



Trash2Move as a community-based development model for sustainable plastic waste management

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Received Date: November 29, 2025

Revised Date: January 17, 2026

Accepted Date: February 5, 2026

ABSTRACT

Background: Plastic waste management into products with economic value is one of the efforts that demonstrates a positive interaction between humans and the environment. This program encourages community participation as a form of community empowerment, while also contributing to reducing pollution and creating sustainable impacts on the environment and socio-economy. Trash2Move is a community of Generation Z in Padang City founded in 2022 that processes plastic waste into products of economic value. The program run by Trash2Move implements a community-based circular economy scheme, where community-provided plastic waste can be exchanged for necessities as a direct benefit. Trash2Move then processes the plastic waste into products of economic value that will be marketed again. **Methods:** Data was obtained through interviews with the founders of Trash2Move and a review of supporting documents. **Findings:** The results of this study show that Trash2Move, a plastic waste management community initiated by Generation Z, has successfully implemented a community-based circular economy model for waste management. The program of exchanging waste for necessities, recycled product innovations, and digital education campaigns has increased community participation and environmental awareness. Incentives have triggered behavioral change, while Generation Z's digital literacy has expanded the reach of education. Trash2Move contributes to achieving SDG 12, despite still facing limitations in support and a lack of quantitative impact measurement. **Conclusion:** This study recommends further research using quantitative and comparative approaches to deepen understanding of the effectiveness of community-based waste management models led by the younger generation. **Novelty/Originality of this article:** This study analyzes the role of Trash2Move in plastic waste management in Padang City, particularly its contribution to increasing community participation and environmental awareness. The research also examines how Generation Z leadership, through a circular economy approach, shapes a community development model that supports achieving SDG 12 on sustainable consumption and production.

KEYWORDS: circular economy; community empowerment; plastic waste management; reducing pollution; sustainable development goals; trash2move.

1. Introduction

The issue of plastic waste remains a significant challenge in Indonesia's current environmental management. Based on data from the Ministry of Environment/Environmental Control Agency's (KLH/BPLH) National Waste Management Information System (SIPSN), the total national waste generation for 2024 is 35.01 million tons/year. SIPSN data for 2024 also shows that the total waste generated in Padang City is 240,920.66 tons/year, consisting of 63% food waste, 12.4% plastic waste, and the rest being

Cite This Article:

Khairiyah, N. (2026). Trash2Move as a community-based development model for sustainable plastic waste management. *Waste Handling and Environmental Monitoring*, 3(1), 41-56. <https://doi.org/10.61511/whem.v3i1.2026.3822>

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paper, cloth, rubber, glass, metal, and other types of waste. The Minister of Environment stated at the 2025 National Coordination Meeting (Rakornas) on Waste Management that nearly 20% of total national waste is plastic and that the national recycling rate has reached only 22%. Following up on this, the Minister of Environment also expressed a commitment to build a solid recycling supply chain by strengthening partnerships with industries and businesses in the waste recycling sector so that the target of 100% waste management can be achieved by 2029.

The commitment to waste management, especially plastic waste, is not only the government's responsibility; it must also be supported by public awareness and participation, particularly in waste reduction. The Padang City Government, through Padang Mayor Regulation No. 44 of 2018 concerning Regional Policies and Strategies in the Management of Household Waste and Household-like Waste, encourages strategies to reduce waste, including strengthening community involvement through communication, information, and education. The application of the 3R principle (reuse, reduce, and recycle) is a simple way to reduce plastic waste, which is still being implemented in Indonesia. The 3R principle (reduce, reuse, and recycle) focuses on three main strategies: minimizing waste by optimizing material use (reduce), extending the life of goods through reuse, and converting waste into new raw materials through recycling. The 3R initiative at the household level significantly reduces plastic waste, making it a practical and widely applicable approach (Prasaningtyas et al., 2025).

Efforts to implement the 3R principle to reduce plastic waste can be realized through a community-based plastic waste management model. This approach involves active community participation, supported by the government and other institutions as motivators and facilitators (Alya & Khotami, 2025). Community-based waste management strategies can increase public awareness (Maruwemay et al., 2025).

Ulum et al (2024) implemented a community-based plastic waste management model in Bangun Village, Mojokerto Regency. This waste management model was designed to integrate active community participation by combining waste collection and processing initiatives, educational programs, and collaboration with external parties, namely the government, non-governmental organizations, and local businesses. The results showed that the main priority for developing community-based waste management is education and raising public awareness. By providing education and encouraging participation, the community can form new social norms that promote positive habits, which will ultimately reduce the negative impact of waste on the environment (Syawalidan & Badruddin, 2024).

Trash2Move carries out one example of community-based waste management. Trash2Move is a community in Padang that processes household plastic waste into products with commercial value. The plastic waste processing carried out by Trash2Move currently focuses on household waste, which is then recycled into household furniture and home decor. The business model adopted by Trash2Move is a home industry. In addition to processing plastic waste, Trash2Move also conducts door-to-door waste collection, beach cleanup activities, and collaborates with existing waste banks in the city of Padang.

Trash2Move was founded by three young people who can be categorized as Generation Z. Unlike previous generations, Generation Z shows greater environmental awareness and is committed to a sustainable lifestyle because this generation grew up amid intense discussions about climate change and other environmental issues (Mandić et al., 2024). Generation Z has excellent potential to lead and change environmental policies because they have a good understanding of environmental issues. This knowledge encourages them to show strong concern and wise attitudes, which are reflected in their daily habits, such as choosing environmentally friendly products to reduce plastic waste (Rosdiana et al., 2025).

This study departs from a conceptual framework that combines two main ideas, namely community-based development and the circular economy. These ideas are based on the view that waste, especially plastic waste, is not just a problem, but also an opportunity to create new value, with the circular economy concept also underpinning this study. The circular economy concept aims to replace the linear economic model, which focuses solely on extraction, production, consumption, and disposal, with a more sustainable model.

Through this approach, the use of limited natural resources can be reduced while minimizing the negative environmental impact of economic activities (Jang et al., 2020). The circular economy extends the useful life of waste, including plastic waste, by reusing or recycling it into products with economic value (Murti et al., 2022). Waste management, which was previously linear in nature, limited to collection, transportation, and disposal, has transformed into a circular economy approach that emphasizes the sustainable use of materials through recycling and reuse (Subekti, 2023).

In addition, this study also emphasizes the importance of community-based waste management in addressing environmental issues. Leknoi et al (2024) in their research on waste management initiatives by low-income communities around Bangkok found a significant increase in the volume of sorted waste for recycling during 2018-2020, especially in plastic, paper, and cans. These results also show an increase in public awareness, skills, and participation in waste management, confirming the community's success in strengthening sorting and recycling practices through collaboration among sectors, including the community, the public sector, and the private sector (Leknoi et al., 2024). Apart from the environmental aspect of reducing pollution, community-based waste management also has social benefits, namely increasing public awareness of environmental cleanliness and forming a more environmentally friendly culture (Zubaidah et al., 2025).

Community-based waste management is inextricably linked to community empowerment. Community participation in waste management not only reduces environmental pollution but also empowers residents economically and socially (Pratama et al., 2021). By processing waste into valuable products, the community is actively involved in the planning, implementation, and maintenance of the program, while also fostering environmental awareness and responsible behavior (Pratama et al., 2021). An example in Semarang shows how cooperation with community organizations and the empowerment of scavengers have improved the community's skills, enabling waste to be processed into products with a higher selling value than if sold directly (Wahyuhastuti et al., 2017).

Law of The Republic of Indonesia Number 18 of 2008 on Waste Management states that the government, together with the community, is obliged to jointly manage waste to improve public health and environmental quality, and to turn waste into a resource. This reemphasizes the need to increase community participation in waste management. The circular economy approach and community empowerment in community-based plastic waste management align with the Sustainable Development Goals, particularly SDG 12. This program supports target 12.5, which emphasizes waste reduction through prevention, recycling, and reuse, and target 12.6, which encourages businesses and communities to adopt sustainable practices. By actively involving the community, initiatives like Trash2Move not only reduce plastic waste but also foster environmental awareness, build local capacity, and encourage more responsible consumption and production behaviors, thereby contributing to sustainable consumption and production at both the local and global levels.

Previous studies have extensively discussed community-based waste management and the application of circular economy principles at the small-scale level. However, most research still tends to focus on technical aspects, such as sorting, processing, recycling, and the application of waste exchange incentives for contributing communities. Rachman et al (2021) research shows that community involvement in community-based waste management significantly improves environmental conditions. These practices do contribute positively to waste reduction, but often do not address a more fundamental dimension: how this process can serve as a means of human development that encourages awareness, empowerment, and social transformation. Furthermore, there are still a few studies that highlight how communities led by younger generations, especially Generation Z, can play a strategic role in creating a sustainable development model through environmental management. Generation Z, which has grown up in the context of increasing climate change and environmental crisis issues, has great potential to be a driving force in designing and implementing initiatives that not only focus on waste management but also

on the formation of a new, more environmentally friendly culture (Ernawati & Adinata, 2025).

The study of Trash2Move shows how environmental initiatives can evolve beyond recycling activities into a platform for building collective awareness, increasing community capacity, and fostering youth leadership. By combining the concepts of circular economy and community-based development, Trash2Move not only focuses on reducing plastic waste but also on creating added value and strengthening collaboration between communities, government, and the private sector. The success of this initiative also depends heavily on the involvement of the younger generation, especially Generation Z, who grew up in the digital age and play an important role in promoting environmental awareness through the use of their creativity and digital literacy to expand environmental education and spark innovation in waste management practices (Adah et al., 2025).

Thus, Trash2Move can be understood as an environmental management model that not only reduces waste generation but also drives social change towards sustainability. With this foundation, this study aims to analyze how Trash2Move, as a community initiated by Generation Z, plays a role in plastic waste management in Padang City, while also identifying its contribution in encouraging community participation and increasing environmental awareness among the surrounding community. Furthermore, this study seeks to explain how Generation Z's involvement in Trash2Move presents a new model of community development that combines the principles of the circular economy with youth leadership, thereby making a tangible contribution to achieving the Sustainable Development Goals, particularly SDG 12 on responsible consumption and production.

2. Methods

Provide This study uses a qualitative case study design to examine the role of Trash2Move in reducing plastic waste and promoting community-based development in Padang City. A qualitative approach was selected because it aligns with the study's objectives: to analyze the role of a Generation Z-led initiative in managing plastic waste, encouraging community participation, and increasing public environmental awareness, and to explain how Trash2Move functions as a model for sustainable community development. This approach enables researchers to interpret social issues by exploring participants' experiences in authentic contexts and identifying emerging patterns or themes (Creswell & Poth, 2018). Through this method, the study can capture the social dynamics, values, and practices that shape community participation in plastic waste management. A case study design was chosen because it is appropriate for investigating phenomena within their real-life context, particularly when the boundaries between the phenomenon and its context are not clearly separated (Yin, 2018).

Trash2Move is not only a waste management initiative but also reflects broader social processes, including community empowerment, youth leadership, and the implementation of circular economy principles. Case studies also allow researchers to examine contextual factors that influence the success of community initiatives (Ulum et al., 2024). Applied to Trash2Move, this design provides a deeper understanding of the circular economy-based community development model that the initiative promotes.

Trash2Move was chosen as the object of study because of its uniqueness and because this community has only been running for three years, allowing analysis of how to start a program in an era when waste issues are becoming a concern. Its uniqueness lies in the characteristics of this community, which was initiated by Generation Z, an age group known for its great concern for environmental issues and its skills in utilizing digital technology for education and social mobilization. This initiative combines a plastic waste exchange scheme with essential goods as a direct incentive for the community, while processing the waste into products of economic value. In this way, Trash2Move not only addresses technical issues in waste management but also creates real social and economic impacts for the surrounding community.

Using a qualitative case study design, this study explores in depth how Trash2Move, as a community, implements its programs, faces challenges, and creates opportunities to strengthen community participation. Focusing on a single case provides space to understand the process in detail, including the community's internal dynamics, responses, and outcomes. Thus, this study is expected to provide a holistic picture of the role of communities in managing plastic waste and their contribution to achieving sustainable development goals at the local level, particularly in relation to more responsible consumption and production.

Data collection in this study combined primary and secondary sources to obtain a comprehensive understanding of Trash2Move's role in Generation Z-led plastic waste management and its potential as a model for sustainable community development. Using both data types strengthened the credibility and depth of the analysis. Primary data were collected through semi-structured in-depth interviews with the founder of Trash2Move as the key informant. Interviews allow direct interaction between researchers and participants (Ardiansyah et al., 2023) and are widely used in qualitative studies because they effectively capture experiences and subjective perspectives (Demirci, 2024).

Semi-structured interviews were chosen because they provide guiding questions while allowing flexibility to probe deeper based on participants' responses, enabling rich and comprehensive insights (Romdona et al., 2025). Each interview lasted 60–90 minutes and followed an interview guide developed from the study's theoretical framework. The guide covered: (1) the origins and motivations behind Trash2Move; (2) program implementation and operations; (3) environmental, social, and economic impacts; (4) community participation and empowerment; (5) challenges faced, and; (6) collaboration with government and private stakeholders. Secondary data were collected from relevant literature and supporting documents. Sources included academic articles on community-based waste management, the circular economy, community empowerment, and Generation Z's environmental engagement. Additional secondary data came from Trash2Move's activity reports and social media content, which provided insight into the community's internal development. News articles and media publications about Trash2Move and plastic waste issues in Padang were also used to understand public perception and the program's broader social impact.

Data analysis in this study was conducted using a qualitative approach with an in-depth case study design, focusing on the Trash2Move community. Content analysis, developed by Harold D. Lasswell, was the primary analytical method. Content analysis is a systematic, objective technique for identifying specific characteristics within a message to draw valid conclusions. Objective indicates that procedures are designed so that other researchers can obtain similar results, systematic refers to the consistent application of coding and categorization rules, and generalizable requires that findings be linked to relevant theoretical frameworks.

The content analysis process followed several structured stages: (i) Data preparation, including transcription and defining the units of analysis; (ii) Initial coding, where meaning units were identified and assigned descriptive codes; (iii) Categorization, grouping similar codes into broader analytical categories; (iv) Theme identification, analyzing relationships among categories to reveal deeper patterns; and (v) Reporting, presenting the key themes and relating them to the research questions and theoretical foundation (Erlingsson & Brysiewicz, 2017). Content analysis was selected for two main reasons. First, it enables an in-depth understanding of the experiences and perspectives of Trash2Move's founders, particularly regarding Generation Z's role in community-based waste management, community participation, and environmental awareness. Second, content analysis is methodologically flexible and well-suited to case studies because it enables researchers to uncover themes and patterns in real-world contexts.

3. Results and Discussion

3.1 Overview of Trash2Move as a case study

This study produced in-depth interview data with the founder of Trash2Move as primary data, and secondary data analysis of internal documents from Trash2Move, Trash2Move's social media publications, and online mass media coverage related to its activities. The interview process was conducted on September 19, 2025, online via Zoom for 70 minutes. The informant in this interview was one of the three founders of Trash2Move as a representative. The researcher asked the Trash2Move founder 26 questions grouped into five themes: (1) the background and motivation for establishing Trash2Move; (2) the implementation of Trash2Move's programs and operations; (3) the impact of Trash2Move's programs on the environment, society, and economy; (4) the participation and empowerment of the surrounding community; (5) challenges and obstacles; and (6) support and collaboration with the government and the private sector. The interview transcripts will be analyzed thematically to be used as discussion points in achieving the objectives of this study.

Trash2Move provided several documents for review in this study, namely a company profile, product catalog, and terms and conditions for exchanging plastic waste for necessities. The information obtained from the company profile includes a brief overview of Trash2Move, profiles of its founders, its vision and mission, its community values, several product examples, and quotes from the media covering its activities. Trash2Move was founded by three Generation Z individuals with different bachelor's degrees in management, mechanical engineering, and electrical engineering. The three founders share a vision and mission to address plastic waste in Padang City, which ultimately led to the formation of the Trash2Move community in 2022. Trash2Move's long-term vision is to become a platform for transforming plastic into valuable products and to serve as an inspiration for creating a cleaner, more sustainable world. This is realized through programs to reduce plastic waste, produce functional recycled-plastic products, raise environmental and community awareness, and conduct research and collaborate on sustainable environmental action in plastic waste management. Products made from recycled plastic waste include furniture and accessories, as shown in Figure 1.

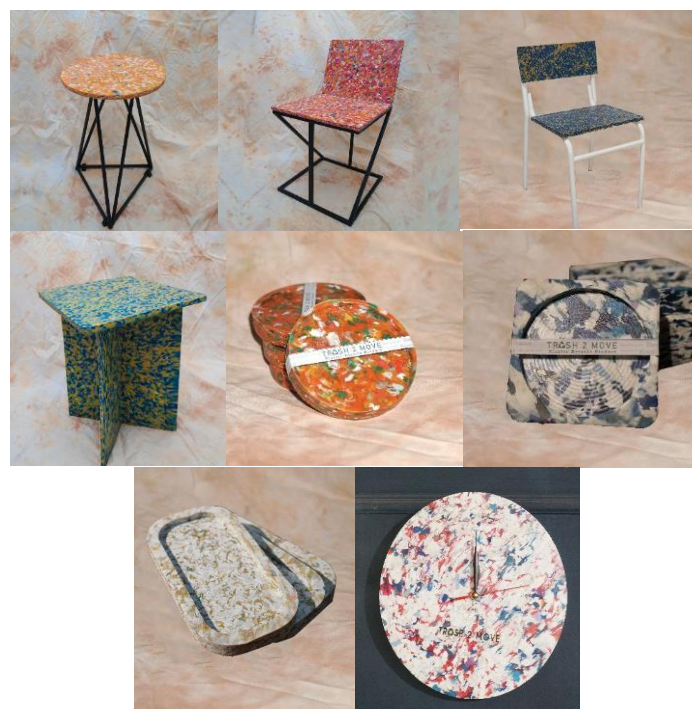


Fig. 1. Recycled plastic products produced by trash2move

The recycling process is carried out in several stages, namely sorting plastic waste, followed by recycling the selected waste into products, namely HDPE (High-Density Polyethylene) and PP (Polypropylene). The sorted plastic waste is then cleaned and dried before being shredded and melted using an oven at a temperature of 250°C-270°C. The result is in the form of pellets that will later be shaped into various products. The plastic waste used as a raw material is obtained from cleanup actions carried out by Trash2Move itself and from a waste exchange system for community necessities. The terms and conditions for exchanging waste for necessities can be seen in Table 1 below.

Table 1. Terms and conditions for exchanging plastic waste for necessities by trash2move

No	Types of plastic waste	Plastic Waste Exchange Rate/Kg	Types of Plastic Waste Exchange Packages for Necessities
1	High value plastic waste (HDPE, AG, PET, PVC)	IDR 1,200/kg	Package 1 Receive 5 eggs for a total exchange price of all types of waste worth Rp10.000,-
2	Low value plastic waste (packaging, plastic bags, multilayer, seals)	IDR 500/kg	Package 2 Receive 3 eggs and 1 kg of rice for a total exchange value of all types of waste worth Rp35.000,-
3	Other waste includes used cooking oil and paper.	IDR 500 – IDR 2,500/kg	Package 3 Receive 5 eggs, 1 liter of cooking oil, and 2 packs of instant noodles for a total exchange value of all types of waste worth Rp35.000,-
4			Package 4 Received 6 eggs, 1 liter of cooking oil, 1 kg of rice, and 2 packs of instant noodles for a total exchange value of Rp51.000,- for all types of waste.

As a community initiated by Generation Z, a generation with strong digital literacy skills, Trash2Move is quite active on Instagram and TikTok. Details of Trash2Move's two social media accounts can be seen in Table 2 below.

Table 2. Trash2Move's social media

Aspect	Instagram	Tiktok
Username	trash2move_	Trash2Move
Followers	838 followers	666 follower with 19.600 likes
Amount of content	102 posts	77 posts
First post	November 9, 2023	February 4, 2023
Type of content	- Furniture products made from recycled plastic waste. - Plastic waste cleanup action on the coast of Padang City. - TrashMove activities, both in collaboration with other parties and Trash2Move activities as a resource person related to plastic waste management. - Educational content related to plastic waste management.	

Other secondary data sources used in this study were publications from the mass media covering activities or programs carried out by Trash2Move. 17 media outlets have covered the programs run by Trash2Move: 14 publish online articles, and 3 publish through YouTube channels. The news articles came from local mass media in Padang City and West Sumatra, including the Dinas Komunikasi dan Informatika Kota Padang. In contrast, the YouTube media was covered by Purpleous Official, RRI Pro 1 Padang, and Kompas TV. The articles analyzed were published between 2024 and 2025. In summary, the mass media published articles on the Trash2Move program, ranging from initiatives to clean up trash to innovations in plastic waste recycling in Padang City.

3.2 *Trash2Move's role in plastic waste management*

Data show that Trash2Move acts as a community catalyst for circular economy-based plastic waste management. Through programs that exchange plastic waste for necessities and process waste into products with economic value, such as household appliances and furniture, this community not only reduces waste but also creates new value chains in society. An interview with the founder revealed that this model was born out of a desire to create practical solutions that are close to the community, not just a plastic waste reduction program. In addition to processing waste, Trash2Move is also active in educating and campaigning to the public about waste sorting through social media. This shows that Trash2Move plays a dual role: as a waste management agent and as a facilitator of social change in Padang City.

Ulum et al (2024) reported that community-based plastic waste management models involve the active participation of local communities throughout the entire plastic waste management cycle, from collection, sorting, and processing to recycling. The study emphasizes that this approach not only focuses on technical aspects but also considers the social, economic, and cultural aspects of the local community. Other studies also show that with the implementation of community-based waste management, community participation in processing activities will increase as they see the benefits of improved waste management for the environment and the daily lives of the local community (Utami et al., 2024). This study also reveals that integrating waste collection, community education, external partnerships, and institutional restructuring is an important component of an effective community-based waste management model (Utami et al., 2024). This is in line with the findings of a case study by Rachman et al (2021) that the crucial role of community-based waste management programs, such as those carried out by Trash2Move, is to change the old waste management paradigm of "collect-transport-dispose" to a new and more sustainable scenario of "sort-collect-select-process-sell".

The study results show that Trash2Move serves as a community catalyst in promoting circular-economy-based plastic waste management in Padang City. This is achieved through a program that exchanges plastic waste for necessities and processes HDPE and PP into products with economic value, such as furniture and accessories (Fig.1). Trash2Move is the first community in Padang City to implement a circular economy-based plastic waste processing program that produces furniture, which is different from the waste banks that were already operating in Padang City. The founder of Trash2Move explained that:

"Initially, we only conducted plastic waste cleanup on the beach. However, we realized that if we only cleaned up the waste, it would still accumulate in the landfill. Then we thought of doing something more than that, and the idea emerged to process plastic waste into economically valuable products. This idea further developed when we also offered benefits to the community willing to exchange their waste, such as food packages" (Interview, September 19, 2025).

Communities act as catalysts in achieving sustainable waste management through their initiatives and their ability to drive social change and individual behavior (Rusdi et al., 2024). The initiatives developed by Trash2Move began with internal awareness, which was later expanded to foster the understanding that waste is not just garbage but a resource with economic value. Additionally, Trash2Move's role as a community is also reflected in innovations in plastic waste management. The waste recycling program is one such innovation that not only reduces waste generation but also creates economic opportunities for the community. This fact was also highlighted by various mass media outlets covering the Trash2Move program, with 18 outlets reporting that the program, run by Trash2Move, is an innovation in sustainable waste management in the city of Padang and encourages the implementation of a circular economy through plastic waste management.

3.3 Community participation in plastic waste management

Community participation in the Trash2Move program is demonstrated through active community involvement in waste collection activities and plastic waste exchange programs. Based on interview results, most community members participate for the direct benefits of necessities. However, this participation has led to a new awareness of the importance of sorting and reducing waste. The incentive system serves as a gateway to changing community behavior, while social activities such as beach cleanups and collaborations with schools expand the reach of environmental education. This participation can arise because Trash2Move implements a circular economy in running its community-based plastic waste management program. The diverse waste exchange system, implemented by Trash2Move across four categories of incentive packages with exchange values ranging from IDR 10,000 to IDR 51,000, encourages community participation by providing flexibility for individuals to participate based on their ability to collect waste. This mechanism not only creates economic motivation but also builds broader social engagement as the community feels they have a fundamental role in the waste management process in their environment.

A study reports that economic incentives play an important role as extrinsic motivation that encourages participation in recycling programs. The study found that incentive-based programs are more effective at increasing participation than educational programs alone, because providing incentives is equivalent to offering exchange value directly acceptable to the community (Daoud et al., 2025; Borrello et al., 2020). Community participation in the Trash2Move program is carried out through an incentive-based engagement approach. Incentive-based engagement in plastic waste management is one of the strategic approaches to influence human behavior and encourage consistent community participation in the 3R (Reduce, Reuse, Recycle) efforts (Alfitri et al., 2024). This approach is based on the principle that providing incentives can motivate the community to align with the program's objectives. The founder of Trash2Move also conveyed this statement in an interview:

"Getting the community to care about waste management is quite difficult; even simply asking them to sort their waste is a challenge for us. So we started with a door-to-door approach in our neighborhood, educating people on how to sort waste at home, and then we told them that they could exchange their sorted plastic waste with us for basic necessities such as eggs, cooking oil, and instant noodles. When we shared this, the community, especially the mothers, were immediately enthusiastic about exchanging the plastic waste they had sorted with Trash2Move" (Interview, September 19, 2025).

Incentives have proven effective in increasing community participation in the Trash2Move plastic waste management program. This finding aligns with previous research showing that reward-based models can encourage habit formation and significantly increase community involvement (Mahmudi & Mantoro, 2025). Participation in Trash2Move can also be linked to socio-economic factors, as shown by Akeju & Omotoso (2023), who found that informal sector workers are nearly 12 times more likely to engage in waste management due to its potential economic benefits. In addition, individuals with a secondary education were nearly 9 times more likely to participate. However, these socio-economic factors have not been specifically identified in this study.

3.4 Environmental awareness at the community level

Communities' environmental awareness increased as they became more involved in the program. Interviews with the founders of Trash2Move showed that people who exchanged plastic waste began to sort waste at home habitually. Although incentives initially triggered this behavior, the program founders saw it as part of growing ecological awareness. The education provided is informal and contextual, delivered primarily through hands-on practice and social media narratives. The use of Instagram and TikTok is effective in

spreading environmental messages through visualizations of the recycling process, processed products, and beneficiary stories, reflecting a social learning approach that emphasizes visual and participatory communication.

Previous studies have shown that low environmental awareness is the leading cause of poor waste management practices, such as burning or dumping plastic waste in vacant lots and waterways (Setyaningsih et al., 2022). Although the community understands the negative impact of plastic waste, this knowledge is not always followed by concrete action, resulting in a gap between understanding and behavior. This condition is relevant to the context of Trash2Move, where economic incentives are the initial trigger for participation, which then develops into a broader understanding of environmental responsibility. A community-based approach that combines informal education, direct involvement, and the habit of environmentally friendly behavior plays an important role in strengthening environmental awareness at the community level. Trash2Move fosters environmental awareness at the community level through both formal and informal education on social media. Trash2Move recognizes that social media is highly influential in community development. The founder of Trash2Move conveyed this in an interview, namely:

"From the beginning, we have been using social media to publish our programs because, honestly, we are also motivated by Pandawara's social media content. Initially, we uploaded our content on TikTok and got a decent number of views, then we also became active on Instagram. To date, in addition to our products, we also upload educational content so that we can reach a wider audience on social media" (Interview, September 19, 2025).

Social media has several functions, including serving as a medium for education and information, mobilizing action, and engaging in interaction (Jaya & Arswendi, 2024). Trash2Move fulfills these functions through its social media platforms, TikTok and Instagram, where the content delivered combines education, information, real-life action, and interaction with various stakeholders.

3.5 Generation Z involvement in community-based plastic waste management

One of the key findings of this study is that Trash2Move is driven by Generation Z, the primary force behind its innovation and sustainability. The young founders demonstrate the typical characteristics of this generation: creativity, adaptability to digital literacy, and a strong concern for environmental and sustainability issues. Interviews indicate that they use social media not only for promotion but also for networking, collaboration, and public education. This Generation Z involvement presents a more inclusive and sustainability-oriented leadership model.

This finding aligns with research by Adah et al. (2025), which asserts that the success of environmental initiatives is greatly influenced by the active role of Generation Z as a digital generation capable of expanding the reach of environmental education and driving innovation in waste management. Studies on social media usage also show that influencers and collaboration in value co-creation play a significant role in shaping sustainable behavior, notably when content demonstrates tangible impact (Suryaputra et al., 2024). Although Generation Z is characterized by initiative, creativity, and high digital literacy skills, Trash2Move still faces several challenges. Interviews revealed obstacles, including low public trust in the early stages, limited funding, minimal support from the Padang City government, and uncertainty about collaborating with the private sector. Some obstacles have been overcome, but institutional support remains a significant challenge. Trash2Move recognizes that strengthening its branding and extending its development time are necessary to attract broader partners and support.

3.6 *Trash2Move's program contribution to sustainable development goals 12*

Trash2Move's activities are directly relevant to achieving Sustainable Development Goal (SDGs) 12 on responsible consumption and production patterns. By reducing plastic waste and implementing circular economy concepts at the community level, Trash2Move supports Target 12.5, which focuses on reducing waste generation through prevention, recycling, and reuse. Furthermore, by integrating education and community empowerment, this initiative also contributes to Target 12.8, which emphasizes public awareness and information on sustainable development. The activities carried out by this community demonstrate that a community-based environmental management model can be a practical approach to driving social change and shifting consumption behavior toward sustainability.

Research related to the relationship between the implementation of a circular economy model and the achievement of the SDGs shows that the implementation of a circular economy model has a direct contribution to the achievement of the five sustainable development goals (SDGs), including SDG 12, through efforts to reduce CO₂ emissions, reduce landfill use, efficiency in the use of scarce natural resources, create jobs, and increase social responsibility (Nasution & Tjhin, 2020). The results of other studies also emphasize that the formation of sustainable waste management behavior in the school environment can be a model for replication for communities in implementing waste management practices where by integrating educational approaches, community empowerment, and cross-sector partnerships, local initiatives have been proven to contribute significantly to the achievement of SDGs 12 on responsible consumption and production patterns (Haniva et al., 2024).

Trash2Move recognizes that the program currently being implemented and will continue to develop provides a real contribution to achieving Sustainable Development Goal (SDGs) 12 on sustainable consumption and production. Although there is currently no quantitative data on the achievement of plastic waste reduction through Trash2Move's program, qualitatively, its consistent approach remains aligned with the Sustainable Development Goals. Trash2Move also recognizes that the steps that have been initiated will continue, and, of course, with the hope of support and cooperation from various parties, so that this will not only be a Trash2Move program but can also become the main program for plastic waste management in Padang City.

3.7 *Synthesis of findings*

The synthesis of this study's results indicates that Trash2Move, a community initiated by Generation Z, contributes to community-based plastic waste management in Padang City by implementing the circular economy concept. Findings on five key variables: Trash2Move's role, community participation, environmental awareness, Generation Z involvement, and contributions to achieving SDG 12—depict a mutually reinforcing relationship consistent with previous studies. However, this study also identifies several methodological and empirical limitations that require attention for further study development.

First, Trash2Move has been shown to act as a catalyst for social change in waste management, in line with the findings of Ulum et al (2024), who emphasized the effectiveness of community-based models. Innovations such as recycling plastic into furniture and a waste-for-groceries exchange scheme strengthen the community's position as agents of change and create new socio-economic value. Second, the research findings confirm the effectiveness of incentives as an initial trigger for participation. This aligns with Daoud et al. (2025) and Borrello et al (2020), who found that direct benefits can increase community engagement in recycling programs. The flexibility of the exchange package of IDR 10,000–IDR 51,000 in the Trash2Move program encourages participation aligned with community capacity, and initial extrinsic motivation develops into more substantial commitment and awareness. Third, increasing environmental awareness through social media is a key finding, supporting the findings of Jaya & Arswendi (2024) and Suryaputra

et al. (2024). The use of visual content on Instagram and TikTok makes social media an adequate participatory educational space, especially for the younger generation. Fourth, Generation Z involvement has emerged as a key driver of program innovation and sustainability. This aligns with Adah et al. (2025), who highlighted Generation Z's digital literacy and sustainability orientation. However, Trash2Move also faces common obstacles for small community initiatives, including limited funding and minimal government and private-sector support. Fifth, Trash2Move's contribution to SDGs 12 aligns with the literature on the circular economy, as presented by (Nasution & Tjhin, 2020). This program has supported the achievement of targets 12.5 and 12.8 through recycling practices and environmental education. However, its quantitative impact on reducing plastic waste in Padang City has not been systematically calculated.

The findings of this study are summarized in a framework of relationships between variables that illustrate the dynamics of the Trash2Move program implementation. The community plays a key role, driving public participation through program innovation and incentives. This increased participation then strengthens environmental awareness, as people begin to understand the ecological value of sorting and recycling, beyond just the material benefits. The involvement of Generation Z serves as an accelerant through creativity, digital literacy, and social media campaign capabilities, expanding the program's reach. The synergy among these variables collectively contributes to achieving SDGs 12 through behavioral change, increased public education, and the implementation of circular-economy practices within the community. The following illustrates the relationships between the variables found in this study, as shown in Figure 2.

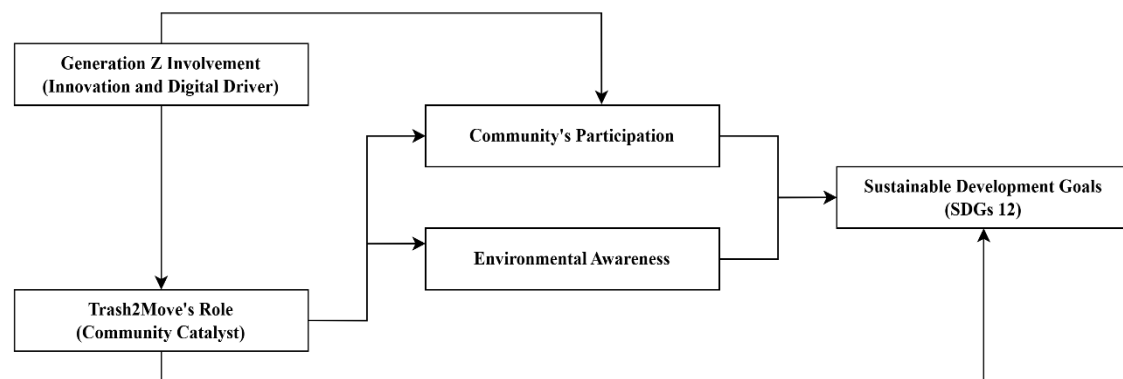


Fig. 2. Conceptual framework of trash2move's community-based waste management model

This relationship model is circular, where increasing one variable can strengthen the other, creating a positive feedback loop that supports the program's long-term sustainability. Interpretation of this pattern suggests that Trash2Move is not simply a waste management service provider but rather a social change agent that combines economic incentives, recycling innovations, and digital communication strategies to shape community norms, behaviors, and environmental awareness gradually.

4. Conclusions

This study concludes that Trash2Move, a plastic waste management community initiated by Generation Z, plays a role in developing a community-based waste management model integrated with circular economy principles. The findings indicate that Trash2Move not only implements a plastic waste processing program but also acts as a catalyst that encourages community participation and increases environmental awareness. Initially, community participation is transactional through incentives, but will gradually evolve into more reflective, awareness-based engagement. Furthermore, Generation Z's characteristics of creativity, digital literacy, and sensitivity to sustainability issues are important factors in

the sustainability of the Trash2Move program. Trash2Move's contribution to achieving SDGs 12 is evident through waste reduction practices, increased public understanding of responsible consumption, and the implementation of a circular economy at the community level. However, this study also identified several challenges, including limited government and private-sector support, limited resources, and a lack of quantitative measurement of ecological impacts. This suggests that the sustainability of this community model requires policy guidance and multi-stakeholder support to expand its impact further.

This study still has several limitations that need to be considered. First, the research involved only one key informant, the founder of Trash2Move, so the community's internal perspectives were not fully represented. Second, there was no quantitative measurement of the volume of waste reduced, so the findings remain descriptive and cannot be substantiated numerically. Third, the social media analysis was limited to Trash2Move's official account, without assessing audience response or analytical indicators such as engagement levels. Fourth, the use of a single case study limits the generalizability of the findings to other city contexts.

This study opens the way for more comprehensive follow-up studies on community-based waste management models initiated by Generation Z. It is recommended that future studies use quantitative approaches or mixed methods to measure ecological and social impacts, including estimating the volume of waste diverted from landfills, carbon emission reductions, long-term community behavioral changes, and calculating the economic value of recycled products. Furthermore, a comparative study between Trash2Move and other waste management communities in Indonesia and other developing countries could provide insights into success factors that can be replicated. A deeper exploration of the role of Generation Z in Padang City as agents of change, including leadership, digital literacy, and the power of social networks, will enrich the literature on the circular economy, community empowerment, and the achievement of SDGs 12.

Acknowledgement

The author would like to thank all those who have contributed to this research, especially for the data collecting and writing process, also for supervising and reviewing the article.

Author Contribution

The author was solely responsible for all aspects of this study, including conceptualization, methodology, data analysis, and manuscript preparation.

Funding

This research received no external funding.

Ethical Review Board Statement

Not available.

Informed Consent Statement

Not available.

Data Availability Statement

Not available.

Conflicts of Interest

The author declare no conflict of interest.

Declaration of Generative AI Use

Not available.

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References

- Adah, E. F., Nugroho, A., & Rachbini, W. (2025). Systematic Literature Review : Factors Influencing Generation Z ' s Attitudes Toward Environmentally Friendly Products and Their Implications for Green Consumer Behavior. *International Journal of Science and Society*, 7(3), 129–145. <https://doi.org/10.54783/ijssoc.v7i3.1486>
- Akeju, K. F., & Omotoso, F. (2023). Exploring Women's Interests In Household Waste Disposal and Management. *Journal of Environmental Science and Sustainable Developments*, 6(1), 1–18. <https://doi.org/10.7454/jessd.v6i1.1152>
- Alfitri, A., Afrizal, A., Helmi, H., & Raharjo, S. (2023). Insentif Dalam Pengelolaan Sampah Plastik: Pengalaman Negara Jerman Serta Kota Surabaya Dan Kota Padang, Indonesia. *Menara Ilmu: Jurnal Penelitian dan Kajian Ilmiah*, 17(1). <https://doi.org/10.31869/mi.v17i1.3992>
- Alya, S., & Khotami. (2025). Pengelolaan Sampah Berbasis Masyarakat Oleh Dinas Lingkungan Hidup dan Kebersihan Kota Pekanbaru. *NUSANTARA: Jurnal Ilmu Pengetahuan Sosial*, 12(5), 2168–2183. <https://doi.org/10.31604/jips.v12i5.2025.2168-2183>
- Ardiansyah., Risnita., & Jailani, M. S. (2023). Teknik pengumpulan data dan instrumen penelitian ilmiah pendidikan pada pendekatan kualitatif dan kuantitatif. *IHSAN: Jurnal Pendidikan Islam*, 1(2), 1-9. <https://doi.org/10.61104/ihsan.v1i2.57>
- Borrello, M., Pascucci, S., Caracciolo, F., Lombardi, A., & Cembalo, L. (2020). Consumers are willing to participate in circular business models : A practice theory perspective to food provisioning. *Journal of Cleaner Production*, 259, 121013. <https://doi.org/10.1016/j.jclepro.2020.121013>
- Creswell, J. ., & Poth, C. . (2018). *Qualitative Inquiry and Research Design Choosing among Five Approache* (4th Editio). SAGE Publications, Inc., Thousand Oaks.
- Daoud, O. W., Ahmed, V., Alzaatreh, A., & Anane, C. (2025). The impact of socio-economic factors on recycling behavior and waste generation: insights from a diverse university population in the UAE. *Cleaner Waste Systems*, 11, 100266. <https://doi.org/10.1016/j.clwas.2025.100266>
- Demirci, J. R. (2024). About Research : Conducting Better Qualitative Interviews. *Journal of Human Lactation*, 40(1), 21–24. <https://doi.org/10.1177/08903344231213651>
- Erlingsson, C., & Brysiewicz, P. (2017). A hands-on guide to doing content analysis. *African Journal of Emergency Medicine*, 7(3), 93–99. <https://doi.org/10.1016/j.afjem.2017.08.001>
- Ernawati, M. T., & Adinata, P. V. (2025). Analisis Faktor Psikososial dalam Pengelolaan Sampah Berkelanjutan pada Generasi Z di Indonesia. *Jurnal Penelitian Inovatif*, 5(1), 437–448. <https://doi.org/10.54082/jupin.1082>
- Haniva, R., Butar, S. B., & Ambarita, N. (2024). Waste management in schools as part of sustainable development. *Journal of Sustainability, Society, and Eco-Welfare (JSSEW)*, 1(2), 126–148. <https://doi.org/10.61511/jssew.v1i2.2024.325>
- Jang, Y.-C., Lee, G., Kwon, Y., Lim, J., & Jeong, J. (2020). Recycling and management practices of plastic packaging waste towards a circular economy in South Korea. *Resources, Conservation and Recycling*, 158. <https://doi.org/10.1016/j.resconrec.2020.104798>

- Jaya, S., & Arswendi, R. (2024). Optimalisasi Instagram Sebagai Media Pemasaran Sosial dalam Membentuk Kesadaran Lingkungan pada Generasi Z (Studi Analisis isi Konten @ Pandawaragroup) Optimization of Instagram as Social Marketing Media in Creating Environmental Awareness in Generation. *Jurnal Audience: Jurnal Ilmu Komunikasi*, 07(02), 154–173. <https://doi.org/10.33633/ja.v7i2.12053>
- Leknoi, U., Painmanakul, P., & Chawaloephonsiya, N. (2024). Building sustainable community: Insight from successful waste management initiative. *Resources, Conservation & Recycling Advances*, 24(December), 200238. <https://doi.org/10.1016/j.rcradv.2024.200238>
- Mahmudi, A. M., & Mantoro, T. (2025). User-Centric Waste Management Through Reward-Based Digital Systems. *Buletin Poltanesa*, 26(1), 367–375. <https://ejournal.politanisamarinda.ac.id/index.php/tanesa/article/view/3380/908>
- Mandić, A., Walia, S. K., & Rasoolimanesh, S. M. (2024). Gen Z and the flight shame movement: examining the intersection of emotions , biospheric values , and environmental travel behaviour in an Eastern society. *Journal of Sustainable Tourism*, 32(8), 1621–1643. <https://doi.org/10.1080/09669582.2023.2254950>
- Maruwemay, M., Lasaiba, M. A., & Tetelepta, E. G. (2025). Strategi Pengelolaan Sampah Berbasis Komunitas dalam Mewujudkan Lingkungan Bersih dan Sehat (Studi Kasus Moluccas Coastal Care). *Jurnal Pendidikan Geografi Unpatti*, 4, 189–204. <https://doi.org/10.30598/jpguvol4iss2pp189-204>
- Murti, Z., Dharmawan, Siswanto, Soedjati, D., Barkah, A., & Rahardjo, P. (2022). Review of the Circular Economy of Plastic Waste in Various Countries and Potential Applications in Indonesia. *IOP Conf. Series: Earth and Environmental Science*. <https://doi.org/10.1088/1755-1315/1098/1/012014>
- Nasution, N. A. S., & Tjhin, V. U. (2020). Circular Economy and Product-Service Systems In Customer Perspective : A Systematic Literature Review. *Global Research on Sustainable Transport & Logistics*, 820–827. <https://proceedings.itltrisakti.ac.id/index.php/ATLR/article/view/344>
- Pratama, A., Kamarubiani, N., Shantini, Y., & Heryanto, N. (2021, May). Community empowerment in waste management. In *First Transnational Webinar on Adult and Continuing Education (TRACED 2020)* (pp. 78-83). Atlantis Press. <https://doi.org/10.2991/assehr.k.210508.015>
- Prasaningtyas, A., Rini, I. D. W. S., Basransyah, Harfadli, M. M., & Rachmannia, N. C. (2025). Community participation in 3R (Reduce , Reuse and Recycle) of household plastic waste in Balikpapan. *IOP Conf. Series: Earth and Environmental Science*. <https://doi.org/10.1088/1755-1315/1438/1/012078>
- Rachman, I., Komalasari, N., & Hutagalung, I. R. (2021). Community Participation on Waste Bank To Facilitate. *Journal of Environmental Science and Sustainable Development*, 4(2), 327–345. <https://doi.org/10.7454/jessd.v4i2.1123>
- Romdona, S., Junista, S. S., & Gunawan, A. (2025). Teknik Pengumpulan Data: Observasi, Wawancara dan Kuesioner. *JISOSEPOL : Jurnal Ilmu Sosial Ekonomi Dan Politik*, 3(1), 39–47. <https://garuda.kemdiktisaintek.go.id/documents/detail/5037355>
- Rosdiana, W., Prastyawan, A., Lestari, Y., & Manggalasari, L. C. (2025). Effects of environmental orientation and environmental knowledge on the willingness to reduce plastic waste among Gen Z in Indonesia and Thailand. *Environmental Economics*, 16(1), 1–13. [https://doi.org/10.21511/ee.16\(1\).2025.03](https://doi.org/10.21511/ee.16(1).2025.03)
- Rusdi., Devriliiana, D. T., & Yuliawati, R. (2024). Analisis perubahan sosial ekonomi masyarakat melalui program bank sampah ramah lingkungan Graha Indah Samarinda. *Jurnal Kesehatan Tambusai*, 5(3), 7403-7411. <https://journal.universitaspahlawan.ac.id/index.php/jkt/article/view/31871>
- Setyaningsih, W., Hadiyanto, H., & Putranto, T. T. (2022). Improvement of Waste Management Through Community Awareness of Plastic Controlling in Garang Watershed, Semarang City, Indonesia. *International Journal of Sustainable Development and Planning*, 17(2), 531–538. <https://doi.org/10.18280/ijstdp.170218>
- Subekti, R. (2023). A Circular Economy-Based Plastic Waste Management Policy in

- Indonesia (Compared to China and EU). *Yustisia Jurnal Hukum*, 12(2), 168–184. <https://doi.org/10.20961/yustisia.v12i2.72177>
- Suryaputra, R., Daryanti, S. R. I., & Setyowardhani, H. (2024). The role of social media in promoting sustainable green lifestyles : Influencers and value co-creation with Gen Z in Indonesia. *Journal of Entrepreneurial Economics*, 1(1), 45–62. <https://doi.org/10.61511/jane.v1i1.2024.1036>
- Syawalidan, S., & Badruddin, S. (2024). The Role of The Community for Changing Social Behavior Communities in Managing Waste. *Sociological and Management Journal Research (SMJR)*, 1(1), 33–40. <https://ejournal.aissrd.org/index.php/smjr/article/view/246/209>
- Ulum, A. S., Djati, M. S., & Rozuli, A. I. (2024). Community-Based Plastic Waste Management Model in Bangun Village, Mojokerto Regency, Indonesia. *Nature Environment and Pollution Technology*, 23(4), 2489–2498. <https://doi.org/10.46488/NEPT.2024.v23i04.056>
- Utami., Istiqomah, T., & Corsita, L. (2024). Implementation of Community-Based Waste Management to Improve Environmental Health in Villages. *SUSTAINABLE APPLIED MODIFICATION EVIDENCE COMMUNITY Укрепители: Get Press Indonesia*, 1(2), 1-8. <https://doi.org/10.69855/samec.v1i2.90>
- Wahyuhastuti, N., Indiworo, R., & Burhanudin, A. (2017). IbM Pengolahan Sampah Plastik Dalam Rangka Pemberdayaan Masyarakat Kelurahan Muktiharjo Kidul Semarang. *JATI EMAS (Jurnal Aplikasi Teknik Dan Pengabdian Masyarakat)*, 1(2). <https://doi.org/10.36339/je.v1i2.56>
- Yin, R. K. (2018). *Case Study Research and Applications* (Sixth Edit). SAGE Publications India Pvt. Ltd.
- Zubaidah, E., Mardatillah, A., Ibrahim, M. A. Bin, Dynda, & Pitriani. (2025). Pengelolaan Sampah Terpadu Berbasis Komunitas untuk Mendukung SDG 11 : Kota dan Komunitas Berkelanjutan di Negara Bagian Trengganu, Darul Iman, Malaysia. *BERDAYA : Jurnal Pengabdian Kepada Masyarakat*, 45–52. <https://doi.org/10.25299/berdaya.2025.21879>

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