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Strategy and Availability of Stakeholder on Community Empowerment in Decentralization Waste Management in Makassar

Dicky Indirwan*
Department of Public Health, Hasanuddin University,
Independence Pioneer Street, Makassar, 90245, Indonesia
[**Corresponding author*]

Shanti Riskiyani
Department of Public Health, Hasanuddin University,
Independence Pioneer Street, Makassar, 90245, Indonesia

Muhammad Syafar
Department of Public Health, Hasanuddin University,
Independence Pioneer Street, Makassar, 90245, Indonesia

Abstract
Waste management in Makassar City remains a critical issue as the city seeks global recognition. In 2021, the National Garbage Management Information System (SIPSN) reported that Makassar generated approximately 102,371 tons of waste daily, an anticipated 2.7% increase in 2022. The waste was primarily food waste (58.4%), followed by plastic (21.5%), paper (8.3%), and miscellaneous materials such as cloth, metal, and glass (11.7%). To address this issue, the Makassar City Government introduced waste banks for decentralized waste management. However, challenges persist, such as insufficient stakeholder engagement in policymaking, the absence of a comprehensive long-term waste management plan, inadequate training for officials, and poor coordination among stakeholders. To solve these challenges, we examined the motivations and strategies of stakeholders in Makassar's waste management program, focusing on trash banks to identify deficiencies in the decentralized system. This study investigated the roles of stakeholders using a qualitative phenomenological approach at two waste banks, Baji Pamai and Albur I, in Karawisi and Bitoa. Interviews with 20 informants, including government officials, program facilitators, local leaders, waste bank managers, and customers, revealed significant effects on stakeholder engagement. The findings emphasize the need for a step-by-step process, starting with local leader involvement and additional methods to enhance community participation. Stakeholder strategies have successfully promoted waste banks and improved community involvement and waste management efficiency in Makassar.

Keywords
Participation, Stakeholders, Waste Bank, Waste Management

INTRODUCTION

Waste management is a global problem (Kaza et al., 2020). As a cause of climate change, waste contributes to greenhouse gas emissions in the form of methane (CH_4) and carbon dioxide (CO_2). This problem seriously affects human health and the environment (Ferronato & Torretta, 2019).

Problems in waste management originate from the amount of waste and littering behavior of littering. Three factors influencing waste management behavior: individuals, society, and the government. The high level of consumption in urban areas has made these areas contribute to high waste production. This is directly proportional to the population growth and increasing living standards in urban areas (Nanda & Berruti, 2020). In addition, waste production is expected to increase with urbanization (Ferronato & Toretta, 2019).

Behind its vision of becoming a world city, waste management remains a significant issue for Makassar. According to the National Waste Management Information System (SIPSN), Makassar produces approximately 102,371

tons of waste per day in 2021. This figure is expected to increase by 2.7% by 2022. Food waste accounted for approximately 58.4% of the total volume, followed by plastic waste (21.5%), paper waste (8.3%), and other waste consisting of cloth, metal, and glass (11.7%). Households and public places, especially traditional markets and convenience stores, significantly contribute to daily waste.

One of the efforts made by the Makassar City Government to overcome this problem is to pass Makassar Mayor Regulation No. 63 of 2014 to establish the Makassar City Waste Recycling Management of the Regional Technical Implementation Unit. The Makassar City Waste Recycling Management of the Regional Technical Implementation Unit was later better known as the Central Waste Bank. This effort refers to Ministry of Environment and Forestry Regulation No. 13 concerning guidelines for implementing reduction, reuse, and recycling through waste banks. This regulation was the first official document to encourage local governments, communities, non-governmental organization (NGOs), and other stakeholders to carry out reuse, reduce, and recycle (3R) activities through community-based waste banks.

The establishment of a central waste bank accompanying a waste unit bank began in 2016. This is indicated by the significant increase in the number of central waste bank customers. This increase in the number of customers is directly proportional to the volume of waste collected, with an increase of almost five times compared with the previous year in 2015 (Kubota, 2020). However, this positive trend lasted for only two years and declined again in 2018. This decline was influenced by the momentum of the Makassar mayoral election, which caused friction between the community leaders and the community itself (Kubota, 2020).

As a community-based effort, the waste bank program requires various stakeholders to contribute. An analysis of the multiple stakeholders involved is essential to ensure the sustainability of existing programs and formulate new programs.

Several obstacles have been identified, including the absence of stakeholder involvement in policymaking, the absence of a long-term waste management strategy, the lack of training of waste management agency officials, and weak coordination between authorities and environmental workers to encourage sorting behavior at the source (Pasang & Sitorus, 2007). Effective governance and supportive structures are needed to ensure that programs are adopted and sustained (Pawar, 2009).

Integrated Sustainable Waste Management (ISWM) is a comprehensive model for developing waste management services, particularly in urban areas (Wilson, 2013). The ISWM model applies the principles of PRA (Participatory Rural Appraisal) to waste management programs to support stakeholders with limited resources and the potential to lose their rights. This model is suitable for application in community-based waste bank programs, because it is based on the characteristics of waste banks with limited resources.

Stakeholders in the ISWM include people or organizations interested in waste management. In pre-modern city waste management systems, legally recognized stakeholders include only regional governments, national environmental ministries, or regional governments, and one or two private companies working under municipal contracts (Scheinberg, 2003). As it develops, many parties have also been identified as producers or users of recycled products, such as the recycling industry, non-governmental organizations (NGOs), Civil Society Organizations (CSOs), and the community (Scheinberg, 2011; Wilson et al., 2013; Whiteman et al., 2021).

This study aims to identify the incentives and strategies implemented by each stakeholder to identify the gaps that occur. This study involved stakeholders representing various sectors in order to gain a diverse understanding. These stakeholders include the government, NGOs/CSOs, waste bank administrators, and customers as service users.

MATERIALS AND METHODS

Data collection

This qualitative study was conducted at two waste bank locations in Makassar City: the AL-Bury Waste Bank and the Baji Pamai Waste Bank. These locations represent two regional characteristics of Makassar City: urban and suburban areas with different community characteristics. Informants were then purposively selected based on their role in, and knowledge of, waste management.

Data were collected between November and December 2023. Primary data were collected through In-Depth Interviews with research participants. Apart from the primary data, secondary data in the form of waste bank unit legal documents and other documents used at the waste bank unit were also collected.

The data were then analyzed using thematic analysis to understand each stakeholder's role in developing a community-based waste bank in Makassar. Table 1 lists the stakeholders involved in this study.

Table 1 Number and Categories of Research Informants

Stakeholders	Category	Amount
Village Head	Government	Two persons
Waste bank unit/ Neighborhood unit/ Community unit administrators	Public	Six people
Waste Bank Customers	Public	Ten people
CCBO Program Companion	NGO/CSO	Two persons

CCBO represents the Clean Cities Blue Ocean

Data analysis

This stage provides systematic guidelines for viewing and processing qualitative information through coding. The analysis stage begins with the introduction of data, namely transcribing, rereading, and recording initial ideas. The main ideas were highlighted and written for each transcript. Next, codes were assigned systematically to the entire dataset and the relevant data were grouped with each code. Each theme was coded as a keyword that represented a particular idea when translating and transcribing it. The data were then re-read several times to narrow the number of codes and categorize them into several central themes. In the final stage of analysis, conclusions were drawn based on several vital statements/themes representing the data. The resulting data in this research are in the form of statements of ideas and feelings, and visual representations depicted using interconnections between codes, which will be explained in the research results section.

RESULTS

Three main themes were identified based on the analysis of the research results. These themes include the formation and development of waste bank organizations, obstacles in developing waste bank organizations, and views and efforts made regarding the sustainability of waste banks.

Establishment and development of waste bank organizations

Establishing a waste bank involves the community, especially the heads of neighborhood units and community units, in their respective areas. The neighborhood and community unit heads are the primary movers in establishing and communicating waste banks to their regional communities. This is expressed in the following interview excerpt.

> "In establishing it, the community, especially the neighborhood unit, met with residents to determine who would do the packing, sorting, and weighing. So, after their meeting, the names were collected, and a decree was made with the sub-district."
>
> **(SO, 51 years old, Government, 7 November 2023)**

Additionally, several informants expressed that the desire and initiation to form a waste bank unit had been around for a long time. Thus, they welcomed the initiation and reactivation of the waste bank in their area, both carried out by the Clean Cities Blue Ocean (CCBO) program assistants and the Subdistrict Party. The subsequent formation process involves identifying people who are able and want to be actively engaged as administrators and customers in the waste bank unit. This is expressed in the following interview excerpt.

> "Initially, I had wanted to form this Waste Bank for a long time, but I did not know where to go. On that day, Mr. Aso Mi, who coincidentally came from Community Unit 10, was a waste bank. It was empty; it was vacuumed for three years, then Mr. Aso came and offered noodles."
>
> **(NL, 45 years old, Waste Bank Manager, 23 November 2023)**

After the formation process is completed, and the waste bank begins to operate, efforts are made to develop it. These development efforts were conducted after identifying the community resources and needs. This is done to ensure that the support provided is appropriate for the target. The identified resources can come from the community or from outside it. Development efforts include increasing the capacity of management and the community as potential customers, and technical capacity through facility assistance for waste bank unit operations.

The government, especially the sub-districts, provides policy and administrative support such as issuing waste bank decrees and registering with the Central Waste Bank. Support was provided in the form of waste bank facilities and community capacity building through the Foundation of Lestari Mulia for various training sessions. The training included waste sorting, operational and technical managerial training in waste management, and entrepreneurship. This is expressed in the following quote.

> "There is much training. Turnover occurs during harvest. Inviting the community means doing things like this: Some have ongoing businesses, participating customers, and administrators. Training also sorts the community, sub-districts, and RT/RW. There is a lot, but I forgot; *I* cannot do that."
>
> **(DI, 39 years old, Waste Bank Manager, November 13, 2023)**

Topics related to increasing the number of customers are often discussed by waste bank administrators. Some of these efforts include conducting outreach, inviting people personally, and assisting household sorting facilities. Efforts are underway to encourage government policy support. This policy makes customer books mandatory in administrative management at the subdistrict level.

Informants who were waste bank unit customers expressed their motivation to participate as waste bank unit customers. The informant stated that there were economic benefits to joining waste bank customers. Informants also conveyed other motivations, such as environmental cleanliness, the desire to be involved in community activities in their environment, and the moral responsibility to reduce waste that goes to landfills. Waste processing efforts through waste bank units are preferred, because the option to reduce waste is difficult to implement. This is expressed in the following interview excerpt.

"...Yesterday, we suggested that a savings book like this should exist before it can be processed (administrative processing in the subdistrict). That was our suggestion to the sub-district head yesterday, but the sub-district head did not seem to dare because not all community units have active waste banks."

(NL, 45 years old, Director of waste bank unit Al-Bury, 23 November 2023)

"So that not all waste goes to the landfill. Economic benefits. Responsibility for managing your waste management because of what this is, reducing it, and that, in my opinion, is difficult. That is why I chose recycling via a waste bank."

(KN, 40 years old, waste bank unit Al-Bury Customer, 27 November 2023)

Obstacles in developing waste bank organizations

The stakeholders involved in this study have identified various obstacles. Many informants, who are waste bank customers, stated that there is still a need for socialization, education, and low awareness of waste-sorting behavior. The informant also said that there were obstacles, such as some people feeling embarrassed about collecting waste from the waste bank. This is expressed in the following interview excerpt.

"In this environment, some people understand it, some do not, and it seems like they throw it all away. More socialization in the community needs to be implemented. Socialization, uh, with CCBO several times Alas, if the government and other parties were not there yet."

(NF, 44 years old, Treasurer of waste bank unit Al-Bury, 23 November 2023)

The other stakeholders expressed other obstacles. For example, the sub-district government has highlighted the need to handle organic waste through waste banks. This was achieved by considering the significant impact of the organic waste. Additionally, organic waste processing systems in waste banks still need to be improved, especially in Makassar.

In contrast to the government sector, waste bank assistants also conveyed another obstacle: the need for a government economic stimulus to develop waste banks. This monetary stimulus is needed to stabilize product prices in waste banks. Product price stability is essential considering that most informants, who are waste bank customers, stated that economic motivation was their reason for participating.

In addition, the theme of gender participation is interesting enough to highlight barriers to participation in waste banks. Informants, who were waste bank administrators in this study, said that women dominate their participation in waste banks. This is influenced by several factors such as time availability and the perception of men who are still proud to be involved in waste bank unit activities. Efforts have been made to encourage gender equality in waste management in response to the waste bank unit assistance. This is accomplished by promoting equal access to and opportunities for participation between men and women.

Perspectives and efforts undertaken regarding the sustainability of waste banks

An effective organizational structure was demonstrated by dividing the stakeholders' roles. One of the informants, waste bank management, said that decisions at waste bank units were made entirely by waste bank management, considering the opinions of the public, especially regarding the weighing schedule. This is done so that the community can independently manage the waste bank units following the applied empowerment principles. This is expressed in the following quote.

"There is a meeting between the Waste Bank management; usually, it is only determined by the WhatsApp group. Typically, this involves community. For example, if there is a problem in a community, the input from the community is discussed. The companion has no rights; they are those who decide. Internally, they have to be independent; that is, how empowerment is."

(MA, 35 years old, Companion of waste bank unit Baji Pamai, 29 November 2023)

In addition to stimulating community independence in decision making, various strategies have been implemented to support program sustainability, especially by providing resources. Resources in the waste bank unit can be sourced from actors outside the community and from the community. Resources in the waste bank unit can be sourced from actors outside the community. Many resources for facility assistance and capacity building come from stakeholders outside the community, such as, NGOsCSOs, and the government. Meanwhile, the community has taken on many roles as agents of behavioral change and physical resources in the form of land and buildings for waste bank unit operations.

In this study, informants from the NGO/CSO sector also stated that procuring equipment that can be used without specific expertise is essential to make waste bank unit management independent. Financial sustainability is also expected in waste bank units. This is achieved by intervening in the product value chain sector by connecting the waste bank unit to other strategic partners. In addition, informants in this research specifically highlighted the role of the government, both sub-district governments, and the Environmental Service in consistently assisting waste banks. Promoting and monitoring waste bank activities in the community is particularly necessary, as expressed in the following quote:

"Therefore, the equipment that we provide can be used without a companion. As I said earlier about the role of environmental services and motivators, we will see them constantly monitoring their activities when this program activity is finished."

(AI, 35 years old, waste bank unit Al-Bury Companion, December 2, 2023)

DISCUSSION

In the empowerment process, the community is not only considered the target group for intervention; participation is also a group response to receiving suggestions and activities to improve knowledge or skills (Rifkin, 2009).

A participatory approach was taken from forming to operating waste banks in each study area. This approach involves stakeholders, including the sub-district government, facilitators, neighborhood unit/community unit heads, and the community, as service users in a community-based waste management program. Participation is a process in which society and stakeholders, whether individuals, groups, or organizations, are involved in making decisions that affect them, either passively through consultation or two-way involvement (Reed et al., 2017).

Thus, increasing community participation is crucial to the development of waste banks. Ragiliawati and Qomaruddin (2020) state that the role of key figures in the community influences the increase in participation in waste banks. Waste bank management is one of the key factors contributing to the increase in the number of customers at the waste bank. Waste bank administrators assume the role of social leader. They are formally involved in the waste bank management structure, and strongly influence the environment in which they live.

This position allows them to initiate programs, prepare management, and implement behavior change campaigns. They influence both the top and bottom. Social leaders also play a role in identifying community needs and stimulating community participation (Bulle et al., 2001).

Even so, some research highlights that more than providing the information needed to change behavior, it is the only behavior-change approach available to policymakers (West et al., 2019). The results of waste investigations and audits conducted in six cities in Indonesia, including Makassar City, show no practice of reducing waste through segregated collection and disposal. However, campaign programs have been implemented in recent years (Net Zero Waste Management Consortium, 2023). Socialization and education usually aim to change people's understanding and attitudes, but there still needs to be a gap between forming attitudes, forming intentions to act, and acting (Houlihan, 2018).

Another strategy for increasing waste bank participation is to provide facilities and services. Support for facilities such as sorting containers, bins, and pick-up services at customers' homes can help people initiate behavioral changes, especially for sorting waste from home (Michie et al., 2011; Bamberg & Schulte, 2020).

Economic motivation was the dominant motivation mentioned by the participants in this study. Probowati and Priyambudi (2022) revealed that additional income from being a customer in a waste bank unit is an essential factor influencing the success and public awareness of waste management. However, the role of waste banks must be encouraged significantly and not only oriented towards high-value waste, so it differs from ragpickers/scavengers, who do so only for economic motives (Net Zero Waste Management Consortium, 2023).

Another interesting finding is that efforts are being made to encourage policies that require every community member to become waste bank customers. Policies related to community rights and obligations in the waste management program in Makassar City are included in Makassar City Regional Regulation Number 4 of 2011 concerning Waste Management, where one article states that everyone has the right to participate in waste management and cleanliness. However, the policy framework does not explicitly discuss the obligation to become a waste bank unit customer in Makassar. Although this is necessary, efforts to make people become customers in waste bank units require many considerations. Policy formulation must involve more participation from various levels of society.

Participation in a community-based approach that emphasizes the rights and obligations of citizens needs to be improved and the two need to be balanced. A critical part of encouraging and supporting participation is to ensure that the decision to participate is easy and comfortable (Ife & Tesoriero, 2016). As a stakeholder that plays a significant role in policymaking, the government must ensure a compromise regarding the possibility that most society can accept it. However, it must be realized that finding a middle ground is sometimes complex and may be contradictory (Ryan et al., 2023). Gender empowerment efforts were also made to assist waste banks at the two study locations. Gender empowerment has been used to increase participation in women. Empowerment is carried out to encourage more people, including men and children, to face waste-management challenges.

A policy recommendation prepared by Setiadi (2020), together with the Bintari Foundation in Semarang, proposed efforts to increase male involvement, particularly in waste bank units and household waste management. Cultural construction that places household waste in a woman's business can create a double burden for women and neglect several jobs, such as packing, storage, and transportation.

The research results show various efforts to collect existing resources. Several parties involved include donor agencies, NGOs at both the local and national scales, the private sector, and resources originating from the community. Duygan et al. (2021) found that waste management institutions are concentrated in several state and private actors, including waste management organizations and economic and trade organizations.

These findings indicate the existence of a new paradigm in environmental governance and management processes based on partnerships between government, business, and society (Haydon & Kuang, 2013). Collaboration between local institutions in waste management and partners in the public and private sectors must be directed towards actively developing appropriate technical approaches and tools to support sustainability (Bui et al., 2020). Such an approach involves the standards and flow of a complex waste management system to deal with various situations that may occur in the future (Phonphoton & Pharino, 2019). This raises concerns about the sustainability of the program. Managerial aspect is one of the obstacles that must be addressed immediately to support sustainable waste management efforts (Bui et al., 2020).

Resources in the waste bank units are not limited to materials. Human resource development should also be taken into consideration. In managing the CCBO program implemented in Makassar City, efforts were made to increase capacity by referring to the five aspects of waste management and entrepreneurial ability. Capacity-building efforts are required to improve waste management effectiveness. Bui et al. (2020) showed that the lack of capacity of the waste management agency staff is a significant problem that causes the SWM system to be ineffective.

Various efforts have been made, specifically for program sustainability. It is essential to avoid conditions where the waste bank unit is only present at certain times, such as political momentum, official visits, *project simulants*, and the like, which results in much waste not being absorbed (Net Zero Waste Management Consortium, 2023). More than all existing actors view resource management in waste management programmes. However, it must be directed at generating resources, business opportunities, and new approaches to resource management in waste management institutions (Ajayi et al., 2017). This overcomes the uncertainty and ambiguity related to the market's need for the supply of recycled products (Guerrero et al., 2013; Yukalang et al., 2013).

RECOMMENDATION

To improve waste management in Makassar City, it is crucial to establish a discussion circle where all the different folks involved can share ideas. This circle will help blend the different plans and perks that each stakeholder brings to the table, making waste management governance even better.

CONCLUSION

Community-based waste bank management requires the involvement of several stakeholders. The stakeholders identified in this study include sub-district governments, NGOs/CSOs, and the community at the study location, either as administrators or customers of the waste banks. The results showed that each stakeholder had different goals, competency limits, and responsibilities for developing a community-based waste bank in Makassar. However, there is a need for an integrated waste bank development strategy for the various stakeholders identified in this study.

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DECLARATION OF CONFLICT

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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