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Sustainable Strategies for Urban Waste Management: Examining the Implementation of the 'Broh Jeut Keu Peng' Public Policy in Lhokseumawe City

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A B S T R A C T

This study examines strategies for sustainable urban waste management through the implementation of the "Broh Jeut Keu Peng" (Waste Becomes Money) policy in Lhokseumawe City. Introduced through Qanun No. 1 of 2015 on Waste Management, the policy aims to address persistent challenges, including inadequate infrastructure, low community participation, and weak stakeholder coordination. Using a descriptive qualitative approach, data were collected through interviews, field observations, and document analysis to explore how the policy is being translated into practice. The findings reveal that despite having strong legal legitimacy, the policy remains in its early implementation phase. Benchmarking activities, such as visits to Banyumas, an area known for its advanced waste management system, have been conducted, but concrete actions in Lhokseumawe are still limited. The policy outlines four strategic components: (1) educational efforts promoting the 3R concept and environmental awareness grounded in local culture; (2) technical and infrastructural improvements, including strengthened TPS facilities, transportation fleets, and area-based TPS3R development; (3) economic incentives through waste banks, compost production, and reward-and-punishment mechanisms; and (4) collaborative engagement involving government bodies, community leaders, religious figures, the informal sector, and private stakeholders. In conclusion, the "Broh Jeut Keu Peng" policy holds strong potential for sustainable waste management, but its success requires effective implementation, improved facilities, consistent public education, and coordinated multi-actor collaboration.

INTRODUCTION

The waste problem, especially in developing countries, including Indonesia, remains a serious issue that has not been effectively resolved. Meanwhile, several countries in Asia and Europe have successfully managed waste sustainably, thus serving as examples or references in implementing sustainable waste management systems (Management & Sustainability, 2020). Urban waste management is an increasingly crucial global issue in the 21st century, as accelerated urbanization, population growth, and consumption patterns increase waste generation. According to the What a Waste 2.0 report (World Bank, 2018), global waste volume is projected to grow from 2.01 billion tons in 2016 to 3.40 billion tons in 2050. East Asia and the Pacific region are the most significant contributors, while the global urbanization rate is estimated to reach 68% by 2050 (UN-Habitat, 2018). UNEP (2021) emphasizes that unmanaged waste has the potential to cause pollution, greenhouse gas emissions, and ecosystem damage that threaten human health and sustainable development.

Waste is one of the significant problems arising from human activity. Population growth is directly proportional to increased human activity, which ultimately produces more waste from these activities (Kholik et al., 2023). Consistently, the United Nations Environment Programme (UNEP, 2021) confirms that unmanaged waste becomes a source of pollution, greenhouse gas emissions, and biodiversity loss, which impact environmental sustainability and human health. Therefore, waste management is not only a technical issue but also a governance challenge that requires an integrated approach, encompassing infrastructure, community participation, and economic incentives.

Indonesia faces a more complex problem. The Ministry of Environment and Forestry (KLHK) (2020) reports that Indonesia produces more than 65 million tons of waste per year, but only 60–70% is transported, and less than 10% is recycled. Most waste still ends up in open landfills or is burned, causing environmental pollution. National regulations, including Law No. 18 of 2008, encourage the implementation of the 3R principles and a circular economy, but their implementation on the ground is uneven. Much of the remainder is disposed of in open landfills, water bodies, or burned, negatively impacting the environment and public health. National regulations, such as Law No. 18 of 2008 concerning Waste Management, encourage the 3R principles (Reduce, Reuse, Recycle) and a circular economy, but their implementation on the ground remains uneven (Badlisyah et al., 2022).

This situation is also reflected in Lhokseumawe City, which produces approximately 110 tons of waste per day. Field observations indicate 15 critical dumping points, particularly in the densely populated Pusong area, where piles of garbage pollute the coast, endangering the ecosystem and public health. Although Qanun No. While Law No. 1 of 2015 established a legal framework for waste management, implementation on the ground remains hampered by limited infrastructure, low public participation, and weak coordination between stakeholders.

In response, the Lhokseumawe City Government introduced the innovative "Broh Jeut Keu Peng" (Trash Can Become Money) policy, which emphasizes circular economy-based waste management, economic incentives, community empowerment, and multi-actor collaboration. This program encompasses four strategies: (1) education through the 3Rs and environmental

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literacy based on Acehnese culture; (2) technical-infrastructure through strengthening TPS (Recycling Sites) and TPS3R (Recycling Sites); (3) economic development through waste banks, composting, and reward-punishment; and (4) collaboration involving the government, village officials, religious leaders, the informal sector, and the private sector. However, despite its strong legitimacy, the implementation of this policy still shows implementation gaps due to a lack of resources, facilities, and consistent public participation.

Waste management in Indonesia is divided into two categories: household and household-like waste, and special waste managed by the government. Household waste management encompasses reduction and handling through restriction, recycling, and reuse, involving the government, the private sector, and the community. Management activities include sorting, collection, transportation, processing, and final disposal. The government is also responsible for financing waste management and providing compensation to affected parties, such as relocation, environmental restoration, or health restoration (Hayundwitama et al., 2024).

The waste problem is an increasingly complex environmental issue with population growth and development activities. The increase in waste volume is influenced by consumption patterns, community behavior, economic growth, and the function of an area as a center of activity. Low awareness of cleanliness and improper waste management have the potential to cause environmental pollution (Danang Aji Kurniawan & Ahmad Zaenal Santoso, 2021). In waste management, there are five aspects that require attention: community participation, financing, regulations, institutional factors, and technical operational elements. Financing is a crucial aspect of waste management (Ekologi et al., 2024). Field studies indicate 15 critical dumping sites, including the densely populated Pusong area, where piles of mixed waste from domestic waste and coastal stilt houses endanger the ecosystem and public health.

This situation highlights limited infrastructure, low citizen participation, and weak coordination between stakeholders, despite Qanun Number 1 of 2015 establishing a legal framework for waste management. In response, the local government of Lhokseumawe City, Aceh, faces a similar problem. The city produces approximately 110 tons of waste per day, with a composition of 70% organic and 30% inorganic. Based on these observations, Lhokseumawe launched the flagship program "Broh Jeut Keu Peng" ("Trash Can Become Money"), which aims to transform waste into an economic resource through waste banks, composting, and material processing. This program's strategy is multidimensional: (1) educational, through 3R socialization and environmental literacy based on local culture; (2) technical-infrastructure, through strengthening TPS (Terminal Waste Management Units) and TPS3R (Recycling and Recycling) based on areas; (3) economic, through incentives and reward-punishment; and (4) collaborative, involving the government, village officials, community leaders, religious leaders, the informal sector, and the private sector. This approach also emphasizes the principle of co-governance, namely, participatory collaboration between various stakeholders.

Through the 3R concept (reduce, reuse, recycle), waste reduction can be achieved through various recycling programs focused on waste management. To reduce the volume of waste disposed of at the Final Processing Site (TPA) by up to 20%, a recycling program for inorganic waste such as plastic, paper, and metal has been implemented. Meanwhile, organic waste can be processed through composting activities at the household level to produce valuable compost fertilizer (Oktaviani et al., 2023).

Waste is material that is no longer used and must be disposed of. Therefore, proper management is essential to prevent adverse impacts. Waste reduction efforts are focused on implementing the 3R concept (Reduce, Reuse, Recycle) through intelligent, efficient, and programmed waste generation limitation, recycling, and reuse, involving the government, businesses, and the community. One example of the successful implementation of this concept is the Malang Waste Bank (BSM), established in August 2011 as a pioneering waste bank in Indonesia. As a cooperative, BSM collaborates with the Malang City Government and the CSR program of PT PLN Distribution East Java. This institution fosters, trains, assists, and distributes waste management products from the community, with the goal of reducing the volume of waste at the TPS/TPA (landfills) while simultaneously enhancing community economic empowerment. Broadly speaking, waste management encompasses a series of activities, from controlling waste generation, collection, transportation, processing, and final disposal (Suryani, 2014).

Despite its legal legitimacy and comprehensive strategic design, the implementation of this program remains limited and demonstrates an implementation gap. Implementation is the execution and application of a policy, program, or regulation that has been agreed upon and approved by various relevant parties, or those who have developed the policy and are working together to achieve the predetermined objectives (Fitrah et al., 2024). Many strategies have not been optimally implemented due to limited resources, infrastructure, and public awareness. In this context, Lhokseumawe presents an interesting problem in the form of integrating local cultural branding and a participatory approach that has not been widely studied in the literature.

This study aims to analyze sustainable urban waste management strategies through the implementation of the "Broh Jeut Keu Peng" policy in Lhokseumawe City and identify the effectiveness, constraints, and opportunities for strengthening this policy. The urgency of this research lies in the need for waste management strategies that are not merely technical but integrated with local culture, a circular economy, and collaborative governance—an urgent need for mid-sized cities in Indonesia.

Although numerous studies have addressed waste management, there are unexplored research gaps, particularly regarding the integration of Acehnese cultural wisdom and the branding of local policies such as "Broh Jeut Keu Peng." Several previous studies have shown the following:

1. (Suryani, 2014) examined the success of the Malang Waste Bank, but failed to examine cultural factors and cross-actor collaboration.
2. (Badlisyah et al., 2022) reviewed the implementation of Law 18/2008, but failed to examine the effectiveness of regional strategies in the Aceh context.
3. (Danang Aji Kurniawan & Ahmad Zaenal Santoso, 2021) highlighted community behavior in waste management, without linking it to local policy innovations.
4. (Hayundwitama et al., 2024) reviewed waste management financing, but failed to address the integration of a circular economy at the small-town level.

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5. (Oktaviani et al., 2023) emphasized organic waste processing and composting, but neglected to address governance and collaboration aspects.

The novelty of this research lies in the comprehensive analysis of the "Broh Jeut Keu Peng" policy as a sustainable waste management strategy that combines local wisdom, a circular economy, community participation, and co-governance, a concept not yet explored in previous research. Strategy is a crucial and essential element in an organization because it serves as the foundation for achieving goals. In strategic management, strategy is the core that directs how an organization aligns resources and takes planned steps to achieve desired performance (Habib et al., 2024). Merilee S. Grindle views policy implementation as both a political and administrative process. She emphasizes that successful implementation is primarily determined by two main aspects: Policy Content: Interests affected by the policy, Types of benefits generated, Level of expected change, Position and authority of policymakers, Program implementers, and Resources used. Context of Implementation: This includes socio-political and economic conditions, as well as the support and capacity of the institutions involved. According to Grindle, implementation can only begin once objectives have been detailed, action programs have been designed, and budgets have been allocated (Lambelanova, 2017). Problem Statement: What strategies are implemented in the "Broh Jeut Keu Peng" policy to achieve sustainable urban waste management?

METHOD

This research employs a qualitative method with a descriptive approach. Grounded in postpositivist philosophy, the qualitative method examines natural settings, with the researcher serving as the primary research instrument. Data collection techniques are carried out qualitatively and analyzed with an emphasis on meaning rather than numbers (Sugiyono, 2018). Meanwhile, a descriptive approach is understood as a research method that focuses on collecting data relevant to the research objectives to provide a systematic overview of the phenomenon being studied. Descriptive studies generally involve assessing the attitudes, opinions, and perceptions of individuals, organizations, circumstances, or specific procedures (Kuncoro, 2013; Firdausi et al., 2023). This research uses a qualitative approach with descriptive methods to describe social phenomena and human problems, producing data in the form of written words, spoken words, and observed behavior (Moreta & Harirah, MS, 2023).

Qualitative research currently faces new challenges, particularly regarding how cross-cultural investigation and collaboration can broaden understanding while advancing research methods by considering cultural boundaries and specificities. Furthermore, this approach also develops in terms of text interpretation and the use of linguistic instruments as part of the analysis (Ed et al., 2010). Qualitative research seeks to build an understanding of reality and its inherent meanings. Therefore, this approach places a strong emphasis on the process, sequence of events, and the authenticity of data emerging in the field (Somantri, 2005). Qualitative research is beneficial for studying contexts that arouse personal curiosity, even when there is no previously "valid" reason for research. Beyond stemming from personal interests or specific passions, qualitative data can also provide in-depth insights into cultural activities often overlooked in structured surveys or experiments. Through this approach, various vital issues can be uncovered and then used as a basis for further research using more systematic and structured methods (Barada, 2013).

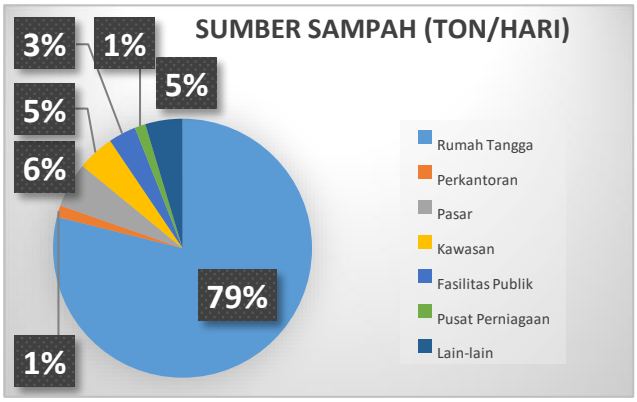
Using this approach, research on Sustainable Urban Waste Management Strategies through the Implementation of the "Broh Jeut Keu Peng" Public Policy in Lhokseumawe City provides an in-depth description of the phenomenon of waste management, both from a policy perspective and in-the-field practice. The data used included primary and secondary data. Primary data was obtained through in-depth interviews and direct observation, while secondary data was collected from official documents, agency reports, regulations, and related literature. Interviewees were selected purposively based on their role, knowledge, and involvement in waste management and policy implementation. Interviewees included local government officials, program managers, community leaders, and affected communities. Data collection techniques included: in-depth interviews to explore the views, experiences, and perceptions of informants. (1) Field observations to assess the actual state of waste management. Through field observations, information on product usage was collected by one or more unobtrusive observers (Wellsandt et al., 2014); (2) Documentation studies of regulations, reports, and other supporting documents (Michael D. Myers, 2014).

Data analysis was conducted through the stages of data reduction, data presentation, and conclusion drawing. The collected data were analyzed with an emphasis on meaning and interpretation, rather than numbers, to gain a deeper understanding of the policy context in waste management. Conclusions were drawn gradually based on patterns, relationships, and key findings that emerged during the research process. (Dr. J.R. Raco, M.E., 2010).

RESULTS AND DISCUSSION

Lhokseumawe City, with a population of 226,462, produces approximately 102.03 tons of waste daily (Lhokseumawe City Environmental Agency, 2023). This waste primarily originates from households and urban activities, but to date, it lacks adequate sorting facilities. There are no sorting bins, sorting units, or sorting houses, so waste remains mixed at the source. This situation has resulted in increased transportation and disposal costs at the Blang Peuria Final Disposal Site (TPA).

Figure 1: Waste Sources (Tons/Day), Lhokseumawe City Environmental Agency, 2025.



Waste has not been appropriately managed due to limited facilities and infrastructure, such as inadequate quantity and quality of containers and irregular collection schedules. This situation leads to the formation of leachate in mixed waste containers. Waste management at each faculty is still carried out conventionally, namely, collecting it at the nearest temporary storage site (TPS), then burning some of it, and transporting the rest to the final processing site (TPA). Poorly managed waste can have various negative impacts on the environment, including aesthetics, unpleasant odors, and disruptions to learning activities (Aprillia et al., 2019).

This situation demonstrates the importance of environmental literacy, particularly regarding plastic waste management, given the severe impacts it can cause. Large amounts of plastic waste have the potential to damage the ecosystem, so awareness of maintaining environmental balance must be fostered. Environmental literacy, particularly regarding plastic waste management, plays a crucial role given the severe impacts plastic waste can cause. Large amounts of plastic waste in landfills have the potential to damage natural ecosystems. Environmental literacy itself can be understood as an awareness of maintaining environmental balance. This awareness is increasingly pressing due to the consumerist, instantaneous, and exploitative lifestyles of modern society, which tend to disregard environmental sustainability. Therefore, improving environmental literacy is one solution to addressing environmental issues. Environmental literacy, as part of environmental education, aims to prepare every citizen, including households, to play a role in solving the plastic waste problem (Sabila et al., 2023).

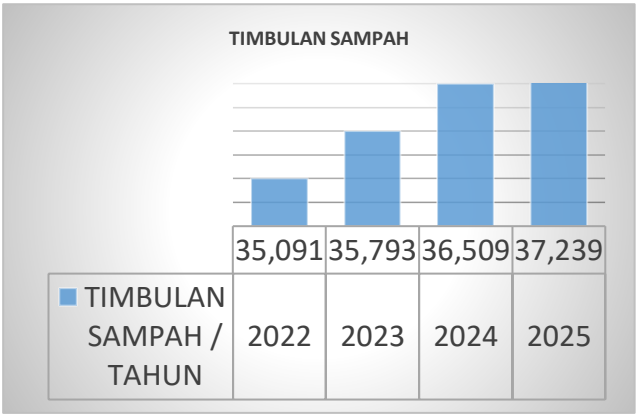


Figure 2: Waste Generation, Lhokseumawe City Environmental Agency, 2025.

Furthermore, technological developments present new opportunities through the application of artificial intelligence (AI) and the Internet of Things (IoT) in urban waste management. The role of AI and the Internet of Things (IoT) in improving urban waste management, particularly in collection, sorting, and recycling, is crucial. Rapid population growth and increasing waste generation pose significant challenges to the environment and health. IoT technology enables real-time data analysis to predict trends and improve efficiency, while AI and robotics can optimize recycling by reducing manual labor and increasing material recovery. Collaboration between governments, technology providers, and the public is crucial in formulating policies and addressing the challenges of cost, privacy, and technical limitations. With a holistic approach based on a circular economy, the application of AI and IoT is considered capable of supporting sustainable, clean, and resilient cities, while also becoming a roadmap for the transformation of waste management in the future (Lakhouit, 2025).

The figure shows the annual waste generation trend from 2022 to 2025. In 2022, the amount of waste generated was recorded at 35,091 tons per year. This figure increased in 2023 to 35,793 tons per year, or an increase of approximately 702 tons. The upward trend continued in 2024, with the amount of waste generated reaching 36,509 tons per year, representing an increase of 716 tons compared to the previous year. The peak occurred in 2025, when waste generation reached 37,239 tons per year, an increase of 730 tons compared to 2024. Overall, over the four-year period, waste generation showed a consistent upward trend with a total increase of 2,148 tons. This phenomenon indicates that community activities, population growth, and consumption patterns contribute to the increasing volume of waste each year. This waste generation trend is closely correlated with urban dynamics in Lhokseumawe. Population growth and urbanization are driving increased consumption needs, which directly impact the volume of waste. Furthermore, people's consumption patterns, which are still oriented towards single-use items, are accelerating the rate of waste generation. This increase underscores the urgency of implementing the "Broh Jeut Keu Peng" public policy as a strategy for sustainable waste management. Without effective intervention through regulation, public participation, and the application of the 3R principle (Reduce, Reuse, Recycle), this upward trend has the potential to place a greater burden on landfills and negatively impact the environment and public health.

The image shows that the landfill area is dominated by open piles of waste that stretch across the surface of the ground. The waste appears to be a mixture of organic and inorganic waste, with no sorting or covering of the land (open dumping). This condition indicates that management at the landfill is still conventional and has not fully implemented a sanitary landfill system. Furthermore, the presence of waste left open has the potential to generate leachate (water resulting from waste decomposition), which can pollute the surrounding soil and water, as well as produce methane gas, which poses a risk to the environment and health. Disorganized piles also create a dirty impression, potentially attracting disease vectors such as flies and rats, and emitting a disturbing odor. The condition of the landfill, such as this, demonstrates limitations in waste management infrastructure, both in terms of capacity, technology, and operational systems. This reinforces the urgency of implementing more modern and sustainable waste management strategies, for example, through improving processing facilities at the TPS3R, implementing circular economy principles, and waste-to-energy efforts to reduce the burden on landfills.

Sustainable urban waste management strategies emphasize an integrated approach between the government, the community, and other stakeholders. These efforts include raising public awareness through education and outreach on the importance of proper waste disposal and the 3R (Reduce, Reuse, Recycle) practices; strengthening infrastructure, such as providing segregated waste bins, scheduled waste collection, and adequate waste processing facilities; and collaboration between various parties to create an effective waste management system.

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Furthermore, utilizing a circular economy through waste banks and composting can increase the economic value of waste while creating new job opportunities.

Stakeholders play a crucial role in sustainable development. Studies in NYC show that implementing a circular economy is effective in minimizing waste and supporting sustainable spatial planning, although implementation challenges remain (Avdiushchenko & Meinrenken, 2025). The increase in urban waste generation demands management strategies that not only reduce waste volume but also utilize waste as a valuable resource. Global studies, such as those in New York City, demonstrate that implementing a circular economy (CE) through active stakeholder participation can minimize resource waste, support sustainable spatial planning, and encourage more environmentally friendly urban transformation.

The "Broh Jeut Keu Peng" strategy in Lhokseumawe City aligns with these principles, as the program encourages residents to sort, manage, and utilize waste for economic value, while simultaneously raising environmental awareness. This approach strengthens social and ecological sustainability in a practical way, while emphasizing the importance of collaboration between the government, communities, and other stakeholders. Thus, "Broh Jeut Keu Peng" represents a concrete implementation of circular economy principles and participatory governance in a local context, offering a relevant model for other cities seeking to develop sustainable waste management.

The Lhokseumawe context shows that waste generation continues to increase from 35,091 tons in 2022 to 37,239 tons in 2025. This upward trend indicates increasing pressure on the waste management system. Therefore, implementing an integrated strategy based on community participation, strengthening infrastructure, and utilizing a circular economy is highly relevant to addressing these challenges. With these steps, waste management can not only control the increasing volume of waste but also contribute to improving city cleanliness and community well-being in a sustainable manner. Sustainable urban waste management strategies are a key agenda for maintaining environmental quality and public health, while simultaneously encouraging environmentally friendly urban development. In Lhokseumawe City, Aceh, the implementation of the public policy "Broh Jeut Keu Peng" or "Trash Can Become Money" is a response to the increasing daily waste generation of approximately 110 tons, consisting of 70 percent organic waste and 30 percent inorganic waste. This program is designed to shift the old paradigm in waste management, from mere disposal to reuse as an economic resource, through strengthening waste banks, composting, and utilizing recycled materials.

The increasing volume of waste in African cities demands innovative and sustainable waste management solutions. This study assesses the potential of AI, IoT, and blockchain technologies in a Centralized Smart Waste Management (CSWM) system, including waste volume prediction, real-time monitoring, and processing automation. As a result, CSWM can improve efficiency, resource recovery, and job creation, but faces challenges such as cost, infrastructure, and stakeholder engagement. Successful implementation requires collaboration between government, the private sector, and communities, along with innovative policies to achieve sustainable urban waste management (Atofarati et al., 2025). The concept of Waste-to-Energy (WtE) and energy equity-based waste management demonstrates that waste can be a valuable resource while reducing environmental burdens. In the local context, Lhokseumawe City has implemented the 'Broh Jeut Keu Peng' public policy, which encourages residents to sort and utilize waste for economic value. This approach aligns with the principles of Waste-to-Energy (WtE) and sustainable waste management, as it not only reduces indiscriminate waste disposal but also increases citizen participation, supports social welfare, and opens up opportunities for renewable energy. Therefore, the "Broh Jeut Keu Peng" strategy can be seen as a practical step in applying the principles of sustainability, equity, and technological innovation for more effective and inclusive urban waste management.

The approach developed within this program is multidimensional. From an educational perspective, outreach on the importance of waste sorting and the application of the 3R principles has been conducted through villages, schools, markets, and announcements at meunasah (religious meeting places). However, its reach remains limited and has not been fully adapted to local culture. This highlights the need for institutional strengthening, for example, by establishing a Socialization and Education Agency, so that public education can be more structured, consistent, and sustainable. On the technical side, the biggest obstacle remains the availability of collection vehicles, which are not commensurate with the daily volume of waste generated, resulting in waste often being left behind in residential areas. While the presence of area-based TPS (landfill Waste Management Units) and TPS3R (Recycling Waste Management Units) has contributed, the existing capacity is insufficient. To this end, the government needs to improve transportation facilities, improve facility maintenance, and integrate modern technology, including the potential development of waste-to-energy, to reduce waste generation significantly. From an economic perspective, this program encourages the public to view waste as a valuable resource.

Through the concept of waste banks, composting, and recycling activities, residents are expected to gain financial benefits that will motivate them to be more disciplined in sorting waste at the source. However, the reality on the ground shows that waste banks in Lhokseumawe City are not yet operating optimally, so their economic impact has not yet been fully felt by the community. This presents a significant challenge that needs to be addressed immediately by strengthening institutions, preparing attractive incentives, and ensuring the sustainability of the management system. If optimized, this approach will align with circular economy principles, which not only reduce environmental burdens but also open new business opportunities and improve community welfare. Collaborative aspects are also key. This program has involved the government, village officials, community leaders, religious leaders, and the informal sector, although private sector involvement remains relatively minimal. Strengthening the role of the private sector through Corporate Social Responsibility programs can provide significant opportunities to support funding and innovation. Regular deliberation forums, neighborhood social gatherings, and expert expos serve as platforms for consolidating ideas and strengthening community participation. The principle of co-governance, or collaborative governance, is a crucial foundation for ensuring the program's sustainability.

The increase in urban waste generation demands participatory management. A Shanghai study demonstrated that a collaborative model between the government, property companies, and residents, with appropriate subsidies, increased efficiency by up to 25%. These findings emphasize the importance of incentives and coordination for effective household waste management (Song et al., 2025). This approach emphasizes

the importance of effective coordination, equitable distribution of benefits, and minimal participation burden for all stakeholders. The "Broh Jeut Keu Peng" strategy in Lhokseumawe City reflects these principles by encouraging community involvement in sorting and processing waste into economically valuable resources. This program not only helps reduce environmental pressures but also provides direct incentives to residents, raises awareness, and contributes to social welfare. Thus, the implementation of "Broh Jeut Keu Peng" is a concrete example of the implementation of collaborative and incentive-based principles in efforts to achieve sustainable urban waste management.

Lessons learned from international practices are also inspiring. The Zero Waste City model in Kamikatsu, Japan, with its strict sorting system and integrated recycling, along with the implementation of Extended Producer Responsibility, could be adapted in Lhokseumawe. Furthermore, the use of environmentally friendly technologies such as waste-to-energy incinerators offers a modern and sustainable long-term solution. The success of this program ultimately depends heavily on community participation. Incentive systems such as clean village awards, waste savings, and easy access to public services have proven to strengthen community motivation, while sanctions such as fines or restrictions on public facilities have a deterrent effect. This encourages the community to be more environmentally conscious and disciplined in maintaining cleanliness.

Overall, the waste management strategy through the implementation of the "Broh Jeut Keu Peng" public policy demonstrates a progressive direction toward a more sustainable system. Although it still faces challenges such as limited infrastructure, uneven public awareness, minimal private sector involvement, and the suboptimal role of waste banks, this program remains a crucial foundation for Lhokseumawe to build more effective waste management. By strengthening institutions, increasing technical capacity, expanding cross-stakeholder collaboration, and integrating circular economy principles, this policy has the potential to have a tangible positive impact on environmental cleanliness, public health, and residents' quality of life. Policy implementation serves as a mechanism for translating political decisions into procedures through bureaucratic channels. However, implementation is not limited to technical implementation; it also relates to potential conflicts, decision-making, and determining who benefits from the policy. Therefore, policy implementation is a crucial part of the overall policy process, often playing a more vital role than the formulation stage (Firdausi et al., 2023).

CONCLUSION

Research findings indicate that the sustainable urban waste management strategy through the implementation of the "Broh Jeut Keu Peng" public policy has provided a new direction for waste management practices in Lhokseumawe City. This policy has encouraged changes in community behavior by increasing their awareness, knowledge, and participation in sorting, managing, and utilizing economically valuable waste. Through ongoing education, outreach, and direct involvement, the community has begun to play a more active role in waste reduction efforts at the source. However, this strategy has not yet achieved full effectiveness due to several obstacles still encountered. The main obstacles include limited supporting infrastructure, weak waste bank operations, uneven outreach, and an institutional capacity that is not yet fully capable of coordinating the policy's implementation in an integrated manner. This situation indicates that the sustainability of the waste management strategy requires institutional strengthening, improved infrastructure provision, and expanded public participation to optimize the policy's benefits. Overall, "Broh Jeut Keu Peng" serves as an essential foundation for realizing more sustainable urban waste management, although it requires further development to achieve a broader and more sustainable impact.

This study has several limitations. First, the number and diversity of informants are still limited, so the perspectives obtained do not fully represent all actors in waste management at the city level. Second, field observations were conducted over a limited time period, so not all dynamics of changing strategies and community responses could be comprehensively captured. Third, the research focused on qualitative aspects, so it does not quantitatively describe the impact of policies on waste volume reduction.

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