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

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ABSTRACT

The development of eco-friendly cities necessitates collaboration between the government and communities in shaping sustainable urban waste management. The issue of waste presents a significant challenge in efforts to enhance environmental quality and public health in urban areas. Well-managed waste not only reduces negative environmental impacts but also creates new economic opportunities. In this context, this research employs a qualitative approach with in-depth interviews and observation techniques to examine waste management in Ambon City. In-depth interviews were conducted with informants from the Ambon City Environmental and Waste Management Agency, while document studies were utilized to analyze information related to waste issues in the city. The findings indicate that collaboration between the government and communities is crucial for achieving success in waste management. Ambon City and its residents require joint efforts to address waste issues, particularly due to the low level of public awareness regarding government efforts in waste management. Increased community participation and full government support are necessary to achieve clean, healthy, and sustainable urban environments.

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 by Liu & 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). Subsequently, 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 significant role in waste management by implementing two main approaches: waste reduction and waste management. The first approach, waste reduction, is the primary focus emphasized through a series of strategic steps. One of these steps is through the development of regional cooperation, partnerships, and community participation efforts to reduce the volume of waste generated. Collaboration with various parties, including local communities and the private sector, is key to creating a cleaner and more sustainable environment. AJH further explains that measures taken in waste reduction include the use of environmentally friendly technologies. This includes practices such as reuse, recycling, and responsible waste disposal. The use of modern technology in waste management processes is an important solution to address current environmental challenges. Additionally, the Ambon City government also implements policies to limit waste generation and promote the reuse of waste that still has economic value or other benefits.

Furthermore, AJH adds that the second approach involves comprehensive waste management. The Ambon City government implements an integrated process, starting from sorting, collection, transportation, processing, to the final disposal at the landfill. These stages ensure that waste is managed efficiently and safely, minimizing its negative impacts on the environment and the health of the local community. AJH firmly states that through coordinated and targeted efforts, the Ambon City government strives to create a clean, healthy, and sustainable environment for its residents. In contrast to the efforts made by the Ambon City government, there are responses from the community indicating that the government has not fully been present in waste management. MKP, as one of the community figures in Ambon city,

states that the availability of Temporary Waste Disposal Sites (TPS) is insufficient for every neighborhood. The presence of adequate TPS is an important indicator of effective waste management infrastructure. However, the reality is that many areas are not equipped with adequate TPS, causing people to tend to dispose of waste indiscriminately.

Additionally, the issue of indiscriminate waste piles along roadsides and even along rivers is also a major concern. Poorly managed waste piles can lead to environmental pollution and potentially become a source of disease. This indicates that waste management-related infrastructure, such as TPS management and waste collection systems, is still inadequate. This aligns with the statement of SM (48 years old) that waste piles found on the roadside are a problem directly visible in everyday surroundings. He observes that these waste piles not only disrupt the aesthetics of the environment but also cause discomfort for the surrounding community. Furthermore, SM emphasizes that the presence of such waste piles creates the potential for environmental pollution and disease spread, highlighting the urgency of addressing waste management issues in Ambon City. SM also highlights the lack of government presence in providing adequate infrastructure for waste management as the main cause of this issue. This deficiency results in indiscriminate waste piles scattered along roads and rivers, threatening overall environmental cleanliness and public health. Therefore, SM emphasizes the need for concrete actions from the government to improve waste management infrastructure to effectively address this issue.

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).

Therefore, the investment and attention given to the development of city infrastructure related to waste management not only have a direct impact on environmental health and community well-being but also have the potential to enhance the success and competitiveness of a city in the era of globalization and economic competition. Thus, the construction of adequate and efficient city infrastructure in waste management becomes an integral part of achieving goals for sustainable and inclusive urban development.

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 importance of integration and collaboration between the government and the community in building an eco-friendly city and waste management in Ambon City cannot be overlooked. In this context, the integration between the government and the community is the key to creating positive change and realizing the vision of sustainable urban development. The government plays a crucial role in formulating policies and strategies for eco-friendly urban development and providing infrastructure that supports sustainable waste management. For example, the Ambon City government can adopt a participatory approach in urban development planning involving various stakeholders, including local communities, environmental organizations, and the private sector. Consequently, the policies produced can be more responsive to the needs and aspirations of the community and more effective in achieving

sustainable development goals.

On the other hand, active community participation is also essential in building an eco-friendly city. The community can contribute in various capacities, from participating in waste management programs to adopting more sustainable lifestyles. For instance, the community can engage in campaigns to reduce the use of single-use plastics, recycle waste, and effectively manage household waste. Through this active participation, the community can become agents of change that help realize cleaner, healthier, and more sustainable urban environments.

The importance of integration between the government and the community in building an eco-friendly city and waste management is also reinforced by theories of sustainable development that emphasize the importance of public participation in decision-making and policy implementation. According to participatory theory, collaboration between the government and the community can enhance policy legitimacy and ensure the sustainability of efforts for sustainable urban development. Integration and collaboration between the government and the community are not just options but necessities in efforts to create better and more sustainable urban environments in Ambon City.

By applying the concept of building an eco-friendly city and integrating theories from scientists and environmental figures, a more balanced, sustainable, and climate-resilient urban environment can be created. In this context, collaboration between the government and the community is key in designing and implementing policies and programs that support eco-friendly urban development, especially in Ambon City. This concept not only depicts the future vision of urban areas but also serves as a framework that guides concrete actions to achieve sustainability goals in 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.

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