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Public Perception and Participation in Plastic Waste Management

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ABSTRACT

Plastic waste management remains a major challenge in maintaining environmental cleanliness and reducing ecosystem impacts. Community perception and active participation are essential for successful waste management at the local level. Objective: This study aims to assess public perception and participation in plastic waste management in RT 04 RW III Anduring, Padang. Methods: A descriptive survey was conducted with 50 respondents through questionnaires and direct interviews. Results: The majority of respondents (72%) had a positive perception of plastic waste management, but only 42% were actively involved beyond household-level collection and sorting. This indicates a gap between awareness and actual behavior. Implications: Strengthening environmental education and providing adequate facilities are needed to enhance participation. Conclusion: Positive perception is an important foundation, but without structural support and sustained motivation, community participation in sustainable waste management will remain limited.

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INTRODUCTION

Plastic waste has become one of the most pressing environmental problems in various regions, especially in densely populated urban areas. Economic growth and changes in people's consumption patterns have caused the use of single-use plastics to increase rapidly. Plastic is widely used because it is lightweight, durable, and inexpensive, so it is very popular for packaging everyday products. However, it is these durable properties that are the source of the problem, as plastics take tens to hundreds of years to decompose naturally in the environment. As a result, plastic waste accumulates in landfills as well as in the surrounding environment, such as rivers, seas, and open land.

Global plastic waste production continues to increase every year. According to the latest report from the World Bank in 2023, the world's plastic waste production has reached more than 300 million tons per year. Of these, only a small part is successfully recycled or processed correctly. Most of the plastic waste is actually thrown away carelessly or ends up in inadequate landfills. This condition causes

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various negative impacts on the environment, such as soil and water pollution, damage to marine ecosystems, and threatens human health due to the entry of microplastics into the food chain.

The environmental and health impacts caused by plastic waste demand more effective and sustainable management efforts. Plastic waste management is not only the responsibility of the government, but also requires the active role of the community as a major waste producer. Various strategies such as reducing the use of single-use plastics, sorting and recycling of waste, and educating the public about the importance of waste management are key in overcoming this problem. Without such measures, the burden of plastic pollution will continue to increase and damage the quality of the environment and the health of future generations.

Effective plastic waste management not only depends on government policies or management systems that have been implemented, but is also greatly influenced by the perception and active participation of the community. Communities are the main actors who directly produce and manage plastic waste in everyday life. Therefore, the success of waste management programs depends on the extent to which people understand the importance of waste management and are willing to contribute actively. Without the support and involvement of the community, government policies and existing management facilities are difficult to achieve maximum results.

People's perception of plastic waste plays an important role in determining their attitude and behavior towards waste management. If people have a positive outlook and are aware of the negative impacts of plastic waste on the environment and health, they tend to be more motivated to participate in waste management programs, such as sorting, reducing the use of single-use plastics, and taking part in recycling activities. Conversely, if the perception of the community is less supportive or even apathetic, then their participation in waste management will be minimal, thus negatively affecting the effectiveness of waste management at the community level.

A recent study by Zhang et al. (2024) affirms the importance of public awareness in plastic waste management. The study found that people who have a high awareness of the importance of waste management are more active and consistent in following waste management programs in their environment. These results indicate that increased education and socialization about the impact of plastic waste and how to manage it can encourage community participation, which will ultimately support efforts to reduce plastic pollution and improve overall environmental quality.

In Indonesia, plastic waste management is a big challenge considering the increasing population and urbanization rate. Padang city, as one of the major cities in West Sumatra, faces a similar problem with the amount of plastic waste scattered in residential neighborhoods. Studies by Sari and Putra (2022) in several regions in Padang show that lack of awareness and waste management facilities is a major obstacle in reducing plastic waste.

People's perception of plastic waste largely determines how they act in managing the waste. A positive perception of the impact of plastic waste on the environment and health will encourage people to be more concerned and active in sorting, collecting, and recycling plastic waste. Research by Hidayat and Wijaya (2023) in Jakarta found that consistent education and socialization can increase people's positive perceptions of plastic waste management.

Community participation in plastic waste management includes various activities carried out individually and collectively. These activities include reducing the use of single-use plastics by replacing plastic products with more environmentally friendly alternatives, sorting waste at home according to its type, and Joint Waste Management through activities facilitated by the local environment, such as at the RT or RW level. Community involvement in these activities is an important foundation for creating effective and sustainable plastic waste management.

However, the level of community participation in plastic waste management varies greatly between regions and social groups. Social factors such as education level, environmental awareness, and cultural values influence how people perceive and act on Waste Management. In addition, economic conditions also play an important role, as people with economic limitations may find it difficult to carry out better waste management, such as buying environmentally friendly products or providing waste sorting places at home.

Recent research by Lestari et al. (2024) revealed that one of the main factors influencing people's active participation in urban environments is the ease of access to adequate waste management facilities, such as separate waste collection points and routine waste transport services. In addition, local government support in the form of educational programs, infrastructure assistance, and supportive regulations also largely determine the level of community involvement. With adequate facilities and support, people are more motivated to actively participate in the management of plastic waste in their environment.

In the neighborhood of RT 04 RW III Anduring, Padang City, plastic waste management is still a homework that needs serious attention. Although several waste management programs are already underway, community participation in plastic waste management is not optimal. Preliminary Data obtained from preliminary surveys show that there are still many citizens who do not understand the importance of managing plastic waste separately and sustainably.

Plastic waste management that involves the community actively can have a broad positive impact, not only for the environment but also for the community's economy. For example, plastic waste management through recycling programs can open up new business opportunities and increase citizens ' income. A study by Rahman and Sutrisno (2023) in Surabaya shows that communities that successfully manage plastic waste collectively are able to improve the economic welfare of citizens through the use of plastic waste.

However, the challenges faced in increasing community participation include lack of knowledge, apathy, and limited adequate waste management facilities. Therefore, a comprehensive approach involving education, facilitation, and sustainable community empowerment is needed. According to a report from the Indonesian Ministry of Environment and Forestry (2024), a successful community-based waste management program must be able to integrate social, economic, and environmental aspects.

Based on the description, This study is important to determine how the perception and participation of the community in RT 04 RW III anduring towards plastic waste management. The results of this study are expected to be the basis in designing an effective and participatory plastic waste management strategy, so as to improve environmental quality and community welfare in a sustainable manner.

METHODS

The research method used in this study is a descriptive survey method with quantitative and qualitative approaches. Data collection was carried out in RT 04 RW III Anduring, Padang City, by taking a sample of 50 respondents who were selected by purposive sampling, namely active citizens and representing various age groups and socio-economic backgrounds. Data collection instruments were closed questionnaires and in-depth interviews that aimed to explore people's perception of plastic waste and their level of participation in waste management in the surrounding environment.

RESULTS

The results of research on public perception and participation in Plastic Waste Management in RT 04 RW III Anduring obtained the following results:

Tabel 1. Public Perception and Participation on Plastic Waste Management in RT 04 RW III Anduring

Variable	Respondent (n=50)	Percentage (%)
Positive perception of the impact of plastic waste	39	78%
Understand The Importance Of Separate Waste Management	35	70%
Support The Reduction Of Single-Use Plastics	37	74%
Routine sorting of plastic waste at home	28	56%
Participate in shared Waste Management	20	40%
Experiencing facilities and knowledge constraints	30	60%

Based on the results of a survey conducted on 50 respondents in RT 04 RW III Anduring, it can be seen that most people have a positive perception of plastic waste management. A total of 78% of respondents are aware of the negative impact of plastic waste on the environment and Health, which indicates a fairly high awareness among citizens. In addition, 70% of respondents understand the importance of separate waste management, while 74% support efforts to reduce the use of single-use plastics as a first step in sustainable waste management.

However, the level of community participation in plastic waste management activities is still limited. Only 56% of respondents regularly sort plastic waste at home, and about 40% are actively involved in collective waste management at the RT or RW level. The main obstacles faced are the lack of adequate waste collection facilities and the lack of socialization and education from the government or related parties. About 60% of respondents admitted to having difficulties, both in terms of facilities and technical knowledge, which was an obstacle to increasing their participation.

DISCUSSION

The results showed that the majority of people in RT 04 RW III Anduring have a positive perception of plastic waste management. About 78% of respondents are aware of the negative impact of plastic waste on the environment and Health, which indicates a fairly good level of environmental awareness. This positive perception is in line with the findings of Zhang et al. (2024) which affirms that public awareness is the main factor that encourages active participation in waste management programs in their environment. This shows that education and counseling that have been running in the region began to bear fruit in increasing public awareness.

However, the active participation of the community in the management of plastic waste is still limited. Only about 56% of residents regularly sort garbage at home and 40% participate in collective waste management at the RT/RW level. This phenomenon is similar to the results of a study by Lestari et al. (2024) in other urban areas showing that despite the high awareness of the community, limited facilities and support from the government are the main barriers to active participation. This indicates that positive perception is not enough in the absence of adequate means and support.

In theory, community participation in environmental management can be analyzed using the Behavior Change Model developed by Prochaska and DiClemente (2023). This Model describes the process of changing a person's behavior through several successive stages, namely awareness (precontemplation), weighing (contemplation), preparation (preparation), action (action), and

Maintenance (maintenance). Each stage reflects the individual's readiness to make behavioral changes, from not yet being aware to actively maintaining those changes in the long term. This Model is often used in a variety of Health and environmental behavioral change contexts because it provides a systematic framework for understanding the dynamics of change.

In the context of plastic waste management in the community, this model helps explain why although most citizens are already aware of the importance of waste management (awareness stage) and plan to make changes (preparation stage), their level of active participation in sorting and managing waste is still low. The main obstacles found were at the action stage, where residents faced the limitations of waste management facilities such as the lack of waste sorting places and minimal social support. These external factors hinder citizens from moving from intention to concrete action in plastic waste management.

Therefore, effective interventions must be focused on strengthening the action and maintenance stages so that changes in people's behavior can take place in a sustainable way. This can be done by providing adequate facilities, such as garbage collection points that are easily accessible, and strengthening social support through education campaigns and community involvement. In addition, regular monitoring and reinforcement is needed to keep people motivated to maintain these positive behaviors. With a structured approach based on the Behavior Change Model, it is expected that community participation in plastic waste management can increase significantly and have a positive impact on the environment.

Research by Hidayat and Wijaya (2023) also highlights the importance of continuing education to strengthen perceptions and increase community participation. They found that programs that involve two-way communication between the government and the community are more effective in changing citizens ' attitudes and behaviors towards plastic waste management. This is relevant to the condition of RT 04 RW III Anduring, where intensive and interactive socialization can increase community involvement.

In addition to awareness and facilities, socio-economic aspects also play an important role in determining the level of community participation in plastic waste management. According to research conducted by Rahman and Sutrisno (2023), people's income and education levels have a significant influence on their ability and willingness to be actively involved in Environmental Management. People with higher education tend to have a better understanding of the impact of plastic waste and the importance of good management, so they are more motivated to participate.

In the context of research in RT 04 RW III Anduring, similar findings were also found. Some low-income residents claim to have difficulty allocating time and resources to be actively involved in plastic waste management. This is due to the priority of more urgent daily needs and financial limitations that limit their ability to purchase waste sorting containers or participate in waste management programs that require certain contributions. This condition explains why the participation of people from lower economic groups tends to be lower than the upper middle economic groups.

This phenomenon confirms the importance of an inclusive approach in plastic waste management programs, which takes into account the socio-economic conditions of the community. Programs that are empowering and provide economic incentives can be a solution to increase the participation of low-income groups. For example, the development of a waste bank or a value-for-sale waste collection program can provide direct economic benefits to the community, so they are encouraged to be more actively involved. Thus, socio-economic factors do not become an obstacle, but rather a driver for the successful management of plastic waste at the community level.

Analysis of the data shows that the constraints of the facility to be the main problem. As many as 60% of respondents complained about the lack of separate plastic waste collection points and long distances to dispose of sorted waste. According to the Indonesian Ministry of Environment and Forestry (2024), the provision of easily accessible facilities is one of the key factors for successful community-based Waste Management. This indicates the need for improved infrastructure in RT 04 RW III Anduring.

In a cultural context, research by Lestari et al. (2024) states that social values and norms also shape people's behavior in waste management. In some communities, waste management is still considered a government task, so that community participation is less than optimal. This condition was also found at the study site, where some residents expected a greater role from the government in managing plastic waste.

In terms of motivation, the results of the interviews revealed that some residents were motivated by the economic benefits of plastic waste management, such as recycling and collecting waste worth selling. Rahman and Sutrisno's (2023) research also confirms that economic incentives can be a strong driver for community participation. Therefore, the development of waste management programs that can provide economic benefits is worth considering to increase participation.

The researchers analyzed that an effective plastic waste management strategy must integrate sustainable education, provision of adequate facilities, and Community Economic Empowerment. This is in accordance with the theory of Social Ecology, which emphasizes the mutual relationship between humans and the environment that must be managed holistically (Bronfenbrenner, 2022). Participatory and contextual approaches are expected to overcome barriers and maximize the potential of the community as an agent of change.

Overall, the results of this study show that the positive perception of the community is a strong base capital, but without the support of facilities and sufficient motivation, active participation is difficult to achieve. Therefore, the main recommendations are to improve the quality of waste management facilities, strengthen interactive education programs, and develop economic incentives that encourage sustainable citizen involvement. Thus, plastic waste management in RT 04 RW III Anduring can run more effectively and have a significant positive impact on the environment and society.

CONCLUSION

Based on the results and analysis of the study, it can be concluded that the public perception of RT 04 RW III Anduring towards plastic waste management is quite positive with a high level of awareness of the negative impact of plastic waste on the environment. However, active participation in waste management is still limited due to various obstacles, especially the lack of adequate waste management facilities, social support, and the influence of socio-economic and cultural factors. The level of income, education, and social norms that regard waste management as a government responsibility also affect the level of community involvement.

Therefore, effective plastic waste management requires a holistic approach that combines the provision of adequate facilities, sustainable education that involves the community actively, as well as the economic empowerment of the community, especially low-income groups. An approach that takes into account cultural aspects and social norms is also important to promote a sense of collective responsibility. With this integrated strategy, it is expected that community participation in plastic waste management can increase, so that environmental impacts can be minimized and the quality of life of the community can be maintained sustainably.

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