



**International Journal of Education, Social Studies,
And Management (IJESSM)**

e-ISSN : 2775-4154

Volume 5, Issue 2, June 2025

The International Journal of Education, Social Studies, and Management (IJESSM) is published 3 times a year (**February, Juny, November**).

Focus : Education, Social, Economy, Management, and Culture.

LINK : <http://lppipublishing.com/index.php/ijessm>

Implementation of Plastic Bag Reduction by Communities and Businesses in Supporting the SDGs in Barru Regency

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ABSTRACT

This study aims to analyze the implementation of plastic bag reduction policies by communities and business actors in support of achieving the Sustainable Development Goals (SDGs) in Barru Regency. The research adopts a qualitative approach, utilizing data collection techniques such as interviews, observations, and documentation. The findings indicate that public awareness of the environmental impacts of plastic bag usage is increasing; however, challenges remain in maintaining consistent behavioral change and ensuring the availability of eco-friendly alternatives. Business actors show varying degrees of support depending on the type of business and their understanding of existing regulations. The local government has issued policies to promote plastic reduction, although enforcement and public outreach efforts are considered insufficient. The implementation of this policy contributes to the achievement of SDG Goal 12 (responsible consumption and production) and Goal 12 (climate action). Collaboration among the government, businesses, and communities is identified as a key factor in fostering behavioral transformation and creating a more sustainable environment.

ARTICLE INFO

Article history:

Received

05 April 2025

Revised

26 May 2025

Accepted

17 June 2025

Keywords

Corresponding

Author : 

Plastic Bags, SDGs, Environmental Policy, Community, Business

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INTRODUCTION

Plastic pollution poses a severe global environmental threat due to its persistence and impact on ecosystems and human health (Liu, Zhang, & Chen, 2024). In particular, single-use plastic bags significantly contribute to this problem, prompting governments worldwide to implement bans, levies, and fees to reduce their consumption (Xanthos & Walker, 2017). A large-scale study published in *Science* demonstrated that plastic bag policies in the United States reduced shoreline litter by 25–47%, confirming their effectiveness (Schuyler et al., 2023). However, the same study cautioned about behavioral shifts toward thicker or alternative plastic bags, highlighting the need for comprehensive policy designs (Watkins et al., 2019). In Indonesia, the government introduced

plastic bag charges in urban retail outlets in 2016, which have since been adopted by over 100 local jurisdictions (Susanti & Suryani, 2021).

Community-led campaigns, such as PlasticDiet Indonesia, have played pivotal roles in raising awareness and influencing policy adoption at the district level (Pranowo, 2022). Nevertheless, consistent implementation remains a challenge due to regional socio-economic and cultural diversity (Yuliana, 2020). Scholars emphasize that the success of plastic bag reduction policies hinges not only on regulation but also on institutional capacity and community engagement (Agustina, Sutrisno, & Darmawan, 2023). Systems offering only bans or charges may fall short if enforcement is weak, public education is lacking, or alternatives are not widely accepted (Hopewell, Dvorak, & Kosior, 2009).

Several international examples illustrate the importance of multi-stakeholder collaboration. For example, Hong Kong's Environmental Levy Scheme achieved public support through phased implementation and stakeholder consultations (Lai, 2021). Jakarta's municipal ban on plastic bags combined regulation with incentives and penalties, aligning with the Sustainable Development Goals (SDGs) for responsible consumption and waste reduction (Rahman et al., 2022).

The substantial amount of plastic waste has various negative impacts on the environment. Plastic waste that ends up in the soil takes an exceptionally long time to decompose. The breakdown of plastic into smaller particles can contaminate both soil and groundwater (Astuti, 2016). Over time, the accumulation of plastic waste also leads to a decline in soil quality due to contamination from the chemical substances contained in plastic materials (Azis, 2019).

Plastic waste has become a global issue that has been addressed by the United Nations (UN). The UN established a global action plan known as the Sustainable Development Goals (SDGs), also referred to as the Tujuan Pembangunan Berkelanjutan (TPB) in Indonesian (Salsabila et al., 2022).



Figure 1.

Sustainable Development Goals (SDGs)

Source: United Nations Sustainable Development Goals, 2023

Adopting circular economy approaches such as refill stations and biodegradable bags—has emerged as a promising path toward sustainable retail practices (Ghisellini, Cialani, & Ulgiati, 2016). Indonesian initiatives exploring cassava starch-based bags exemplify locally tailored innovations supported by government regulation and research institutions (Putri & Nugroho, 2022). Despite these efforts, unintended outcomes persist. For instance, California's ban on light plastic bags led to increased use of heavier reusable bags, which offset some environmental benefits (Taylor & Villas-Boas, 2016). This highlights the necessity for continuous monitoring and flexibility in policy design (van Ewijk & Stegemann, 2016).

Community behavior studies in Indonesia suggest that attitudes, social norms, and perceived behavioral control significantly influence waste reduction practices (Lestari & Triyono, 2020). These findings indicate that Barru's citizens may respond differently to plastic reduction policies depending on local values and context (Andayani et al., 2021). The private sector also plays a crucial role; retailers' understanding of cost, benefit, and regulatory expectations directly affects their compliance and innovation (Ismail et al., 2023). Corporate social responsibility (CSR) programs in Malaysia and Southeast Asia offer useful insights for local entrepreneurship in Barru (Rahim & Tan, 2022). The accumulation of domestic and international evidence reinforces a key theme: effective plastic bag policies require a holistic intervention combining regulation, economic incentives, community participation, and adaptive enforcement (Georghiou et al., 2020).

Given Indonesia's ranking as the second-largest contributor to marine plastic waste globally, addressing plastic bag use is a critical component of broader marine and environmental protection efforts (Jambeck et al., 2015). Although smaller in scale, Barru Regency mirrors this national urgency. This research explores two key dimensions: how communities and businesses in Barru perceive and implement plastic bag reduction, and how local government supports these efforts toward achieving SDG Goals 12 (Responsible Consumption and Production) and 13 (Climate Action). The study employs qualitative methods, including interviews, observation, and documentation analysis, to capture nuanced stakeholder perspectives.

RESEARCH METHOD

This study employs a descriptive qualitative approach to explore in depth the perceptions, attitudes, and practices of community members and business actors regarding the implementation of plastic bag reduction policies in Barru Regency, Indonesia. A qualitative method is considered appropriate as it enables a comprehensive understanding of subjective meanings, social contexts, and the interactions between policy actors and the community—elements that are often not adequately captured through quantitative approaches (Creswell & Poth, 2018).

➤ Research Location and Duration

The research was conducted in Barru Regency, South Sulawesi, selected due to its active involvement in plastic bag reduction initiatives. Data collection was focused on retail centers, traditional markets, and residential areas. The research was carried out over a three-month period, from April to June 2025.

➤ Research Subjects

The study involved three main groups of participants:

1. Community members (as users of plastic bags),
2. Business actors (retailers and traditional market vendors),
3. Local government officials (particularly those from environmental and policy enforcement agencies).

A purposive sampling technique was used to select informants who were directly involved in or knowledgeable about the issue. A total of 15 informants were interviewed, including 6 business actors, 6 residents from three different sub-districts, and 3 local government officials.

➤ Data Collection Techniques

Data were collected using the following methods:

1. In-depth interviews, guided by a semi-structured protocol to explore participants' insights, behaviors, and challenges.

2. Participant observation in markets and retail outlets to document actual plastic bag usage practices.
3. Document analysis, which included reviewing local policies, environmental reports, and public awareness campaign materials produced by the government and NGOs.

➤ **Data Analysis Techniques**

Data analysis was conducted using the interactive model of Miles, Huberman, and Saldaña (2014), which consists of three main stages:

1. Data reduction: selecting, summarizing, and organizing relevant information obtained from interviews, observations, and documents.
2. Data display: presenting data in the form of narrative descriptions, thematic matrices, and selected quotations to highlight emerging patterns.
3. Conclusion drawing and verification: performed iteratively to ensure the validity and reliability of the findings.

➤ **Data Validation**

To ensure the credibility of the data, the following validation strategies were applied:

1. Source triangulation, by comparing data obtained from different categories of informants (community members, business actors, and government officials),
2. Method triangulation, by employing multiple methods such as interviews, observations, and document analysis,
3. Member checking, by returning preliminary findings to selected participants for feedback and confirmation to minimize researcher bias.

➤ **Research Ethics**

The study strictly adhered to ethical research standards. Informed consent was obtained from all participants after the objectives and potential benefits of the research were clearly explained. Participants' identities were kept confidential, and their participation was entirely voluntary, with the option to withdraw at any point without consequence.

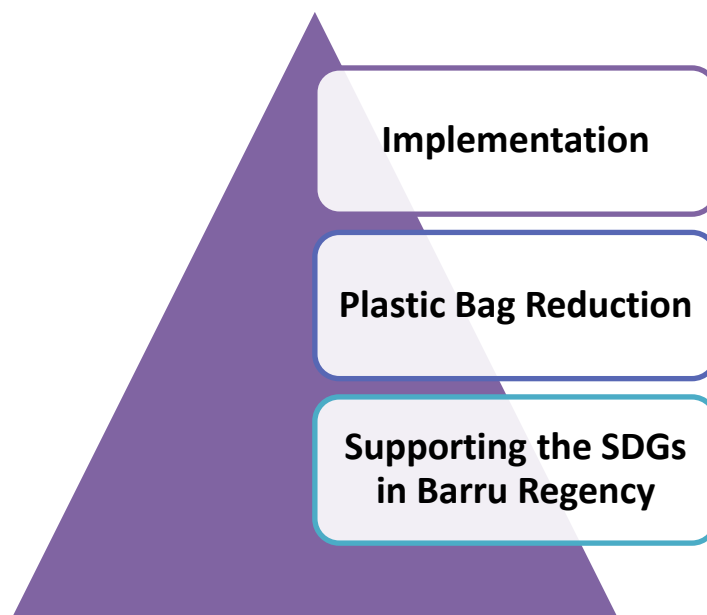


Figure 2.
Thinking Framework Diagram

RESULT AND DISCUSSION

Research Results

The findings of this study highlight that the implementation of plastic bag reduction policies in Barru Regency plays a significant role in supporting the achievement of the Sustainable Development Goals (SDGs), particularly Goal 12 (Responsible Consumption and Production) and Goal 13 (Climate Action). Public awareness regarding the dangers of plastic waste is gradually increasing; however, consistent behavioral change remains a challenge.

The local government has issued various policies, including circular letters and awareness campaigns in schools, markets, and government offices. A key informant from the Department of Environment (H.A.) stated that efforts include banning single-use plastic bottles in offices and providing water dispensers as alternatives to model sustainable behavior. Additionally, plastic waste is collected from schools and markets and transported for centralized processing. The plastic is shredded and destroyed. Another informant from the Waste Management Division (A.M.) explained that some citizens and businesses sell plastic waste to collectors for profit, highlighting the economic aspect of plastic recycling.

These actions show that the size and goals of the policy have been adjusted to local conditions. Dissemination of information and organized collection are strategic approaches to encourage direct community involvement. Nevertheless, the policy's effectiveness remains limited due to uneven

awareness. Resources are a crucial factor in policy implementation. Human resources include the active involvement of the government, business actors, the community, and sanitation workers. According to H.A., while personnel are available, there remains a lack of awareness, as evidenced by plastic waste littered in markets and public spaces.

Financial resources also play a vital role. The government provides waste collection vehicles and shredding machines. A.M. explained that trucks operate twice weekly, and village governments are engaged to encourage citizens to reduce plastic usage. However, limitations in funding and dependence on local initiatives have led to varying effectiveness between regions. Some villages demonstrate better outcomes due to proactive village leadership and high community participation.

The characteristics of policy implementing agents are also influential. H.A. noted that despite collaboration among agencies, there are obstacles due to the lack of awareness among street vendors, who continue to use plastic bags extensively. Differing levels of understanding and commitment among business actors affect the policy's success. Modern retail businesses adapt more quickly due to regulatory pressures, while traditional markets face challenges due to limited access to information and eco-friendly packaging.

Nonetheless, some business actors have begun promoting reusable bags and refusing to provide plastic bags. This reflects positive change, though not yet widespread. Policy enforcement remains weak. Most actions taken are educational and persuasive rather than regulatory or punitive, limiting their long-term impact. Community groups have also initiated local movements, including environmental education, recycling competitions, and the promotion of cloth bags to reduce reliance on plastic.

The greatest challenge lies in sustaining behavioral change. While many people express willingness to reduce plastic bag usage, convenience and lack of alternatives hinder actual practice. Economic considerations also influence the policy's implementation. For small businesses, plastic bags remain the cheapest and most practical packaging option. The local government offers training and limited subsidies for micro-enterprises to adopt alternative packaging. However, these programs are not yet widely available.

Schools have also been included in long-term strategies, with pilot programs banning plastic bags and single-use bottles, serving as role models for other institutions. Interview data also shows that household-level waste sorting is minimal. Most residents do not separate organic and non-organic waste, complicating recycling efforts. Incentive systems are needed to encourage

households to sort waste, such as fee reductions or exchange programs involving basic goods.

The Environmental Agency emphasized the importance of involving local media and community leaders in spreading awareness campaigns for broader reach and impact. Private sector initiatives, such as offering discounts to customers who bring their own bags, serve as best practices that should be replicated across the region. Policy implementation has fostered a growing awareness that collaboration between government, businesses, and communities is crucial to reducing plastic waste.

However, long-term success depends on continuous monitoring, sustained education, and sufficient waste management infrastructure. The local government must strengthen cross-sectoral collaboration and clarify the legal authority of the policy to ensure stronger enforcement and accountability. Thus, the plastic bag reduction initiative in Barru is not only an environmental responsibility but also a concrete commitment to achieving the SDGs in an inclusive and sustainable manner.

The implementation of the plastic bag reduction policy has also opened up discussions on innovation in sustainable packaging. Small enterprises in Barru have begun experimenting with banana leaves, woven palm packaging, and biodegradable containers as alternatives. These practices are promising but face challenges in scalability and cost-efficiency, requiring governmental support to expand production and accessibility. Public-private partnerships are a potential solution to bridge these gaps. Collaborations between local governments, environmental NGOs, and businesses could accelerate the distribution of eco-friendly alternatives. For instance, pilot projects involving supermarkets and producers of reusable bags could serve as models for replication in other regencies.

Policy diffusion is another aspect worth noting. The experiences in Barru could inform neighboring districts and even serve as a reference at the provincial level. Sharing best practices, challenges, and solutions could lead to a broader regional framework for plastic waste management aligned with national SDG targets. The role of digital tools in supporting environmental policy has yet to be fully harnessed. Mobile applications for waste reporting, digital reward systems for recycling, and virtual education campaigns could increase engagement, especially among tech-savvy youth and urban residents. This digital approach could complement traditional outreach methods.

Feedback mechanisms between policymakers and the public are essential for continuous improvement. Establishing regular community forums, feedback surveys, or hotline services would ensure that citizens can express their

concerns and suggestions. This would enhance transparency and responsiveness, key components of good environmental governance. Environmental education in schools should be institutionalized through formal curriculum integration. Rather than relying solely on extracurricular activities, plastic waste reduction topics should be taught in science, civics, and social studies. Educators must be trained and resourced accordingly to deliver effective environmental instruction.

The influence of tourism in the region also presents both opportunities and challenges. On one hand, tourist influx can increase plastic waste, especially in coastal and market areas. On the other, it provides an avenue to promote Barru as an eco-conscious destination, integrating environmental messages into tourism experiences. In the long term, the success of the plastic bag reduction policy depends on building an environmental culture. This means embedding sustainability principles into daily life—how people shop, cook, clean, and dispose of waste. Achieving this requires long-term commitment, systemic education, and inclusive participation across all segments of society.

Discussion

The research findings clearly demonstrate the complexity and multidimensional nature of implementing plastic bag reduction policies in Barru Regency. This initiative is not only a response to environmental degradation but also a strategic contribution to the SDGs, particularly Goal 12 and Goal 13. The interplay between policy design, stakeholder involvement, and public awareness is central to the program's success.

From the findings, it is evident that while awareness is increasing, behavior change has not kept pace. This gap can be attributed to several factors, including habit, convenience, and lack of alternatives. As seen in many environmental initiatives, policy enforcement and sustained education are necessary to transform knowledge into consistent practice. The role of social norms and habitual behaviors requires targeted behavioral change strategies.

Stakeholder engagement remains both a strength and a challenge. Government agencies, businesses, and civil society groups are all involved, yet their levels of commitment and resources vary. This indicates the need for a more integrated, multi-stakeholder approach with clear responsibilities, communication channels, and shared incentives to strengthen cooperation across sectors. The economic dimension also plays a significant role. For businesses, particularly small-scale vendors, the transition to eco-friendly alternatives entails additional costs and logistical challenges. This underscores the importance of financial support mechanisms such as subsidies, tax

incentives, and training to ease the burden on micro and small enterprises and promote sustainable practices.

The study highlights that local initiatives, especially those involving youth, women, and educators, offer scalable models for broader societal transformation. Youth engagement through digital tools and community activism shows promise in building long-term environmental stewardship. These grassroots movements should be institutionalized and linked to formal policy structures. Furthermore, innovation in packaging and waste processing must be supported through research and development. Partnerships with universities, local entrepreneurs, and environmental NGOs can stimulate the production of locally sourced, biodegradable alternatives. Such innovations will not only reduce environmental impact but also create economic opportunities.

Finally, governance and accountability mechanisms are essential to ensure the effectiveness of plastic reduction policies. Transparent monitoring systems, regular evaluations, and community feedback loops are necessary for adaptive policymaking. Without such structures, policies risk remaining symbolic without achieving real environmental or developmental outcomes. In conclusion, the policy to reduce plastic bag usage in Barru Regency represents a significant step towards sustainable development. However, to maximize its impact, efforts must be intensified through coordinated action, sustained education, financial innovation, and participatory governance. This holistic approach is vital to embedding sustainability into the social fabric and achieving long-lasting environmental change.

CONCLUSION

This study concludes that the implementation of plastic bag reduction policies in Barru Regency has contributed positively to the achievement of Sustainable Development Goals (SDGs), particularly Goal 12 on responsible consumption and production and Goal 13 on climate action. Public awareness of the environmental impact of plastic bag usage is increasing, although this has not yet fully translated into consistent behavioral changes. Business actors demonstrate varying levels of support, depending on the type of business and their understanding of relevant regulations. The local government has issued supportive policies; however, challenges remain in terms of enforcement and public outreach. Collaboration among the government, business sectors, and communities is essential for fostering behavioral transformation and building a more environmentally sustainable society.

Recommendations

1. The local government is encouraged to enhance public education and outreach campaigns on the dangers of plastic bag usage and the importance of adopting environmentally friendly alternatives, utilizing diverse and effective communication channels. Regulatory enforcement should be strengthened through consistent monitoring and the imposition of clear sanctions to ensure compliance and create a deterrent effect.
2. Business actors should be incentivized to actively participate in reducing plastic usage, particularly through rewards or recognition for adopting sustainable practices and reducing single-use plastic in their operations. Cross-sector collaboration among government entities, private businesses, and local communities should be continuously facilitated to build collective awareness, reinforce joint action, and create an enabling environment for sustainable development at the regional level. Further research is recommended to explore the barriers and supporting factors in greater depth and to assess the long-term effectiveness of the policy implementation.

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