2
Non Customer	3

Source: Data Processed, 2026

Data Collection and Analysis Methods

Primary data was collected through semi-structured in-depth interviews, participatory observation of weighing and sorting activities, and a review of the waste bank's financial records. The entire corpus of collected qualitative data was then analyzed interactively and continuously, guided by the analytical framework proposed by Miles, Huberman, and Saldaña (2014). This analytical process was not linear but rather an iterative cycle comprising three interrelated main stages.

The first stage is data condensation (data condensation/reduction), in which the researcher filters, focuses, and abstracts the raw data from interview transcripts and field notes. In this phase, irrelevant information is reduced, while substantial narratives are grouped into thematic coding systems, such as "supply chain resilience," "social capital," and "customer financial literacy." The second stage is data display. The condensed data is then organized visually and narratively through qualitative matrices and relationship flowcharts. This systematic presentation allows researchers to map causal patterns between the institutional management of the waste bank and the level of customers' economic self-reliance. The final stage is drawing conclusions and verification. The final stage is conclusion drawing and verification. Based on the identified patterns, the researcher formulates propositions and interprets the findings, continually recalibrating them against the field data and theoretical framework until data saturation is reached that is, when no new information or findings emerge.

Data Validity

To mitigate researcher bias and ensure that the findings are based on a solid empirical foundation, data validity was rigorously and comprehensively assessed. Data credibility was ensured through source triangulation, method triangulation, and member checking.

In practice, source triangulation was carried out by comparing and cross-referencing statements between one group of informants and another; for example, confirming claims of success made by Waste Bank Managers with the daily realities experienced by Customers and corroborated by the objective perspectives of Community Leaders. Furthermore, method triangulation was applied by juxtaposing interview results with tangible evidence from field observations and physical customer savings books. The researcher also conducted member checking by returning the initial draft of the interpretation to several key informants to ensure that the constructed narrative truly represented their experiences and perspectives without distortion. As a final step, peer debriefing was conducted through intensive discussions with academic colleagues in the field of environmental sociology to test the logical flow of the arguments and identify potential blind spots in the researcher's analysis.

Research Ethics

Because this study involves intensive interaction with grassroots communities and explores the economic vulnerability of households, adherence to research ethics standards is a fundamental and non-negotiable principle. Before the data collection process began, the researchers transparently explained the academic objectives of the study to all potential informants in order to obtain their informed consent. To protect the privacy and integrity of informants, the researcher ensures the principles of confidentiality and anonymity by disguising the true identities of clients through the use of pseudonyms in all transcripts and

publication drafts. Furthermore, the researcher also upholds the principle of voluntary participation, which grants each informant the full right to refuse to answer questions deemed sensitive, or even to withdraw from the entire research process at any time without facing any sanctions or disadvantages.

3. RESULTS AND DISCUSSION

The results of this study reveal that the operation of the Bank Sampah Berseri in Bengkalis Regency has had a multidimensional impact on coastal communities. Rather than merely serving as a waste sorting facility, this institution has transformed into a space for social interaction that generates concrete outcomes at the household level. Based on the analysis of data from observations and in-depth interviews, the main findings of this study can be classified into four central themes.

First, Increased Environmental Awareness. There has been a shift in the community’s perspective toward domestic waste. Informants indicated that plastic and paper waste are no longer viewed as final waste but rather as valuable materials. This is confirmed by the account of one customer:

“Before the waste bank existed, we usually burned household waste or threw it into the sea. But now, we’ve started separating plastic and cardboard at home. It feels like a waste to throw them away because that’s the same as throwing money away.” (Customer 2, Interview, 2025).

Second, Increased Household Income. Economic empowerment has been proven to occur in reality, albeit on a micro scale. Residents use the savings from depositing waste to cover daily needs or their children’s education expenses.

“Since joining the waste bank, I’ve been able to save extra money every month from recyclable waste. These savings are a huge help in paying my child’s tuition fees at the beginning of each month.” (Client , Interview, 2025).

Third, Community Participation. The level of community participation is moderate, where social cohesion heavily depends on the example set by local community leaders. The Waste Bank Manager noted that trust is the key factor:

“At first, residents were skeptical, but after seeing the neighborhood head (Pak RT) join the savings program and actually be able to withdraw the funds before Eid, residents began flocking to join.” (Waste Bank Manager 1, Interview, 2026).

A comprehensive summary of the thematic findings from the field is presented in Table 1 below:

Tabel 1. Ringkasan Temuan Tematik Dampak Bank Sampah Berseri

Theme	Findings	Indicators
Environmental Awareness	<i>Increased</i>	A drastic reduction in open burning and dumping into the sea.

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Theme	Findings	Indicators
Household Income	<i>Increased</i>	Households are able to access an average of Rp150,000–Rp300,000 per quarter for domestic needs.
Community Participation	<i>Moderate</i>	Participation is driven by role models (local leaders) and measurable financial incentives.
Circular Economy Practices	<i>Emerging</i>	The establishment of a micro-scale reverse logistics chain from households to local collectors.

Source: Data Processed, 2026

Conceptually, the findings of this study are fully aligned with and support the argument put forward by Geissdoerfer et al. (2017), who assert that circular economy practices serve a dual purpose: creating economic value while simultaneously reducing the environmental burden. In Bengkalis Regency, the conversion of waste into financial savings demonstrates that environmental conservation in developing countries will only be effective if accompanied by tangible economic incentives for grassroots communities.

Furthermore, when compared to the conceptual definition by Kirchherr et al. (2017) regarding the Reduce, Reuse, Recycle (3R) framework, the Bank Sampah Berseri demonstrates that the implementation of the circular economy at the micro (community) level is highly dependent on social engineering. Kirchherr et al. (2017) note that the circular economy often fails due to the absence of institutional infrastructure. In this context, the waste bank successfully fills this gap by acting as an intermediary institution that facilitates the coastal waste reverse supply chain.

This situation also directly addresses the thesis of Ferronato & Torretta (2019), which highlights the vulnerability of waste management systems in developing countries due to a lack of upstream-downstream infrastructure. This study confirms that, despite the weaknesses in the logistics infrastructure of island and coastal regions, Community-Based Solid Waste Management (CBSWM) through waste banks serves as an effective safety valve. This aligns with the warning by Kaza et al. (2018) from the World Bank, which projected an exponential surge in global waste volume and recommended community-based decentralized waste management as a key adaptation strategy for local governments with fiscal constraints.

This study offers a number of practical implications that can be adopted by various stakeholders to strengthen the waste management ecosystem in the future:

1. Local Government: These findings urge local governments to integrate waste banks into their Regional Strategic Plans (Renstrada). Tangible support in the form of providing a dedicated transport fleet (logistics subsidies) is crucial to overcoming transportation barriers in coastal areas.

2. Waste Bank Managers: Managers need to enhance the digitization of customer savings records to improve transparency and trust, and begin exploring direct partnerships with the recycling industry (off-takers) to cut out middlemen.
3. NGOs & Community Organizations: Civil society organizations can use the Bank Sampah Berseri model as the basis for a women's empowerment training curriculum, given that the majority of active customers are homemakers.
4. Environmental Policymakers: Waste collection fee policies need to be revised to include incentive schemes; for example, households registered as active waste bank customers could be granted a discount on their monthly sanitation fees.

4. CONCLUSION

The Berseri Waste Bank Initiative in Bengkalis Regency demonstrates that community-based waste management is not merely an instrument of ecological mitigation, but a driving force for household economic resilience. Amid logistical and infrastructure constraints in coastal areas, the waste bank has successfully shifted residents' mindset from a "take-make-dispose" paradigm to a circular one, with social capital serving as the foundation for institutional sustainability.

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