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The Role of Public Service Centers in Shaping Community Waste Management Behavior in Ambon City

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Abstract: Generally, the waste management has to involve the entire society component, not only the government but also the society itself. The government can be useful with their regulation and their productive programs related to waste management. But the regulation and the program can only be successfully applied if the society actively takes part in the grand plan designed by the government. In this paper, we analyzed the influence between the waste facility provide by the government, self-knowledge of the society about waste management and society figure who can be a role model in managing the waste to the society behavior of waste self-management in Ambon Moluccas. This research showed that only 23.83% of the society behavior of waste self-management in Ambon Moluccas can be analyzed through the variables of waste facility, self-knowledge and society figure simultaneously. Furthermore, it is also shown us that the Society behavior variable can be explained 17.53% by the waste facility variable, 14.19% by the self-knowledge and 1.63% by the society figure particularly.

1. Introduction

Indonesia is facing quite serious problems related to increasingly uncontrolled waste management (Arie et al., 2022). The waste management model, on-site handling, collection, transportation, processing, and final processing is still known in its handling (Amos, 2015). Currently, it is important to change public perception about waste and how to process or manage waste in accordance with the provisions of Law Number 18 of 2008 which regulates the management of waste, domestic waste, and waste similar to household waste. With urbanization and more complex environmental challenges, waste management is an important topic in sustainable urban development. Waste management has been framed through the concept of the circular economy, which seeks to minimize waste through reuse, recycling, and resource recovery (Zérah et al., 2023). In city contexts, there is potential for creating more synergies with public infrastructure and developing public engagement in waste management through waste systems integrated into transport hubs and public service infrastructure (Ulhasanah et al., 2025).

Ambon City is one of the cities in Eastern Indonesia, particularly in Maluku. The Ambon City government, like other urban communities, frequently addresses waste issues. Ambon City, a coastal city

and the economic center of Maluku, faces similar problems such as waste accumulation and low public participation in waste management. Some studies have shown that the actual efficiency of waste management systems is dependent on the level of public participation and engagement. Awareness, motivation and education are considered to be key elements for pro-environmental behavior. Communities that are more aware and knowledgeable are more likely to be engaged with waste management (Kreith & Tchobanoglous, 2002; Setyoprambudi et al., n.d.). However, many urban waste management efforts have failed to turn this awareness into a long-term change in behavior. This situation has led to diminished trust in local government and related institutions. Consequently, an effective crisis communication approach is needed. To examine how city authorities responded to this crisis based on public perceptions of their responsibilities, Coombs' Situational Crisis Communication Theory (SCCT) approach is relevant (Timothy Coombs & Holladay, 2022).

Waste can come from direct disposal, fishermen, or tourists (Fajarwati et al., 2020). The Ambon City Government's efforts to address waste issues generally include the development of waste management infrastructure, such as Integrated Waste Management Facilities (IPST), trash bins in residential areas, and waste collection vehicles. Various factors contribute to increasing environmental pollution, including human population growth and increasing amounts of waste being disposed of (Sari, 2016). In this regard, they provide a planned institutional approach to connecting policy provision with desired behavior change through public service centers that act not only as units for service provision but as facilitators of citizen participation, providers of public good infrastructure and agents of behavior change. Public service centers operate community-based programs, such as waste banks, that stimulate community participation and involvement in waste management systems (Fajarwati et al., 2020). The centers provide the infrastructure for community-based waste management such as sorting facilities, professional expertise, and digital infrastructure to support community waste management capacity (Ulhasanah et al., 2025). This is exacerbated by the lack of waste disposal facilities and locations, the lack of public awareness and willingness to manage and dispose of waste, the lack of public understanding of the benefits of waste, and the reluctance of people to reuse waste because waste is seen as something dirty that must be thrown away (Asnifatima et al., 2018).

Furthermore, public service centers stress the roles of education and environmental awareness in driving community action. Digital engagement strategies can play an important role in improving community participation in waste management programs by providing timely information and promoting two-way communication channels (Ulhasanah et al., 2025). Education and awareness campaigns, as well as participatory approaches as those used in other countries, also show the importance of combining education with behavior change in implementation (Vilarinho et al., 2023).

These many factors cause environmental quality to decline, thus having a negative impact on the environment (Hutgalung & Senjaya, 2021). Furthermore, public service centers are most effective when the private sector, government, and communities all participate in the delivery of services. For example, Bangkok's waste management system has been shown to be more sustainable and to perform better when arrangements are made for public-private-community (PPC) partnerships (Sukholthaman et al., 2017). In that sense, waste management is not simply a technical issue, but one with a governance dimension that requires collaborative and participatory solutions. The public service centers play a major role in this process, but several difficulties remain. A community participation system based on voluntary participation has its limitations. In the absence of the market forces of private sector participation and incentives, efficiency in the system of service delivery and citizens' participation may be compromised (Chakrabarti et al., 2009). Thus, a more integrated and adaptive model of public service delivery for waste management could be helpful.

Prior studies have examined community engagement, infrastructure investment, and environmental awareness raising. However, the existing literature on the role of public service centers as institutional, social, and technological intermediaries to influence community behavioral change for waste management within the context of urban governance in Indonesia is limited. Additional focus should be given to integrated governance at the local government level, incorporating infrastructure provision and behavioral interventions.

Waste that is not managed properly can pollute the ecosystem and cause rivers to become shallow, which can lead to flooding (Yanti & Awalina, 2021). The capacity of communities and local governments to manage waste is not yet optimal. Waste collection and processing are part of waste management, which is an organized, comprehensive, and sustainable activity (Sartika et al., 2014). Apart from increasing at the same rate as population growth, the rate of waste creation also increases along with increasing consumption habits in society (Amin Muhammad et al., 2022).

Therefore, this study seeks to analyze the role of public service centers in influencing community behavior by examining the integration of infrastructure, knowledge, and social influence in community waste management through a case study in Ambon City, Indonesia. The findings of this study are expected to contribute to an integrative framework for sustainable waste management through institutional capacity, community participation, and behavior change.

2. Literature Review

Waste Management in Public Policy

Waste management is no longer seen as a purely technical issue about waste collection and disposal, but as a multistakeholder governance issue that includes coordination and negotiation between the state, the public, and private actors. Current public policy thinking sees waste management as part of the sustainable development agenda, which includes environmental, economic, and social dimensions. This follows the principles of the circular economy, in which waste is minimized through the concepts of reduce, reuse, and recycle, whereby waste is viewed as an economic resource (Kaklauskas et al., 2025).

The institutional capacity of the government to provide infrastructure and public services, and the participation of the population as the users of services are also key factors in determining the success of waste management policies. Other studies have shown that the success of waste management policies does not only depend on the availability of infrastructure, but also on a sufficiently high degree of awareness, motivation and ability of the population to practice sustainable waste management. Consequently, a behavioral perspective is fundamental to understanding how public policy shapes the waste disposal practices of individuals.

In urban contexts, this integration of waste management policies within public infrastructure systems has become more relevant. For example, the integration of waste bank programs with public infrastructure systems such as mass transportation can potentially create more community participation in a framework that is more adapted to its local context. Community interest, the communities' ability to adapt, and the availability of information and supporting facilities are among the factors that determine the success of these initiatives (Ulhasanah et al., 2025).

The official of waste and environmental department of Ambon, the volume of trash in Ambon significantly increases during these 5 recent years. So, we need the massive involvement to implement the whole program of government related to waste management in Ambon City of Moluccas. There are a lot of strategies which have been held by the government, i.e. implementing the province strategy in decreasing the volume of trash to 30% and also 70% of household trash management. The second strategy is not well implemented. This is caused by the insignificant of society involvement in this program.

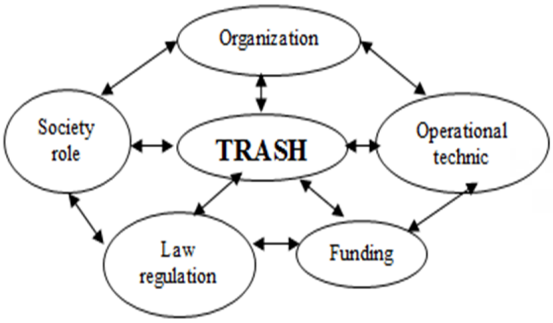

Figure 1. Trash Management System Scheme
Source: (Smith & Akib, 2015)

This research is focused on analyzing the join influence waste facility provide by the government, self-knowledge of the society about waste management and society figure who can be a role model in managing the waste to the society behavior of waste self-management related to waste and household trash management in Ambon Moluccas. We used Matlab R2017a to analyze the data. Waste management system is divided into 5 aspects which are supported one each other. They are operational technic aspect, management and organization, law regulation, funding and society role aspect. Figure 1 shows that these 5 aspects are related one another. Law No. 18 of 2008 defines the waste management mechanism as consisting of two stages: waste reduction and waste management. Waste reduction is an activity to prevent waste accumulation. Activities included in this mechanism include setting waste reduction targets, developing sanitation technology, utilizing recycled products, developing waste recycling facilities, and increasing public awareness of waste recycling.

Public Service Centers in Environmental Governance

Public service centers are one of the major public policy implementing agencies, especially in providing direct services to the public. Public service centers are not only technical service agencies, but also major calculated participants in environmental management, which close the divide between policy and implementation and maintain the relationship between the government and the people (Ain et al., 2021).

The role of public service centers in waste management can be divided into three main categories. The first is that public service centers can support waste management through the provision of facilities for waste management, including waste sorting facilities, waste bank systems, and technical assistance to those managing waste in communities. The provision of these facilities has been shown to lead to greater community participation in waste management programs (Ulhasanah et al., 2025).

Secondly, public service centers are also community participation organizers (Furqan et al., 2021). They organize participation through community-based organizations, community forums (e. g. waste forums), and capacity building on community participation. This is consistent with the idea of community-based waste management as an all-including approach that considers community participation at every stage of waste management (O'Reilly & Dhanju, 2012).

Third, public service centers can act as behavior change agents by increasing awareness and interest in waste management through education, public campaigns, and web-based technologies. Empirical studies found that the use of web-based technologies to give real-time information and to provide incentives to citizens to improve their waste management habits generally has a positive effect (Hao et al., 2025). This suggests that the public service centers' role has evolved from merely service providers to becoming involved in the behavior transformation of communities.

The functioning of the public service center is reinforced by establishing means of collaboration with multiple stakeholders, such as the private sector and key communities. A collaborative approach to governance is also important because waste management is a cross-sectoral issue that needs different resources to be effectively managed through the coordination of stakeholders Hence, public service centres can become relevant actors of environmental governance, not only providing administrative functions, but playing a role in fostering a participatory and sustainable system of waste management.

Research Gap

The literature on waste management systems has been expanding rapidly, but research on waste management systems has been conducted almost exclusively through studying either structural, participatory, or behavioral aspects of the system. To this day, research fails to deal simultaneously with all three dimensions and study the three in conjunction.

Public service centers as integrative actors making the connection between public policy and public practice for waste management have received less attention in the literature; however, several studies show that their positioning allows for the integration of varied roles in (waste) management such as those of service providers, participatory facilitators, and behavior change agents.

Further, there has been limited research on how the interaction between public service provision, community capacity and behavioral factors affects the effectiveness of waste management, indicating a gap in the literature in understanding the processes through which public policy is translated to community-level waste management practices. Thus, this study attempts to fill this gap by exploring the role of public service centers (PSCs) in influencing community behavior toward waste management within an integrative framework of policy, public service, and community behavior. Through the case study of Ambon City, this research is expected to make empirical and conceptual contributions towards the development of a more integrative and sustainable waste management governance model.

3. Research Methods

The second mechanism of waste management is management of waste itself. This activity is including the process of waste sorting, waste transporting, and the waste final processing which is working over the previous result so that the final result can be returned back into the environment. There are two types of variables in this study, namely dependent variables and independent variables. The dependent variable used is community behavior in independent waste management. While the independent variables are waste management facilities provided by the government, community knowledge about waste management, and community figures. The problem model can be seen in Figure 2.

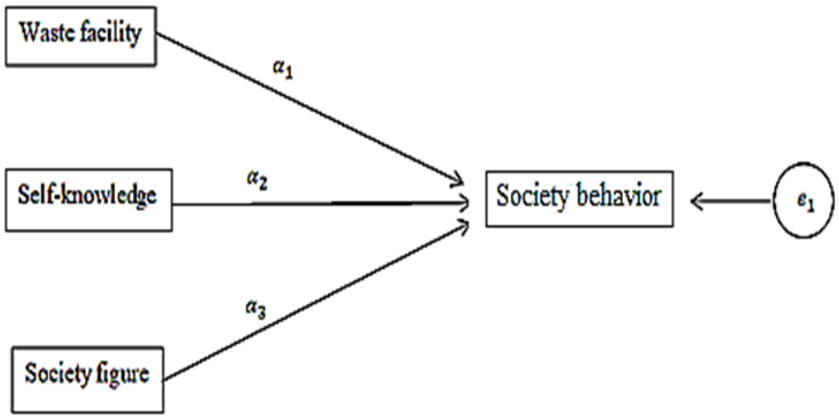

Figure 2. Model Construction

The model equation can be given as.

$$y_1 = e_1 + \alpha_1 x_1 + \alpha_2 x_2 + \alpha_3 x_3$$

Information:
y_1 = Society behavior of waste self management
x_1 = Waste facility provide by the government
x_2 = Self-knowledge of the society about waste management
x_3 = Society figure who can be a role model in managing the waste

4. Results and Discussion

This research used 500 questionnaires which only 427 of them that can be used. This is caused by the incompleteness of the rest of the data. There are 70 questions in the questionnaire which have to be answered by the respondent. The 20 of them is related to the Society behavior variable, 20 questions are related to the Waste facility, 20 questions related to the Self-knowledge of the society and 10 questions related to the Society figure who can be a role model in managing the waste. The result of respondent's answer can be seen in Table 1, Table 2, Table 3 and Table 4.

Frequency Distribution of Society Behavior Variable

Community behavior greatly determines the condition of an area in terms of waste management. Therefore, community awareness is needed as the main factor in order to create better and more secure environmental conditions as can be seen in Table 1.

Table 1. Frequency Distribution of Society behavior variable

Category	Interval	Frequency	Percentage (%)
High	67 - 100	224	52.46
Currently	33 - 66	182	42.62
Low	0 - 32	21	4.92
Sum		**427**	**100.00**

Table 1 shows us that most of the respondents have the average category of society behavior related to waste self-management. This variable also measures the people's capability and their willingness to sort their own trash which is nearly low. This problem can be caused by the passiveness of their involvement in government program related to self-waste management.

Table 1 shows that the habits of people usually throw away garbage from the results of the questionnaire data collected in Table 1, it is known that the habits of the Ambon community throw away garbage, which are dominant, namely those who answered at the TPS (Garbage Disposal Site), with an average percentage of 52.46% and no one answered that garbage disposal was at the TPA (Final Disposal Site). The existence of garbage that interferes with daily activities from the results of the questionnaire data collected during the study which can be seen in Table 1, it is known whether garbage can interfere with community activities there, the dominant answer is those who answered yes it is disturbing, namely 224 respondents or 52.46% and hesitant in answering, namely 21 respondents or 4.92% of the total respondents interviewed.

Attitude clearly shows the connotation of appropriate reactions to certain stimuli which in everyday life are reactions that are characteristic and not the implementation of certain motives. The study found that attitudes toward waste management facilities were significantly influenced by the distance between TPS (landfill sites). Fewer people expressed a willingness to dispose of their waste at TPS, but more indicated a lack of intention to participate (Astuti et al., 2019).

Frequency Distribution of Waste Facility Variable

Waste management by the community is very important in maintaining the environment around the organization of residents clean. For this reason, proper management is needed by the community in terms of its management as presented in Table 2.

Table 2. Frequency Distribution of Waste facility variable

Category	Interval	Frequency	Percentage (%)
High	67 - 100	213	47.54
Currently	33 - 66	203	49.88
Low	0 - 32	11	2.58
Sum		**427**	**100.00**

Table 2, it can be seen that the waste disposal facilities provided by the government are still not in accordance with the public's opinion about local waste banks and the number of waste transport trucks is still less than needed.

Based on the table above, it can be seen that the frequency of waste management facilities or facilities in the poor category with a frequency of 213 respondents with an currently percentage (49.88%) which is caused by the distance of the waste disposal facilities or facilities being too far, while as many as 11 respondents with a percentage (2.58%) who carry out waste disposal activities to the disposal facilities or facilities provided by the government in small numbers.

Frequency Distribution of Self Knowledge of the Society Variable

Frequency distribution of the variable of community self-knowledge regarding waste management on Ambon Island can be seen in Table 3.

Table 3. Frequency Distribution of Self Knowledge of the Society Variable

Category	Interval	Frequency	Percentage (%)
High	67 - 100	224	52.46
Currently	33 - 66	182	42.62
Low	0 - 32	21	4.92
Sum		**427**	**100.00**

Table 3, we know that most of the people have lack information and knowledge about waste management. This lack of knowledge maybe caused by the socialization about waste management held infrequently. Table 4 shows us that the society figure has not an active role in managing the waste wisely and correctly. Most of them consider that the society figure has nothing to do relate to waste manage-

ment. This kind of problem can be caused by the role play model mislead by the government to the society figure in setting an example of the right waste management.

Frequency Distribution of Society Figure Variable

Frequency Distribution of Community Number Variables regarding waste management on Ambon Island can be seen in Table 4.

Table 4. Frequency Distribution of Society figure variable

Category	Interval	Frequency	Percentage (%)
High	67 - 100	203	42.62
Currently	33 - 66	96	52.46
Low	0 - 32	128	4.92
Sum		**427**	**100.00**

The result of data analysis can be seen in Table 5 and Table 6 below. Table 5 performs the correlation (R square) of each variable particularly. It shows us that the Society behavior variable can be explained 17.53% by the waste facility variable, 14.19% by the self-knowledge and 1.63% by the society figure particularly.

Table 5. The Correlation (R Square) of Each Variable

R square	Society behavior
Society behavior	1
Waste facility	0.175314
Self-knowledge	0.141975
Society figure	0.016264

Table 6 shows that all structural equations are given as follows:

$$y_1 = 99.46439 + 0.406169\ x_1 + 0.566611\ x_2 + 0.29973\ x_3$$

Information:

y_1 = Society behavior of waste self-management
x_1 = Waste facility by the government
x_2 = Self-knowledge of the society about waste management
x_3 = Society figure who can be a role model in managing the waste

Table 6. The Result of Data Analysis

	Coefficients
Intercept	99.46439
X Variable 1	0.406169
X Variable 2	0.566611
X Variable 3	0.29973
Multiple R	0.48813
R Square	0.238271

Table 6, we also known that those three variables, i.e. waste facility provide by the government, self-knowledge of the society about waste management and society figure, give only 23,83% of simultaneous influence to the Society behavior of waste self-management. It means that 23,83% of the variable Society behavior of waste management can be explained by those variables simultaneously.

The results of the data analysis in Table 6 show that the value of Y = 99.46439 + 0.406169X_1 + 0.566611X_2 + 0.29973X_3, namely the value of Y is influenced by three independent variables (X_1, X_2, X_3), the intercept value = 99.46439 where the Intercept is the value of Y when all X variables are 0.

The Multiple R value shows the strength of the relationship between all variables X and Y. A value of 0.488 → moderate relationship. This means that the relationship between X_1, X_2, X_3 together with Y is not weak, but not yet strong.

The R Square value = 0.238271 shows how much variation in Y can be explained by the model, namely the value 0.238 = 23.83%, meaning that approximately 23.8% of changes in Y can be explained by X_1, X_2, and X_3.

5. Conclusion

This research can conclude that only 23.83% of the society behavior of waste self-management in Ambon Moluccas can be analyzed through the variables of waste facility, self-knowledge and society figure simultaneously. Furthermore, the Society behavior variable can be explained 17.53% by the waste facility variable, 14.19% by the self-knowledge and 1.63% by the society figure particularly. It means that the government can increase the society behavior in self-waste management through developing the waste facility. Because in this case, the waste facility variable gives more influence to the society behavior than any other variables we have analyzed.

The greater influence of facilities indicates that the availability and quality of facilities are crucial for efficient waste management. Consequently, policies should focus on increasing and equitable distribution of waste facilities, providing separate waste bins (organic and inorganic), increasing the regularity and frequency of waste collection, and developing community-based processing facilities.

The influence of public awareness is not as significant as the influence of facilities, but this factor remains important in the long term. Consequently, waste management policies in Ambon must be combined with efforts to raise public awareness, such as ongoing education and outreach programs, integrating environmental education into school programs, involving community leaders, neighborhood associations (RT/RW), and local communities, and providing incentives or rewards

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