



Community-Based Plastic Waste Management Model in Bangun Village, Mojokerto Regency, Indonesia

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ABSTRACT

This study aims to design a community-based plastic waste management model specifically for Bangun Village, Mojokerto. Using a qualitative approach through a detailed case study, we gathered rich data from observations, interviews, and document reviews. Our findings reveal that the plastic waste management situation in Bangun Village is fraught with significant social, economic, and environmental challenges. These include inadequate waste segregation, limited recycling facilities, and a general lack of community awareness and participation. The proposed model seeks to address these issues by implementing several key components: community-based plastic waste collection and processing, educational programs to raise awareness and promote sustainable practices, partnerships with external stakeholders such as local government bodies, NGOs, and private sector entities, and institutional restructuring to support and sustain these initiatives. Central to this model is the belief that community education and awareness are crucial foundations for fostering sustainable behavior. By actively involving the community in the waste management process, the model not only aims to mitigate the plastic waste problem but also seeks to provide economic and social benefits to the residents of Bangun Village. This includes creating job opportunities, improving public health, and enhancing the overall quality of life. The strength of this model lies in its ability to integrate community participation, policy support, and external partnerships, making it a robust and effective solution for sustainable plastic waste management. By fostering a collaborative and inclusive approach, the model aims to create a sustainable and resilient community that can effectively tackle the plastic waste challenge while reaping economic and social benefits. In conclusion, the community-based plastic waste management model proposed for Bangun Village has the potential to bring about significant positive changes in the way plastic waste is managed. Through this model, we hope to empower the community to contribute to solving the plastic waste problem while also benefiting economically and socially.

INTRODUCTION

Plastic, as an integral part of modern life, has provided significant benefits to various industries and everyday needs. However, awareness of its negative impacts on the environment and human health is increasing alongside the rise in plastic production and usage. One of the most striking impacts is the escalating problem of plastic waste accumulating in various locations, including villages worldwide (Saputra & Noormansyah 2024). Due to the increasing production of municipal solid waste (MSW), the environment and non-renewable resources suffer losses. Urban governments face various challenges, including land limitations, environmental damage due to waste disposal, and the loss of recyclable resources due to ineffective

waste management (Regassa et al. 2011, Kurniawan et al. 2024).

Data from 2021 by the Directorate General of Waste Management, Hazardous Waste, and B3 (Ditjen PSLB3) of the Ministry of Environment and Forestry (KLHK) reported that Indonesia's waste amounted to 68.5 million tons and increased to 70 million tons in 2022 (dpr.go.id). According to the Ministry of Environment and Forestry, throughout 2021, East Java Province generated about 1.28 million tons of waste. Based on this data, Mojokerto regency does not rank as the largest waste producer in various cities and regencies in East Java Province because the Ministry of Environment and Forestry data for 2022 reported a total waste amount of 24,168.48 kg, making Mojokerto regency the area with the

lowest waste volume in East Java Province. However, this data contrasts with the fact of waste processing activities in Mojokerto regency, which have drawn national attention due to the discovery of various plastic waste types originating from various countries, suspected to be originating from Bangun Village, Mojokerto regency (Purwanto & Aryani 2022).

Such conditions are indeed alarming, considering that in 2018, data from the Central Statistics Agency reported that imported waste entering Indonesia reached 738,665 tons from various exporting countries, including the United States, Italy, the United Kingdom, South Korea, Australia, Singapore, Greece, Spain, the Netherlands, and New Zealand. Then, in July 2019, the Tanjung Perak Customs Office in Surabaya reportedly detained at least 38 containers of waste from the United States and 8 containers from Australia (CNN Indonesia). It is suspected that these wastes contain waste paper with hazardous and toxic waste materials and are disposed of in Bangun Village, Mojokerto Regency.

Bangun Village, like many other local communities, is not exempt from waste issues. The increased production of plastic waste in this village has posed various challenges, including environmental pollution, waterway blockages, and threats to the sustainability of natural resources. In this context, a coordinated and sustainable approach is needed to manage plastic waste at the local level. Environmental pollution levels in Bangun Village are quite high due to it being used as a final disposal site for raw paper waste mixed with foreign waste and hazardous toxic materials. As a result, environmental crises continue to occur and affect the quality of life in the community (Novaradila et al. 2020).

A community-based plastic waste management model is one promising solution to address the challenges of plastic waste (Ferdoush et al. 2024). By directly involving the community in the collection, sorting, and processing of plastic waste, this model aims not only to reduce its negative impacts on the environment (Barros & Gupta 2024) but also to strengthen active participation and shared responsibility in maintaining cleanliness and environmental sustainability (Johannes et al. 2021). Through this approach, the community becomes not only consumers but also key stakeholders in managing plastic waste, which ultimately can contribute to creating a cleaner and more sustainable environment for future generations (Opusunju et al. 2024).

This approach is not only focused on technical steps alone but also considers the social, economic, and cultural aspects of the local community (Suthar & Singh 2015). By taking into account these various dimensions, the community-based plastic waste management model in Bangun Village is aimed not only at reducing the amount of plastic waste ending up in the environment but also at improving the overall quality of

life and economic self-reliance of the community. Through this approach, communities are empowered to engage in various waste management activities, which in turn can increase awareness of the importance of a clean and healthy environment and provide new economic opportunities for the community (de Oliveira et al. 2023, Chakim et al. 2023). Thus, this model not only creates direct positive impacts on the environment but also brings about positive changes in the social and economic structure of the local community.

This research aims to design a model for plastic waste management, focusing on the participation of the local community in Bangun Village. The study discusses concrete steps that can be taken to implement this model, as well as its potential positive impacts on the environment, economy, and society at the local level. It is hoped that this model can serve as a guide for other villages facing similar issues in managing plastic waste sustainably.

MATERIALS AND METHODS

Research Method

This research adopts a qualitative approach, specifically through a case study approach. By using this design, the research can conduct an in-depth exploration of the plastic waste management model in the context of Bangun Village, Mojokerto Regency. The case study approach allows researchers to comprehensively investigate various aspects related to the implementation and effectiveness of the model in the local environment. Through this approach, the research can explore the complex nuances and contextual factors that influence the success or failure of the community-based plastic waste management model in Bangun Village. Thus, this research is expected to provide a deeper understanding and richer insights into the practices of plastic waste management at the village level.

Data Sources

Data collection in this research is conducted through several sources, including direct observation, interviews, and document reviews. Each of these data sources contributes valuable insights into the practices of plastic waste management in Bangun Village. Here are the details:

1) Observation

Direct observation of practices and challenges related to plastic waste management in Bangun Village will provide valuable insights into the existing situation.

2) Interviews

Structured and semi-structured interviews will be conducted with key stakeholders, including representatives from the

Mojokerto Regency Environmental Agency, members of the local community, and relevant non-governmental organizations (NGOs). These interviews will focus on gathering perspectives, experiences, and suggestions to improve plastic waste management practices.

3) Documents

Relevant documents such as government policies, reports, and community initiatives related to plastic waste management in Bangun Village and Mojokerto Regency will be reviewed to provide contextual background and additional information.

Sample Selection

In the process of sample selection, various stakeholders who play crucial roles in the context of plastic waste management in Bangun Village, Mojokerto Regency, are involved. The sample size in this study consists of 11 respondents. Participants include officials from the Mojokerto Regency Environmental Agency, members of the local community such as village leaders, waste collectors, and residents, as well as representatives from local NGOs actively involved in environmental conservation efforts. Sampling is done purposefully, considering the expertise, involvement, and relevance of informants to the research topic. The aim of this technique is to ensure that selected informants can provide significant contributions to understanding the practices of plastic waste management in Bangun Village.

Data Collection Procedures

Below are the details of the data collection procedures we applied to gain a comprehensive understanding of plastic waste management in Bangun Village:

1) Observation

Researchers directly observe waste management practices, infrastructure, and environmental conditions in Bangun Village, documenting their findings through field notes and photographs.

2) Interviews

Interviews are conducted face-to-face or via virtual platforms based on participant availability and preferences. Audio recordings and detailed notes are made during interviews to ensure accurate data recording.

3) Document Review

Relevant documents are collected and systematically reviewed to extract relevant information regarding

plastic waste management initiatives and policies.

Data Analysis

Thematic analysis is utilized to analyze the qualitative data collected from observations, interviews, and document reviews. The data will be coded, categorized, and interpreted to identify recurring themes, patterns, and key findings.

Validity and Reliability

The following strategies are implemented to ensure the validity and reliability of the collected data:

- a. The triangulation of data sources (observations, interviews, document reviews) will enhance the validity and reliability of the findings.
- b. Peer debriefing and member checking will be used to validate the interpretations and conclusions drawn from the data.

By employing a qualitative case study approach and utilizing various data collection methods, this research aims to provide a comprehensive understanding of the plastic waste management model in Bangun Village, Mojokerto Regency, and offer valuable insights into sustainable waste management practices at the local level.

RESULTS AND DISCUSSION

Objective Conditions of Local Community-Based Plastic Waste Management in Bangun Village

Community-based plastic waste management in Bangun Village is an approach that involves the active participation of the community in managing plastic waste in their area. However, challenges in community-based waste management are identified in three main aspects: social, economic, and environmental as shown in Table 1.

Bangun Village should adopt appropriate strategies to address the issue of plastic waste management, which has been a concern for some time. Through community participation, it will promote awareness of sustainable waste management. Therefore, efforts are needed in the form of socialization, as indicated by the interview with the Environmental Agency of Mojokerto Regency:

“It is crucial to increase public awareness about proper waste management, and thus, socialization is necessary. The goal of socialization is to educate the community about the importance of waste management. The community also wants to engage in proper waste management practices to avoid negative publicity that would ostracize the Bangun Village community and disrupt the local economy.”

Table 1: Issues in community-based waste management.

No.	Issues	Community-Based Waste Management	Sources
1	Social	The lack of awareness among the community regarding waste management, coupled with the cessation of waste management activities by the government.	Interview with the Environmental Agency of Mojokerto Regency
2	Economic	The cessation of income sources for communities is dependent on waste management.	The community of Bangun Village
3	Environment	Environmental pollution is due to the uncontrolled accumulation of waste.	Interviews with the Environmental Agency of Mojokerto Regency, the community, and NGOs.

(Source: Primary data, processed by researchers)

The waste management conducted by the community is very simple, where waste is sorted based on its type, especially plastic, aluminum, and metal. These wastes are then collected and sold to collectors. Based on interviews with waste collectors, it is revealed that:

“waste is sorted by type, including plastic waste, metal waste, and so on. Most of the waste managed by residents does not come from food materials and cannot be composted, such as plastic, rubber, and cans.”

Speaking about the waste management model, the community obtains waste from several paper companies in East Java, especially PT Parkerin, located in Bangun Village. Where the waste is bought by residents and then dumped on their empty lands, then the waste is sorted by type. Almost all types of waste can be used or utilized for resale. Simply put, the actors involved here are the waste provider producers (PT in East Java), the community (sorters and collectors), and consumers (tofu factories and others).

“As for the waste obtained from several companies in East Java, we do not know the exact names of the PTs; perhaps what is clear is that PT Parkerin used to be a waste supplier, but now it is prohibited. In terms of sorted waste types, especially plastic waste, some are bought by tofu factories to be used as fuel”.

The waste management model in Bangun Village consists of the community, waste-providing industries, and waste-utilizing industries, where waste management is still very simple, collected in residential yards or empty land without adequate infrastructure to support these activities. This indicates the absence of an integrated waste management system and institutional system and the lack of waste management infrastructure and facilities, as well as insufficient awareness among the community about the importance of sustainable waste management.

In terms of infrastructure support, it seems that the government is less serious about it, as the promised landfill construction program is currently stalled (Fig. 1). The community feels disadvantaged by the promises or hopes given by the government, but the reality is that the community can no

longer continue waste management activities. The community sincerely hopes that this program can continue.

“Our hope is that this program can continue waste management in Bangun Village so that it can meet the requirements of proper plastic waste management. We expect the support and involvement of all components, both government and private, regarding waste management in Bangun Village.”

If the waste management model in Bangun Village is inadequate, it should not be closed but rather improved with various supports, especially in terms of infrastructure. With such development activities, community awareness of the importance of waste management and an integrated and sustainable waste management system can be achieved in Bangun Village. Moreover, Bangun Village has great potential to develop a model of plastic waste management that involves the local community. Key findings include the involvement of village governments, cooperation with non-governmental organizations, the utilization of plastic waste, and changes in the attitudes and behaviors of the local community.

Therefore, the community-based plastic waste management model in Bangun Village should encompass various initiatives and policies involving active community participation in plastic waste management. Some components included in this model are plastic waste collection and processing, community education and awareness, partnerships with external parties, and institutional restructuring. With the integration of these three components, it is hoped to create a clean and healthy environment while also economically empowering the local community.

Development of a Community-Based Plastic Waste Management Model

The community-based plastic waste management model is an approach to plastic waste management that involves the active participation of the local community. This model emphasizes the importance of community involvement in the entire cycle of plastic waste management, from collection,



(Source: Primary data, processed by researchers)

Fig. 1: Land area prepared for the construction of the landfill in Bangun Village.

sorting, processing, and recycling (Andini et al. 2023). Its goal is to create a sustainable system, reduce environmental pollution, and improve community well-being. Through this approach, it is hoped that the local community can be part of the solution to addressing the plastic waste problem while also benefiting economically and socially from waste management activities.

The community-based plastic waste management model in Bangun Village (Fig. 2) includes various initiatives and policies involving active community participation in plastic waste management. Some components included in this model are:

1) Plastic Waste Collection and Processing

Involving community participation in sorting and collecting plastic waste at the household and community levels is an important initial step (Sunari & Nurhayati 2023). Additionally, Bangun Village can develop plastic waste processing systems, such as recycling, composting, or using other environmentally friendly technologies, to increase the value of waste. Thus, community participation in processing activities can also significantly increase.

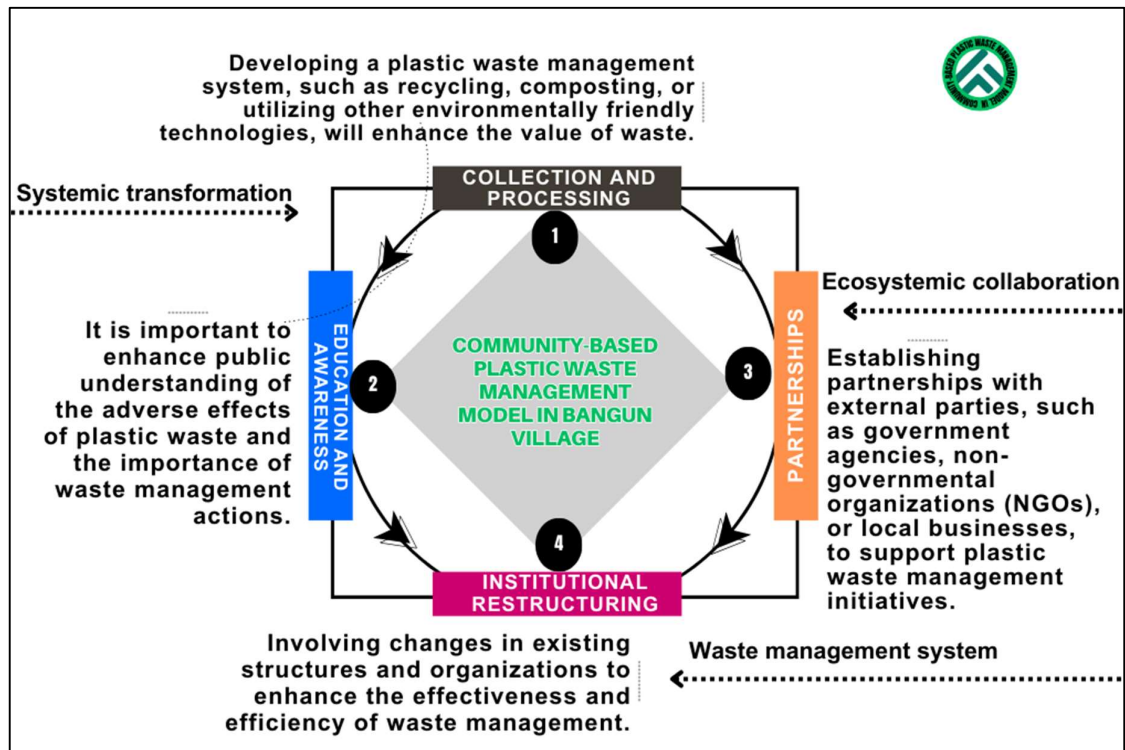
By implementing these measures, Bangun Village can increase the value of plastic waste, reduce the amount of

waste polluting the environment, and create economic opportunities through recycling and processing plastic waste. Community participation in processing activities will also increase as they see the benefits of better waste management for the environment and the daily lives of the local community.

2) Education and Community Awareness

It is important to increase community understanding of the negative impacts of plastic waste and the importance of waste management actions. Education programs, campaigns, and training can be part of this model (Hondroyiannis et al. 2024). By conducting education and training, the community's awareness of how to manage waste in Bangun village can be sustainable in terms of social, economic, and environmental aspects.

Education programs can be implemented through various means, such as seminars, workshops, or public campaigns (Giurea et al. 2024). In this program, communities are provided with information about plastic waste issues, including its impacts on the environment, health, and social life (Mihai et al. 2021). Communities are also given knowledge about environmentally friendly waste management practices, such as reducing plastic usage, waste sorting, and recycling.



(Source: Primary data, processed by researchers)

Fig. 2: Community-based plastic waste management model.

With increasing community awareness of the importance of proper waste management, significant behavior changes are expected to occur. Communities will be more inclined to reduce the use of single-use plastics, sort waste, and take steps to recycle or process waste in an environmentally friendly manner. In the community-based waste management model, education and community awareness are crucial pillars supporting the success of waste management. By enhancing understanding and community involvement, Bangun village can create positive changes in sustainable waste management.

3) Partnership with External Parties

Bangun Village can establish partnerships with external parties, such as the government, non-governmental organizations, or local businesses, to support plastic waste management initiatives. As a community-based waste management model, Bangun Village can form partnerships with external parties as a strategic step in supporting plastic waste management initiatives. Partnerships with the government, NGOs, or local businesses can provide various benefits for more effective and sustainable waste management.

Through partnerships with external parties, Bangun Village can leverage the expertise, resources, and networks held by the government, NGOs, and local businesses. With strong collaboration, Bangun Village can develop innovative and sustainable solutions for plastic waste management and increase community participation in these efforts. In the community-based waste management model, partnerships with external parties become one of the crucial pillars supporting the success of plastic waste management in Bangun Village.

4) Institutional restructuring within the community

Restructuring the institutions in local community-based waste management in Bangun village involves changes in existing structures and organizations to improve the effectiveness and efficiency of waste management. The goal of this restructuring is to develop a more integrated, sustainable, and community-participatory system (Suyanto et al. 2022).

With the restructuring of institutions in the local community-based waste management system in Bangun village, it is hoped that a more effective, well-coordinated, and sustainable waste management system will be created. This will have a positive impact on the

environment, the quality of life of the community, and the sustainable development of Bangun village.

Thus, the community-based waste management model in Bangun village is grounded in several key aspects of plastic waste management. First, systemic transformation refers to fundamental changes in waste management approaches. Second, ecosystemic collaboration involves the active participation of the community, education, and partnerships with external stakeholders. Third, institutional restructuring aims to improve existing waste management systems. Waste management in Bangun village is based on the needs and demands of the community. This means that waste management activities are planned, implemented, monitored, and evaluated together with the local community. In this regard, the government and other supporting organizations in waste reduction act as motivators and facilitators.

The waste handling activities include waste sorting, collection, transportation, waste management, and final waste processing. Every piece of waste entering the landfill site is always recorded to determine the measured waste handling burden. This waste recording can be done mechanically using weighbridge scales. With the implementation of this community-based waste management model, it is hoped that Bangun Village can create positive changes in sustainable waste management.

Community-Based Plastic Waste Management Model: Empowering Local Agencies for Sustainable Change

From the four components (Collection and Processing of Plastic Waste, Education and Community Awareness, Partnership with External Parties, Institutional Restructuring) of the community-based plastic waste management model in Bangun village, the primary priority should be given to education and community awareness. This is due to several reasons:

- 1) **Important Foundations for Sustainable Behavior:** Education and community awareness are important foundations for building sustainable waste management behavior. When communities understand the negative impacts of plastic waste and the importance of good management, they will be more motivated to change their behavior (Pottinger-Glass et al. 2024, Ledda et al. 2024).
- 2) **Increasing Community Participation:** Increased awareness will encourage active community participation in various waste management activities, such as sorting, collection, recycling, and reducing plastic usage. Active community participation is a key factor in achieving the success of waste management models (Ayad & Omayer 2024).

- 3) **Positive Domino Effect:** Education and awareness have a positive domino effect on other components. When communities are aware, they will be more supportive of waste collection and processing efforts, as well as encourage partnerships with external parties. Awareness will also drive more effective and participatory institutional restructuring (Akpuokwe et al. 2024).
- 4) **Long-term investment:** Education and awareness are not only short-term solutions but also long-term investments in building a culture of good waste management in Bangun village. The knowledge and awareness instilled in the younger generation will continue to have a positive impact on the future (Mirzayeva & Abulova 2023).

While education and awareness are given top priority, it doesn't mean that other components are neglected. All four components are interconnected and mutually supportive. To achieve effective and sustainable plastic waste management in Bangun village, integrated implementation of all four components is necessary. Here are some strategic steps to implement education and awareness:

- a. **Diverse education programs:** Utilize various educational methods, such as lectures, workshops, seminars, public campaigns, and social media, to reach all segments of society.
- b. **Engage stakeholders:** Involve government, schools, community organizations, and religious leaders in educational programs to enhance effectiveness and reach.
- c. **Use understandable language:** Ensure education is conveyed in language that is easily understood by the general public.
- d. **Provide real-life examples:** Demonstrate real-life examples of the negative impacts of plastic waste and the benefits of good waste management.
- e. **Involve the community in the education process:** Provide opportunities for the community to actively participate in education programs and provide feedback.

With optimal education and awareness, Bangun Village can build an effective, sustainable, and participatory model of community-based plastic waste management. This model aims to create a clean and healthy environment while also empowering the local community economically. By involving active participation from the community, it is hoped that this model can be sustainable in the long run. Moreover, Bangun Village has great potential to develop a model of plastic waste management that involves the local community. Various key findings, including the involvement of village government, cooperation with non-governmental organizations, utilization

of plastic waste, and changes in the attitudes and behaviors of the local community, are strong factors in driving sustainable community-based plastic waste management models.

The community-based plastic waste management model in Bangun Village has several advantages that make it effective and efficient in managing plastic waste. Some of these advantages include:

- a) This model involves active participation of the community in the collection, sorting, and processing of plastic waste. By engaging the community, this model can cover a wider area and efficiently collect more plastic waste.
- b) This model includes various initiatives and policies that support better plastic waste management. With this support, Bangun Village can create a conducive environment for effective plastic waste management.
- c) The model also emphasizes the importance of education and awareness among the community about the harmful effects of plastic waste. By increasing public understanding, Bangun Village can change community behavior in managing plastic waste.
- d) The model enables Bangun Village to establish partnerships with the government, non-governmental organizations, or local businesses. These partnerships can assist Bangun Village in developing innovative solutions and gaining support in plastic waste management.
- e) The model also involves restructuring institutions in community-based plastic waste management in Bangun Village. This restructuring aims to improve the effectiveness and efficiency of waste management through changes in existing structures and organizations.

The community-based model of plastic waste management in Bangun Village has the potential to be effective and efficient in achieving sustainable plastic waste management. By engaging the active participation of the community, this model can cover a larger area and efficiently collect more plastic waste. Additionally, the support of initiatives and policies that promote better plastic waste management is also an advantage of this model. Education and awareness of the community are also emphasized in this model, which can change community behavior in managing plastic waste. Partnerships with external parties can also assist Bangun Village in developing innovative solutions and gaining support for plastic waste management. Finally, with the restructuring of institutions, this model can improve the effectiveness and efficiency of waste management. All of these advantages make the community-based model of plastic waste management in Bangun Village an effective

and efficient solution for achieving sustainable plastic waste management.

The study by Chotimah et al. (2021), titled “Collaborative Governance Model in Managing Marine Plastic Waste to Realize Maritime Environmental Resilience in Thousand Islands,” found that despite collaboration through various program initiatives, monitoring, project financing for waste management, and the provision of waste management technology and infrastructure, this model has some weaknesses as a community-based waste management model.

The study by Marlina (2020), titled “Household Waste Management through Community and Village Empowerment in Indonesia,” also shows several weaknesses of a community-based waste management model, namely: (1) Empowerment, starting from generating ethics, morals, awareness, mindset, and responsibility towards the environment in society, has not been fully effective in addressing waste issues. (2) Community empowerment in effective household waste management is carried out starting from the level of neighborhood units (RT/RW), but there are still obstacles to its implementation. (3) Strengthening villages with the delegation of waste management responsibilities from districts or cities to villages is not yet fully optimal. (4) Innovative and comprehensive waste management designs are needed in accordance with relevant village regulations.

Thus, both studies indicate that, despite having advantages, community-based waste management models also have weaknesses that need to be addressed and improved in efforts to achieve better environmental sustainability. Based on the comparison between studies on the community-based model of plastic waste management in Bangun Village, the study by Chotimah et al. (2021) on the collaborative governance model in managing marine plastic waste in the Thousand Islands, and the study by Marlina (2020) on household waste management through community and village empowerment in Indonesia, Overall, the community-based model of plastic waste management in Bangun Village has advantages in engaging active community participation, supporting initiatives and policies, educating and raising awareness among the community, partnering with external parties, and institutional restructuring. This makes this model an effective and efficient solution for achieving sustainable plastic waste management.

The perspective of social change theory explains how communities adapt and change their behaviors in response to environmental changes (Indrayaningtias 2021). In this context, the community-based model of plastic waste management in Bangun Village reflects the social change that

occurs in how communities manage plastic waste. Through active community participation, support for initiatives and policies, as well as community education and awareness, this model encourages more sustainable behavioral changes in addressing plastic waste issues (Vitaloka et al. 2023).

Furthermore, agency theory emphasizes the role of individuals and groups in creating social change (Ardini 2023). In the community-based model of plastic waste management in Bangun Village, the community plays an active role in managing plastic waste and participates in decision-making related to waste management. The community becomes change agents involved in implementing initiatives, creating partnerships with external parties, and restructuring institutions to achieve more effective and efficient plastic waste management (Kruljac 2012).

Individuals and groups in the local community of Bangun Village can act as agents of change in various ways. For example, they can initiate plastic waste management programs, organize community awareness campaigns, or forge partnerships with external parties to gain the support and resources needed. Through this active role, individuals and groups in the local community can influence broader social changes in perspectives and behaviors related to plastic waste management.

Moreover, the community-based model of plastic waste management also provides space for active community participation in decision-making related to waste management. The community has the opportunity to contribute to policy formulation, plan initiatives, and engage in decision-making processes involving plastic waste management governance. Thus, the local community of Bangun Village is not only a recipient of established policies but also influences shaping and directing these policies.

With the active role of individuals and groups in the community-based model of plastic waste management in Bangun Village, more sustainable and effective changes in plastic waste management can be achieved. This underscores the importance of agency in creating social changes directed toward environmental sustainability.

CONCLUSIONS

The community-based model of plastic waste management in Bangun Village is an approach to plastic waste management that involves the active participation of the local community. This model emphasizes the importance of community involvement in the entire cycle of plastic waste management, from collection, sorting, and processing to recycling. Its goal is to create a sustainable system, reduce environmental pollution, and improve community welfare.

Through this approach, it is hoped that the local community can be part of the solution to address the issue of plastic waste while also benefiting economically and socially from waste management activities. The model includes various initiatives and policies that involve active participation of the community in plastic waste management, such as plastic waste collection and processing, community education and awareness, and partnerships with external parties as well as institutional restructuring. By engaging in active community participation, it is hoped that this model can be sustainable in the long term.

Future research should delve into various aspects to advance community-based plastic waste management practices. This includes evaluating the effectiveness of community engagement strategies such as educational programs and participatory decision-making processes, understanding the drivers of behavioral change towards waste management, exploring the role of policy frameworks and governance structures in supporting initiatives, investigating technological innovations to enhance efficiency, and assessing the social and economic impacts of these models on local communities. Such research endeavors are essential for informing policy and practice towards sustainable waste management solutions.

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