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Analysis of Community Participation through Waste Bank-Based Waste Management Using a Participatory Approach in Serang City

Analisis Partisipasi Masyarakat melalui Pengelolaan Sampah Berbasis Bank Sampah dalam Pendekatan Partisipatif di Kota Serang

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Abstract

Along with the increasing population and changes in people's increasingly consumptive lifestyles, the volume of waste produced every day is increasing. The pile of waste throughout Indonesia in 2023 that is well managed is 24,266,750.68 tons/year, while waste that is not well managed is 15,850,104.69 tons/year. Banten Province is ranked fifth as the largest waste producer in Indonesia. As much as 2.6 tons/year are produced from 7 districts/cities in the region. This indicates that low public awareness of environmental cleanliness is one of the main factors causing waste accumulation. However, steps are needed to overcome the low public awareness of environmental cleanliness as the cause of this waste accumulation. The method used in this study is a literature study. Data collection through related references, ending with reading in detail and recording relevant materials to support the research analysis. This data was analyzed using a participatory approach, which aims to identify community participation, challenges faced, and the impact of policies on improving the quality of waste banks. The Waste Bank Program is an effort to reduce waste accumulation by providing incentives to the community. The Waste Bank functions not only to accommodate waste, but also to manage waste according to the needs of the community.

Keywords: Community Participation, Participatory Approach, Serang, Waste Bank, Waste Management

Abstrak

Seiring pertumbuhan jumlah penduduk dan perubahan gaya hidup masyarakat yang lebih konsumtif, volume sampah yang dihasilkan setiap hari semakin banyak. Timbunan sampah seluruh Indonesia tahun 2023 yang terkelola dengan baik, yaitu 24.266.750,68 ton/tahun sedangkan sampah yang tidak terkelola dengan baik, yaitu 15.850.104,69 ton/tahun. Provinsi Banten menempati posisi kelima penghasil sampah terbesar di Indonesia. Sebanyak 2,6 ton/tahun yang dihasilkan dari 7 Kabupaten/Kota di wilayah tersebut. Ini menandakan bahwa rendahnya kesadaran masyarakat mengenai kebersihan lingkungan menjadi salah satu faktor utama yang menyebabkan penumpukan sampah. Namun bagaimana langkah yang harus digunakan dalam mengatasi rendahnya kesadaran masyarakat mengenai kebersihan lingkungan penyebab penumpukan sampah ini. Metode yang digunakan dalam penelitian ini yaitu studi

pustaka. Pengumpulan data melalui referensi terkait, diakhiri dengan membaca secara rinci dan mencatat bahan-bahan yang relevan untuk mendukung analisis penelitian. Data ini dianalisis dengan pendekatan analisis partisipatif, yang bertujuan untuk mengidentifikasi partisipasi masyarakat, tantangan yang dihadapi, serta dampak kebijakan terhadap peningkatan kualitas bank sampah. Program Bank Sampah merupakan sebuah upaya pengurangan tumpukan sampah dengan melakukan pemberian insentif kepada masyarakat. Bank Sampah berfungsi bukan hanya untuk menampung sampah, tetapi juga untuk mengelola sampah sesuai dengan kebutuhan masyarakat.

Kata Kunci: Bank Sampah, Partisipasi Masyarakat, Pendekatan Partisipatif, Pengelolaan Sampah, Serang.

INTRODUCTION

Along with population growth and changes in people's increasingly consumptive lifestyles, the volume of waste produced daily continues to increase. Consumer consumption patterns have become one of the driving factors for the increase in waste volume generated. The proliferation of shopping centers, culinary establishments, and other facilities has led to a rapid increase in single-use packaging, ultimately resulting in waste accumulation. Naturally, there is actually no concept of waste, but rather only products produced during or after a process takes place. However, waste is generally defined as residual material or goods that are no longer needed by humans, both on an individual and household scale. This is what subsequently causes humans or society to become waste generators or producers (Raharjo et al., 2017).

The increase in waste volume is influenced by consumption patterns that tend to prioritize speed and convenience. The demand for fast food and packaged products is increasingly high, which impacts the growing amount of waste generated. Unfortunately, these changes in consumption patterns and lifestyles are not accompanied by increased awareness of the importance of responsibility for the waste generated. Waste accumulation due to consumptive lifestyles has become an unavoidable part of daily life. If this problem is not addressed seriously, the volume of accumulated waste could continue to increase (Pretty, 1995).

The waste problem remains a crucial issue that requires serious attention to this day, including in Indonesia. The presence of waste not only potentially causes environmental pollution but can also have widespread negative impacts on health, quality of life, and other aspects of society (Hoornweg & Bhada-Tata, 2012). Improperly managed waste can contaminate air, soil, and water, which will subsequently affect ecosystems and the sustainability of natural resources. The National Waste Management Information System (SIPSN) states that Indonesia's waste volume continues to increase significantly, showing that every year there is a significant increase in waste volume over a three-year period. In 2023, the amount of well-managed waste was 24,266,750.68 tons/year, while poorly managed waste was 15,850,104.69 tons/year (Abdulnabi Ali et al., 2023). This indicates that many people still do not fully understand the negative impacts of waste accumulation on the environment and health, resulting in waste accumulation and poor management.

To address the endless waste management issues, the government regulates this through Law Number 18 of 2008 concerning Waste Management. This law states that waste management is a shared responsibility. This means that all parties, including government, private sector, and society, must play an active role in waste management efforts. The government cannot work alone without support from all elements of society. Therefore, waste management requires active participation from individuals and community groups, in addition to the government's role as a facilitator (Rimantho et al., 2022).

Banten Province is one of the fifth-largest waste contributors in 2022. The National Waste Management Information System (SIPSN) states that Banten Province generates 7.19 thousand tons of waste daily, so the waste generation volume reaches 2.62 million tons by the end of 2022. The main cause of waste generation is dominated by household waste. This indicates that low public awareness of environmental cleanliness is one of the main factors causing waste accumulation (Saputra et al., 2022).

The importance of participation in waste management lies in the active involvement of the community in various activities carried out. With good waste management and community participation,

the amount of waste that continues to increase daily can be significantly reduced (Saputra et al., 2022). Serang City, as the capital of Banten Province, continues to make various efforts to manage waste, one of which is through the waste bank program. This waste bank program has been regulated in the Minister of Environment and Forestry Regulation Number 14 of 2021 concerning Waste Management in Waste Banks. This program is based on the 3R principles: Reduce, Reuse, and Recycle (Kuseno & Waseh, 2024).

Based on research by Nisa et al (2024), the lack of community participation is also due to people preferring to use Environmental Cleanliness Operational Unit (SOKLI) services. The limited time available for waste sorting becomes the main reason why efforts to reduce the volume of waste entering Final Disposal Sites (TPA) are less effective. When communities use SOKLI services, the waste generated is not sorted first, so it has no economic value and is directly transported by SOKLI to be disposed of at Final Disposal Sites (TPA). This shows that without adequate participation from the community in waste bank programs, efforts to reduce the volume of waste entering Final Disposal Sites (TPA) become less optimal (Hapuarachchi, 2024).

Based on the background problems above, this research aims to analyze Community Participation through Waste Bank-based Waste Management using a Participatory Approach in Serang City.

METHODS

This study employed a qualitative literature review methodology to analyze community participation in waste bank-based waste management in Serang City. The research approach was designed to provide comprehensive insights into the effectiveness of participatory approaches in addressing waste management challenges within the urban context of Serang City, Banten Province, Indonesia.

The data collection process followed Zed (He et al., 2024) systematic framework for literature studies, which emphasizes rigorous and structured examination of existing knowledge. The research began with the preparation of necessary research tools and instruments to facilitate effective data gathering and analysis. This initial stage was followed by the compilation of a comprehensive working bibliography, which served as a guide throughout the reference collection process. The bibliography included diverse sources such as academic journals, government publications, environmental agency reports, and policy documents specifically related to waste bank management systems. Effective time management strategies were implemented to ensure that each phase of the research could be completed optimally and within the established timeline. The final stage involved critical reading and systematic documentation of relevant materials that directly supported the research objectives and analytical framework.

The scope of this investigation focused specifically on the Waste Bank Program operating in Serang City. All data utilized in this research were secondary in nature, obtained exclusively from existing literature on waste bank management and community participation in environmental programs. The collected data were analyzed using a participatory analysis approach, which was deliberately chosen to align with the study's focus on community involvement in waste management initiatives. This analytical framework was designed to identify and examine three key dimensions: patterns and levels of community participation in waste bank activities, operational and institutional challenges encountered during program implementation, and the impact of existing policies and regulations on improving the quality, effectiveness, and sustainability of waste bank operations in Serang City.

RESULTS AND DISCUSSION

Results

This study examines community participation in waste bank-based waste management in Serang City through a participatory approach. The findings are organized into two main dimensions: community participation in implementation and community participation in decision-making processes. The results reveal both the achievements and challenges faced in fostering sustainable community engagement in waste management initiatives.

Community Participation in Implementatiom

Harold D. Lasswell in Winarno (2012) states that participatory approaches often result in increased citizen involvement that impacts increased inter-group disputes regarding programs and procedures. This frequently causes unnecessary delays in the policy formulation and implementation process, which ultimately leads to significantly increased costs for policy-making and implementation. Additionally, interests that are dissatisfied with policy outcomes tend to attempt to undermine these programs through litigation channels or seek parliamentary protection. Furthermore, in places where participatory experiments have been tried before, there is often an increase in confusion and conflict.

Low public awareness of waste sorting has become one of the main challenges in several areas of Serang City. One important step in waste management is waste sorting, but the community still does not sort waste properly and not many people are willing to do it. This is because most of the community still applies the "collect-transport-dispose" paradigm. Therefore, it is necessary to educate the community regarding waste sorting (Kuseno & Waseh, 2024).

Based on research conducted by Nurikah & Fuqron (2022), the presence of Lestari 25 Waste Bank in Serang City represents progress toward a cleaner and healthier environmental change. However, the management of Lestari 25 Waste Bank still does not have a waste awareness movement for the wider community. This means that to increase community participation in waste management, collective awareness is needed to activate the role of waste banks in society. Kuseno & Waseh (2024) also stated in their research that currently, Serang City Digital Waste Bank only has 12 personnel consisting of 7 administrators and 5 waste collection and weighing officers. Meanwhile, the waste transportation facilities owned consist of only 2 pickup trucks and 1 three-wheeled vehicle. This condition is clearly not proportional to the number of distribution points of Serang City Digital Waste Bank which reaches 200 unit points with customers reaching 4,012 people.

The role of waste bank managers and the community as customers since the beginning of the waste management program is very important. The community can become motivators for their peers who have not yet participated. For example, in research by Manik et al (2024) at the Gemuruh District, Bandung City, community members who are enthusiastic about counseling and selling products from waste management can motivate others. Training and workshops on waste sorting techniques, organic waste processing, and how to use waste banks effectively will help improve residents' understanding and skills in managing their waste. Waste banks provide a platform for communities to actively participate in waste management. However, as Lasswell suggested, this participatory approach must also be managed well to avoid potential conflicts and unnecessary delays in program implementation.

Table 1. Waste Banks in Serang City

Location	Active Waste Banks	Inactive Waste Banks
Lontar Baru	Bank Sampah Alam Lestari	Bank Sampah Go Green
Cikulur Jelawe	Bank Sampah CIJE GREEN	Bank Sampah Remaja RSS Pemda
Perumnas Ciracas	Bank Sampah CIS Hijau	Bank Sampah Labu
KSB Complex	Bank Sampah Berseri	Bank Sampah Agus
Kaliwadas Environment RT 01/06, Lopang District	Bank Sampah Karya Lestari 1	Bank Sampah Barokah Karundang
Kaliwadas Village RT 03/02, Lopang District	Bank Sampah Karya Lestari 2	Bank Sampah Andalan
Kaliwadas Environment RT 02/04, Lopang District	Bank Sampah Karya Lestari 3	Bank Sampah Sejahtera
RSS Pemda Complex, Cipocok	Bank Sampah Barokah	Bank Sampah Nusa Indah
Puri Serang Hijau Complex, Cipocok	Bank Sampah ANISA	Bank Sampah Janur
Perempatan Village RT 01/01, Curug District	Bank Sampah Nusa Indah	Bank Sampah Karya Lestari

Source: Environment Agency, 2024.

Based on data from the Environmental Agency in 2023 cited in research by Nisa et al (2024), it is known that in Serang City there are several waste banks, but 10 of them are inactive. This condition shows that waste management efforts through waste banks have not fully run as expected. These inactive waste banks certainly become a challenge in creating an effective and sustainable waste management system.

Community Participation in Decision Making

Harold D. Lasswell in Winarno (2012) states that participatory approaches enable open acceptance of opinions from a large number of citizens who have concerns. This approach provides space for the community to express their views, which will then be accommodated by policy makers. The purpose of community participation is to accelerate the contribution of individuals, interest groups, and agency officials in policy making and redesign. In addition, this participation is also useful for gathering more complete information, so that policy makers can make better and more targeted recommendations and decisions.

Community participation in Serang City plays a very important role in waste management. Effective waste management requires serious attention in an integrated management system. One important aspect of waste management is active community participation in various stages of development. According to Yandri et al (2023), community participation is divided into four stages: (1) participation in planning, (2) participation in implementation, (3) participation in utilizing development results, and (4) participation in supervision and monitoring. The community must be involved in the entire development process, especially if there are relevant supporting factors, such as needs, expectations, motivation, as well as support for facilities and infrastructure, moral encouragement, solidarity, and the existence of institutions, both formal and informal, that facilitate such participation (Kalra, 2019).

In the context of waste management, community participation has a very important role in addressing waste problems in urban and rural areas, which are becoming increasingly complex as the number of residents and settlements increases. One approach that can be implemented is through providing incentives to the community to support waste reduction efforts, one of which can be done through the Waste Bank program. Waste Banks function not only to accommodate waste, but also to manage waste according to community needs. For example, organic waste from households such as vegetable scraps can be collected to be made into compost, while inorganic waste such as tire rubber, plastic bottles, cans, and paper can be sorted and recycled into new products, such as handicrafts (Leknoi et al., 2024).

Discussion

The analysis of community participation through waste bank-based waste management in Serang City reveals several critical findings that highlight both the potential and challenges of participatory approaches in environmental management. The research demonstrates that while waste banks serve as an innovative solution to waste management problems, their effectiveness heavily depends on sustained community engagement and proper institutional support.

The participatory approach, as conceptualized by Lasswell, presents both opportunities and challenges in the context of waste management. While it enables broader citizen involvement and input collection for better policy decisions, it also introduces complexity in implementation. The case of Serang City illustrates this dynamic, where community participation varies significantly across different waste bank locations. The success stories, such as those documented by Budiyarto et al (2025), demonstrate how enthusiastic community members can serve as catalysts for broader participation through peer motivation and education.

However, the data reveals significant operational challenges. The stark disparity between the number of service points (200 units) and available personnel (12 people) and transportation facilities (3 vehicles) indicates a critical resource allocation problem that undermines the program's effectiveness (Fatmawati et al., 2022). This imbalance not only affects service quality but also potentially discourages community participation due to inadequate service delivery.

The preference for SOKLI services over waste bank participation, as identified by (Rachman et al., 2021), reflects a fundamental behavioral challenge. The "collect-transport-dispose" paradigm remains deeply ingrained in community practices, highlighting the need for comprehensive behavioral change strategies. This finding suggests that economic incentives alone may not be sufficient to drive participation; comprehensive education and convenience factors must also be addressed.

The inactive status of 10 out of the documented waste banks further underscores sustainability concerns. This high failure rate indicates that initial establishment without adequate long-term planning and community engagement strategies may lead to program abandonment. The participatory approach requires continuous nurturing and adaptation to local contexts to maintain viability (Ramadhani et al., 2024).

The research also highlights the multifaceted nature of community participation in waste management. Beyond simple waste collection, successful programs involve communities in planning, implementation, utilization of results, and monitoring processes. This comprehensive participation model aligns with the 3R principles (Reduce, Reuse, Recycle) and creates multiple touchpoints for community engagement, potentially leading to more sustainable outcomes (Kurniawan et al., 2021).

The economic dimension of waste banks, while serving as an important incentive, requires careful balance with environmental education objectives. The transformation of waste from a disposal problem to an economic opportunity represents a paradigm shift that requires sustained effort and community buy-in to achieve widespread adoption.

CONCLUSION

Conclusion

One approach that can be implemented is through providing incentives to communities to support waste reduction efforts, which can be accomplished through the Waste Bank program. Waste Banks function not only to accommodate waste but also to manage waste according to community needs. For example, organic waste from households such as vegetable scraps can be collected to be made into compost, while inorganic waste such as tire rubber, plastic bottles, cans, and paper can be sorted and recycled into new products, such as handicrafts.

The analysis of community participation through waste bank-based waste management in Serang City reveals that Waste Banks play a crucial role beyond their financial aspects, transforming the waste management paradigm from merely a place to dispose of used goods into a means of providing economic benefits to surrounding communities. Furthermore, these activities remain aligned with the main objective of maintaining environmental cleanliness, thereby creating a healthier and more sustainable environment for the community.

The research demonstrates that effective waste management requires active participation from both individuals and community groups. However, challenges persist in achieving optimal community engagement, as evidenced by the inactive status of several waste banks and the community's preference for conventional waste collection services. The success of waste bank programs heavily depends on sustained community education, adequate institutional support, and the integration of economic incentives with environmental awareness initiatives.

The participatory approach in waste management, while presenting implementation challenges such as potential conflicts and coordination complexities, offers significant potential for creating sustainable waste management solutions when properly managed. The transformation of waste from a disposal problem to an economic opportunity represents a fundamental paradigm shift that requires continuous effort and comprehensive community engagement strategies.

Recommendation

Waste management requires active participation from both individuals and community groups. Therefore, communities need to be strictly prohibited from disposing of waste into rivers and locations that should not be used for waste disposal. In addition, waste management requires aspects of community participation, namely by conducting source waste sorting, processing waste using the 3R concept (Reuse, Reduce, and Recycle), being obligated to pay waste retribution, complying with

established waste disposal regulations, participating in maintaining the cleanliness of their surrounding environment, and actively participating in waste management socialization in their environment.

Given the low public awareness regarding the importance of waste sorting, more intensive educational efforts are needed, such as training and workshops on sorting techniques and waste management, especially at the community level. This can be done by involving active roles from Waste Bank managers and communities who already understand the importance of proper waste management.

To address the operational challenges identified in this study, the following specific recommendations are proposed: First, increase human resources and transportation facilities proportional to the number of service points to ensure adequate service delivery. Second, develop comprehensive community education programs that address both environmental awareness and practical waste management skills. Third, establish monitoring and evaluation systems to prevent waste bank inactivity and ensure program sustainability. Fourth, create policy frameworks that integrate waste bank programs with existing waste collection services to provide communities with flexible options while promoting participation in sustainable waste management practices.

Finally, foster partnerships between government agencies, educational institutions, private sector entities, and community organizations to create a comprehensive support system for waste bank operations and ensure long-term program viability.

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