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BUILDING ECO-FRIENDLY CITIES: GOVERNMENT-COMMUNITY COLLABORATION IN SHAPING SUSTAINABLE URBAN WASTE MANAGEMENT

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ABSTRACT

This article explores the collaborative role of government and community in shaping sustainable urban waste management as a foundation for building eco-friendly cities. Focusing on Ambon City, this research aims to understand how synergistic partnerships between local authorities and residents contribute to effective and sustainable waste governance. Utilizing a qualitative approach, data were collected through in-depth interviews with officials from the city's Environmental and Waste Management Agency, supported by field observations and document analysis. The findings reveal that community participation and government support are both essential for addressing urban waste challenges, particularly in contexts where public awareness remains limited. The study identifies that collaboration enables the co-creation of contextually relevant policies, increases public compliance, and improves the effectiveness of waste management practices. The novelty of this study lies in its proposition of sustained, dialogic collaboration as a strategic model for urban waste governance, moving beyond top-down interventions toward more participatory and adaptive approaches. This research contributes to the development of social sciences and humanities by offering an integrated framework that connects environmental sustainability, civic engagement, and public policy. It recommends capacity-building initiatives, community-based programs, and policy reforms to strengthen the alignment between governmental infrastructure and community-led action for sustainable urban futures.

Keywords: *Eco-Friendly Cities, Government-Community Collaboration, Sustainable Waste Management, Urban Waste, Waste Reduction*

INTRODUCTION

Waste management issues pose a significant global challenge, especially in urban areas where population density and consumption levels are high. According to a World Bank report, urban areas are responsible for generating approximately 2.01 billion tons of solid waste annually, with estimates projecting this figure to increase to 3.40 billion tons by 2050 (Bank, 2022). Improper waste management not only contributes to environmental degradation but also poses risks to public health and well-being (Rautela et al., 2021). Inadequate waste disposal leads to soil, water, and air pollution, resulting in various diseases such as respiratory illnesses, gastrointestinal infections, and contamination of food and water sources (Chisholm et al., 2021;

Velis & Cook, 2021). Furthermore, the accumulation of waste in urban areas exacerbates problems such as flooding and habitat destruction, underscoring the urgency of addressing waste management challenges (UNEP, 2020).

In Indonesia, waste management issues are also a primary concern, especially in large cities facing significant challenges in managing high volumes of waste (Karjoko et al., 2022; Kristanto et al., 2022). According to the Ministry of Environment and Forestry (KLHK), the amount of waste generated in Indonesia reached approximately 175,000 tons per day in 2020, with low waste management rates and inadequate waste management infrastructure (KLHK, 2020). Ambon City, as one of the cities in Indonesia, is not exempt from pressing waste management issues that need to be addressed. With population growth and increasing urban activities, Ambon City faces serious challenges in handling the continuously increasing volume of waste. According to data from the Environmental and Waste Management Agency of Ambon City, in 2020, Ambon City generated about 230 tons of waste per day, with increasing environmental pollution due to the lack of effective waste management (Environmental and Waste Management Agency of Ambon City, 2020).

Previous research has examined various solutions related to waste management issues, one of which is the utilization of waste within communities (Baralla et al., 2023; Castiglione et al., 2023; Suryawan & Lee, 2023). Studies by Bui et al. (2020) and; Mor & Ravindra (2023) highlight the importance of reusing waste as one strategy to reduce the amount of waste entering landfills. Additionally, research by Ahirwar & Tripathi (2021) and Zorpas (2020) indicates that participatory approaches involving communities in waste management have a significant impact on enhancing the effectiveness of waste management systems. Active community participation in waste management is also supported by research by Baralla et al. (2023) and Pardini et al. (2020), which found that community involvement can improve the sustainability of waste management at the local level.

Maheshwari et al. (2020) found that waste collection systems in large cities are often ineffective, with low collection success rates and an inability to reach all areas of the city uniformly. Additionally, research by Muheirwe et al. (2024) and Salazar-Adams (2021) highlights that inadequate waste collection coverage in large cities leads to waste accumulation in public areas and an increased risk of environmental pollution. Another common issue faced is improper waste treatment and disposal systems, as revealed in the study by Hussain et al. (2024), which found that most large cities in Indonesia still rely on poorly managed landfills as the primary solution in waste management.

Nevertheless, government policies play a crucial role in shaping public behavior regarding waste management and environmental sustainability (Rafiquee & Shabbiruddin, 2024; Volsuuri et al., 2023). da Silva Guabiroba et al. (2023) found that waste tariff policies implemented by city governments can influence the level of community participation in waste management programs. Similarly, research byLiu & Liu (2022) and Shah & Asghar (2024) highlights that incentivizing and penalizing policies implemented by the government can be important factors

in motivating people to comply with regulations and change consumption behaviors that impact waste reduction.

In addition, previous research also indicates that there are several solutions that can be implemented to address waste management issues. One of the most effective solutions is through waste recycling practices (Yang et al., 2023; Zhu et al., 2023). Studies by Aboelmaged (2021) and Yang et al. (2023) found that the implementation of waste recycling programs at the community level can significantly reduce the volume of waste entering landfills. Furthermore, community involvement and active participation were also found to have a positive impact on waste management, as revealed in the research by Dai et al. (2022) and Ma et al. (2020), which found that community participation in waste management activities in their environment contributes to waste volume reduction and increased environmental awareness. Monitoring community behavior is also found to be important in ensuring compliance with waste management regulations, and the role of monitoring and sanctions against violations in improving waste management effectiveness (Budihardjo et al., 2021; Kurniawan et al., 2024; K. Liu et al., 2023). Additionally, effective waste management and waste reduction programs also have a significant impact on addressing waste issues, as documented in the study by Rachman et al. (2020), which found that the implementation of waste reduction programs in government offices successfully reduced the volume of waste generated significantly.

Unlike previous research, this article offers the concept that waste management can achieve optimal effectiveness through continuous collaboration between the government and the community. Close collaboration enables the development of more holistic policies and programs that are relevant to local needs. Through open dialogue and active community participation, the government can better understand the challenges and needs faced by the community in waste management at the local level. Consequently, the resulting policies are more likely to be accepted and implemented by the community, increasing compliance and effectiveness in waste management. Sustainable collaboration also allows the government and the community to support each other in terms of resources, including funding, infrastructure, and knowledge. Through community training and education programs, the government can enhance the understanding and skills of the community in environmentally friendly waste management, which in turn can lead to active participation and positive contributions from the community in waste management efforts. Therefore, sustainable collaboration between the government and the community is a key factor in achieving effective and sustainable waste management.

RESEARCH METHOD

This study adopts an in-depth qualitative approach to understand the collaboration between the government and the community in waste management in Ambon City. This approach was chosen because it can provide a comprehensive understanding of collaboration

dynamics and the complexity of waste management practices in the urban context (Creswell, 2017). The initial data collection phase involved in-depth interviews with relevant informants, including representatives from the Environmental and Waste Management Agency of Ambon City and members of the community actively involved in waste management. These interviews were focused on gaining direct insights and experiences from stakeholders regarding collaborative efforts undertaken and the challenges faced in waste management (Sarfo et al., 2021). ubsequently, direct observations were conducted to observe waste management practices firsthand at various locations in Ambon City. These observations allowed researchers to gain a deeper understanding of the daily practice processes and challenges involved in waste management (Coronella & Aiken-Wisniewski, 2022). Additionally, document analysis was conducted to analyze policies, regulations, and waste management programs implemented in Ambon City. These documents would help in understanding the policy framework governing waste management practices at the local level (Ekoto et al., 2022).

The data collected from in-depth interviews, direct observations, and document analysis were then transcribed and analyzed thematically. Thematic analysis allows researchers to identify patterns, themes, and key findings related to the collaboration between the government and the community in waste management in Ambon City (Ekoto et al., 2022). During the analysis process, researchers sought consistency and differences in views and waste management practices between the government and the community, as well as factors influencing effective collaboration. Furthermore, data were triangulated by comparing information obtained from various sources to strengthen the validity of the findings and ensure consistency across information from different sources (Ekoto et al., 2022). Through this approach, the research provides a deeper understanding of the dynamics of collaboration between the government and the community in waste management in Ambon City. The findings of this study can offer valuable insights for policymakers and practitioners in developing more effective and sustainable waste management strategies, particularly for the Ambon City Government.

RESULTS AND DISCUSSION

The Role of the Ambon City Government in Waste Management

The delineation of authority for local government in waste management refers to Law No. 18 of 2008 concerning Waste Management (Waste Management Law) and its derivative regulations. According to the Waste Management Law, the majority of regulatory authority related to waste management is under the jurisdiction of the central government (Faishal, 2022; Kubota et al., 2020). This includes the establishment of strategic policies, standards, and technical guidelines governing important aspects of waste management at the national level. However, the authority for implementation, such as policy operationalization, supervision, and monitoring, is largely delegated to local governments (Irawan & Hartoyo, 2022; Muliawaty et al., 2022). This indicates that local governments bear significant responsibility in executing waste management

programs in accordance with their local conditions and needs.

At the local level, the authority for waste management in Ambon City is governed by Regional Regulation (Perda) No. 11 of 2015 concerning Waste Management. This regulation establishes a legal framework governing various aspects of waste management in Ambon City, including strategies, policies, and programs to be implemented by the local government (Luanmasar et al., 2022; Wance, 2022). In the implementation of the Regional Regulation on Waste Management, there are five main efforts in handling waste in the city. Firstly, waste sorting is a crucial initial step in effective waste management. This involves the process of separating waste into various categories, including organic and non-organic, as well as materials that can be recycled. Secondly, waste collection is the next important step to gather sorted waste from various areas of Ambon City. Subsequently, waste transportation is the next stage in the waste management cycle, where the collected waste will be transported using specialized vehicles to processing or final disposal sites. Fourthly, waste processing is conducted to reduce the volume of waste to be disposed of in landfills. This processing may include composting, recycling, or other treatment methods depending on the type of waste generated. Finally, the final waste processing stage involves the ultimate handling of waste that cannot be further processed or recycled. This includes steps such as final disposal or landfill management that meets safety and environmental standards.

According to AJH from the Environmental and Waste Management Agency (DLH & Persampahan), the Ambon City government plays a vital role in waste management through two main approaches: waste reduction and comprehensive waste handling. The first approach, waste reduction, is prioritized through strategies such as regional cooperation, partnerships, and active community participation to reduce waste volume. Collaboration with local communities and the private sector is essential for building a cleaner and more sustainable environment. AJH highlights that this approach includes the adoption of environmentally friendly technologies, promoting reuse, recycling, and responsible disposal, along with policies aimed at limiting waste generation and encouraging the reuse of materials that still have economic or functional value. The second approach involves a comprehensive waste management system, encompassing sorting, collection, transportation, processing, and final disposal at landfills, all aimed at ensuring waste is handled efficiently and safely to minimize its environmental and health impacts. Despite these efforts, community feedback indicates ongoing challenges. MKP, a community figure in Ambon, notes the lack of adequate Temporary Waste Disposal Sites (TPS) in many neighborhoods, which leads residents to dispose of waste indiscriminately. This issue is visible in the form of waste piles along roadsides and rivers, contributing to pollution and health risks. SM (48) supports this concern, pointing out that unmanaged waste not only harms the visual environment but also causes discomfort and endangers public health. He stresses that the insufficient infrastructure and limited government presence are central to the problem. Therefore, both MKP and SM call for immediate and concrete actions from the government to improve waste management systems and infrastructure in Ambon City to ensure environmental cleanliness and safeguard

community well-being.

The city's infrastructure related to waste management plays a crucial and strategic role in the development of modern urban areas. This perspective aligns with the concept of "urban creativity" proposed by Florida (2005). According to Adler & Florida (2021); Florida (2005); Florida et al. (2023) and Lobo et al. (2020), the concept of urban creativity emphasizes the importance of investing in city infrastructure to create environments that support innovation and economic growth. Florida argues that successful cities are those capable of attracting creative and innovative individuals while providing environments that facilitate diverse social and cultural life.

In his theory, Florida also introduced the concept of the "bohemian index" as an important indicator to measure the concentration of bohemian population in a region and its correlation with the concentration of high-tech industries and high-quality human resources. In the context of urban waste management, this indicates that the development of adequate city infrastructure, including efficient waste management systems, is a key factor in creating an environment that is attractive to creative and innovative individuals and in enhancing the city's attractiveness and competitiveness in the global economy (Mellander & Florida, 2021).

The Role of Ambon City Community in Waste Management

In Regional Regulation (*Perda*) No. 11 of 2015 regarding waste management in Ambon City, the community plays a significant role in waste management efforts. The community in Ambon City has two main roles in waste management, namely waste reduction and waste management. In terms of waste reduction, the community is expected to adopt environmentally friendly practices such as reducing the use of single-use plastics, recycling recyclable materials, and reusing items that are still usable. According to Kaur et al. (2023) "waste reduction at its source" is one of the effective strategies to reduce the volume of waste generated.

Meanwhile, in terms of waste management, the community in Ambon City is asked to play an active role in maintaining environmental cleanliness and properly managing waste. This is in line with research conducted by Hussain et al. (2024), which emphasizes that "environmental cleanliness maintenance" and "proper waste disposal" are important principles in sustainable waste management. Additionally, the community is also asked to segregate waste based on its nature, facilitate waste collection from its source to the nearest Waste Disposal Site (TPS: *Tempat Pembuangan Sampah*), and provide and maintain waste disposal facilities in their environment. By adopting these practices, the community of Ambon City can actively contribute to creating a clean, healthy, and sustainable environment.

Although the importance of community involvement in waste management is recognized, the reality shows that the attitude of the community towards waste management practices is still lacking. For example, the tendency to use single-use plastics, lack of awareness about the importance of recycling recyclable materials, and the lack of practice in reusing items that are still usable. These findings are reinforced by the statement of ASW, a community figure, who emphasizes that only a small portion of the Ambon City community has sufficient awareness and

understanding of household waste management. ASW also notes that recycling practices are rarely encountered in Ambon City, and questions whether this is due to lack of knowledge or inadequate socialization from the local government. ASW hopes for more intensive learning and socialization efforts regarding waste recycling practices for the community, with the aim of effectively managing waste and providing added value, both in terms of health and aesthetics in the urban environment. Additionally, ASW also highlights the lack of presence of waste banks in Ambon City, except for places selling scrap metal that only accept iron waste, which he believes indicates the suboptimal utilization potential of waste as an economic resource in Ambon City.

Effective waste management requires active participation from all elements of society, following the concept of sustainable development involving all stakeholders. As expressed by Pardini et al. (2020), "Active community participation in waste management is the key to achieving the success of a sustainable waste management system." Therefore, the role of the community in reducing and managing waste cannot be overlooked, as it also impacts the environmental well-being and overall public health. Furthermore, the importance of community participation in waste management is also reflected in the concept of sustainable development, which emphasizes social inclusion and public participation in decision-making. In the context of waste management, community participation is not only as implementers but also as stakeholders involved in the planning, implementation, and evaluation of policies. As stated by Karjoko et al. (2022), "Community participation in waste management not only provides practical benefits in waste reduction but also strengthens the social bonds between the government and the community."

Building an Eco-Friendly City: Government and Community Collaboration in Sustainable Development

The concept of building an eco-friendly city is the primary focus in efforts to create sustainable urban environments resilient to climate change. As a holistic view of urban development, this concept integrates various aspects of sustainability, including waste management, sustainable transportation, conservation of natural resources, and the development of eco-friendly infrastructure. In this theory, a systemic approach is applied to understand the relationships among elements within the urban environment and how they mutually influence each other. One of the key concepts in building an eco-friendly city is sustainable waste management. According to environmental scientists like Paul Hawken, effective waste management is an integral part of efforts to protect natural resources and maintain the balance of urban ecosystems. This concept is also supported by theories from environmental figures like Jane Jacobs, who emphasizes the importance of eco-friendly urban infrastructure in creating sustainable and inclusive urban environments.

Furthermore, the concept of building an eco-friendly city also draws inspiration from theories of sustainable development proposed by scientists such as Donella Meadows and Herman Daly. According to Suryawan & Lee (2023), sustainable development must consider the

environmental capacity to support human life and contemplate the long-term effects of human activities on ecosystems. Meanwhile, Pardini et al. (2020) highlight the importance of maintaining a balance between human needs and the availability of natural resources, as well as applying ecological economic principles in the development of sustainable cities.

The integration and collaboration between the government and the community in building an eco-friendly city and managing waste in Ambon City are essential components that cannot be overlooked. This partnership serves as a driving force for positive change and the realization of sustainable urban development. The government holds a key role in formulating policies and strategies for environmentally friendly development, as well as in providing infrastructure that supports sustainable waste management. For instance, by adopting a participatory approach in urban planning that involves local communities, environmental organizations, and the private sector, the Ambon City government can ensure that its policies are more responsive to public needs and more effective in achieving sustainability goals. At the same time, active community participation is equally vital. Citizens can contribute by engaging in waste management programs, adopting sustainable lifestyles, and participating in campaigns to reduce single-use plastics, recycle materials, and manage household waste responsibly. Through these collaborative efforts, the community becomes an active agent of change, supporting the creation of a cleaner, healthier, and more sustainable urban environment in Ambon City.

The importance of integration between the government and the community in building an eco-friendly city and managing waste is strongly supported by sustainable development theories that emphasize public participation in decision-making and policy implementation. According to participatory theory, collaboration between the government and the community enhances the legitimacy of policies and ensures the long-term sustainability of urban development efforts. In the context of Ambon City, such integration is not merely an option but a necessity for creating a better and more sustainable urban environment. By applying the concept of eco-friendly city building and drawing on theories from environmental scientists and experts, it is possible to develop an urban environment that is more balanced, sustainable, and climate-resilient. Within this framework, collaboration becomes essential in designing and implementing policies and programs that support eco-friendly urban development. This concept not only reflects a visionary future for cities but also serves as a practical foundation for guiding concrete actions toward achieving sustainability goals in Ambon's urban development.

CONCLUSION

The conclusion of this research emphasizes the importance of collaboration between the government and the community in building an eco-friendly and waste-free city in Ambon City. The government plays a crucial role in providing infrastructure that supports sustainable waste management, including well-managed waste disposal sites and environmentally friendly waste processing facilities. On the other hand, active community participation is key in waste reduction

efforts and effective waste management, through practices such as recycling, reducing the use of single-use plastics, and waste sorting at the household level. This collaboration creates synergy between government policies and community actions, ultimately aiming to create clean, healthy, and sustainable urban environments. Therefore, the integration between the government and the community is not only a recommended strategy but also an urgent need in achieving sustainable urban development goals in Ambon City and worldwide.

ETHICAL STATEMENT AND DISCLOSURE

This study was conducted in accordance with established ethical principles, including informed consent, protection of informants' confidentiality, and respect for local cultural values. Special consideration was given to participants from vulnerable groups to ensure their safety, comfort, and equal rights to participate. No external funding was received, and the authors declare no conflict of interest. All data and information presented were collected through valid research methods and have been verified to ensure their accuracy and reliability. The use of artificial intelligence (AI) was limited to technical assistance for writing and language editing, without influencing the scientific substance of the work. The authors express their gratitude to the informants for their valuable insights, and to the anonymous reviewers for their constructive feedback on an earlier version of this manuscript. The authors take full responsibility for the content and conclusions of this article.

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