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The Effectiveness of Semarang City Government Policy in Waste Management at the Jatibarang Landfill

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ABSTRACT

The rapid growth of population and consumption activities in Semarang City has led to a significant increase in daily waste generation, contributing to severe pressure on the Jatibarang Final Disposal Site (TPA), which has exceeded its optimal capacity. Despite the existence of Local Regulation No. 6 of 2012 as a legal framework for waste management, its implementation remains suboptimal due to limited technical capacity, inadequate infrastructure, weak inter-sectoral coordination, and varied commitment among policy implementers. The research employs a qualitative normative-empirical approach to evaluate the effectiveness of waste management policies in Semarang, integrating field observations, in-depth interviews, and literature analysis. The findings indicate that waste handling at Jatibarang still relies heavily on controlled landfill and open dumping methods, resulting in environmental impacts such as leachate contamination, unpleasant odors, and increased methane emissions. Low public awareness and weak household-level waste sorting further hinder the implementation of the 3R principles (Reduce, Reuse, Recycle). However, government initiatives such as environmental education and the development of community-based waste banks have shown positive results, although they remain limited in scope and sustainability. This study concludes that improving waste governance in Semarang requires a comprehensive approach that integrates technical enhancement, strengthened institutional coordination, community participation, and economic incentives to support circular waste management. Such measures are expected to realize more effective, sustainable, and environmentally sound waste management practices in the future.

Keywords: *Semarang City; Waste Management; Public Policy Implementation; Jatibarang Landfill; 3R Principles; Environmental Governance.*

INTRODUCTION

The issue of waste management in Semarang City is becoming increasingly urgent as the population and consumption activities of the community grow. Daily waste production, which reaches around 1,110–1,200 tons, still relies entirely on the Jatibarang landfill as the final disposal point. However, its capacity has now exceeded normal levels, triggering various technical and ecological impacts. This condition is not only a matter of waste volume, but also waste management practices that still apply controlled landfill and open dumping methods, even though technically these methods do not comply with sanitary landfill standards as mandated in the national waste management policy. Overloading and inadequate handling have led to serious environmental problems such as leachate pollution, foul odors, and increased methane gas emissions, which have an impact on the health of the communities surrounding the landfill (Hottaruli & Kamal, 2025).

In terms of regulation, the Semarang City Government has issued Local Regulation No. 6 of 2012 concerning waste reduction and management as the basis for operational law.

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However, its implementation in the field has not been optimal due to a number of structural obstacles. Research shows that there is a lack of integration in cross-sectoral implementation, overlapping authorities, and weak coordination between agencies, resulting in inconsistent policy implementation across the city (Al Khumairoh, 2024). This fact shows that the existence of legal norms does not automatically result in real change if it is not supported by clear implementation mechanisms and adequate institutional commitment.

From the perspective of public policy implementation theory, these obstacles can be analyzed using the Edwards III and Van Meter & Van Horn models, which emphasize four main variables, namely communication, resources, implementer disposition, and bureaucratic structure (Edwards, 1980). First, inconsistent communication of policies from policymakers to implementers at the technical level has resulted in various waste management programs lacking uniform operational standards (Al Khumairoh, 2024). Policy instruments will not be effective if implementers do not have a similar understanding of the objectives and mechanisms for achieving them.

In addition, limited resources, including human, financial, facilities, and technology, pose a major obstacle that makes it difficult to achieve various policy targets. A limited fleet of garbage trucks, inadequate sorting facilities, and the lack of decentralized processing facilities in the sub-district have resulted in complete dependence on the Jatibarang landfill, which is already over capacity[2]. The disposition or attitude of implementers is also an important factor, because even though legal instruments are available, implementers who are not committed or who work routinely without innovation will cause policies to remain stagnant[3]. The fragmented and sectoral nature of the bureaucratic structure also slows down the integration of policy implementation, so that innovations that are successful in one region are not necessarily distributed widely to other regions (Al Khumairoh, 2024).

From a national normative perspective, Law No. 18 of 2008 on Waste Management establishes the 3R principle (Reduce, Reuse, Recycle) as the basis for a paradigm shift in waste management, from collection–transport–disposal to waste reduction at source. However, the implementation of 3R in Semarang City is still far from optimal due to the low level of waste sorting in households and the lack of public awareness about the importance of sorting at the source. When organic and inorganic waste are mixed, the processing becomes more expensive and difficult, thereby reducing the economic value of recycled waste and increasing the burden on landfills.

The issue of public awareness is also related to long-established social culture. The habit of littering, for example, in rivers or open areas, is still prevalent and poses a challenge in law enforcement. Administrative enforcement alone is not enough if it is not accompanied by guidance and a change in the mindset of the community, so that continuous environmental education must be carried out to change the culture of littering into a culture of waste management. Experience shows that the community is more likely to participate in waste management programs when there are direct economic and social benefits, such as additional income through waste banks or environmental composting programs.

The Semarang City Government has actually made various programmatic efforts such as educational campaigns, institutional guidance, and strengthening waste banks at the village level. The waste bank program has proven to increase community involvement in waste reduction, but its effectiveness is still hampered by limited facilities, varying levels of participation between regions, and weak access to the recycled product market, meaning that not all waste banks are able to operate sustainably. Without marketing support and capacity building for the recycling value chain, this program has the potential to remain at a symbolic level and fail to develop into an independent circular system.

Given the complexity of the waste issue, the solution required is not only focused on technical operations at the landfill but also on governance reforms that touch on institutional, social, and regulatory aspects. Technical capacity building, such as the transition from open dumping to sanitary landfills, the construction of decentralized processing facilities, and consistent budgetary support, must go hand in hand with strengthening inter-agency coordination and increasing accountability for the implementation of local regulations (Edwards, 1980). A participatory approach involving academics, recycling businesses, and community organizations is also needed so that waste management solutions do not depend solely on the government.

Academically, this research contributes to the development of studies on public policy implementation and environmental law by showing how variables such as communication, resources, implementer disposition, and bureaucratic structure influence the effectiveness of policy implementation. In practical terms, this study is expected to produce realistic and applicable policy recommendations, including intensifying waste sorting at source through incentive schemes, improving decentralized processing facilities, strengthening recycling market partnerships, and increasing community environmental literacy.

Thus, improving waste management in Semarang City requires an integrated and sustainable approach so that the policies contained in Local Regulation No. 6 of 2012 can be implemented in practice (Al Khumairoh, 2024). Without harmonization between technical capabilities, resource availability, responsive institutional structures, and a paradigm shift in the community's attitude towards waste, reducing the burden on the Jatibarang landfill will be difficult to achieve even though comprehensive regulations have been formulated (Hottaruli & Kamal, 2025; Al Khumairoh, 2024). Further research testing concrete interventions in the field is needed to formulate a more effective and sustainable roadmap for waste management in the city of Semarang.

METHOD

The issue of waste management in Semarang City is becoming increasingly urgent as the population and consumption activities of the community grow. Daily waste production, which reaches around 1,110–1,200 tons, still relies entirely on the Jatibarang landfill as the final disposal point. However, its capacity has now exceeded normal levels, triggering various technical and ecological impacts (Hottaruli & Kamal, 2025). This condition is not only a matter of waste volume, but also waste management practices that still apply controlled landfill and open dumping methods, even though technically these methods do not comply with sanitary landfill standards as mandated in the national waste management policy. Overloading and inadequate handling have led to serious environmental problems such as leachate pollution, foul odors, and increased methane gas emissions, which have an impact on the health of the communities surrounding the landfill (Hottaruli & Kamal, 2025).

In terms of regulation, the Semarang City Government has issued Local Regulation No. 6 of 2012 concerning waste reduction and management as the basis for operational law. However, its implementation in the field has not been optimal due to a number of structural obstacles (Mustafia & Sukmana, 2024). Research shows that there is a lack of integration in cross-sectoral implementation, overlapping authorities, and weak coordination between agencies, resulting in inconsistent policy implementation across the city (Al Khumairoh, 2024). This fact shows that the existence of legal norms does not automatically result in real change if it is not supported by clear implementation mechanisms and adequate institutional commitment.

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bureaucratic structure (Edwards, 1980). First, inconsistent communication of policies from policymakers to implementers at the technical level has resulted in various waste management programs lacking uniform operational standards (Al Khumairoh, 2024). Policy instruments will not be effective if implementers do not have a similar understanding of the objectives and mechanisms for achieving them.

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RESULTS AND DISCUSSION

The results of the study show that the main problem with waste management in Semarang City is still the imbalance between the daily volume of waste and the available processing capacity, especially at the Jatibarang landfill, which has exceeded its ideal capacity (Hottaruli & Kamal, 2025). This condition shows that existing policies have not been fully translated into systematic waste reduction strategies at the city level.

Field observations also show that landfill management practices are still far from sanitary landfill standards because some processes still rely on controlled landfills and open dumping, which increase the risk of leachate and methane gas polluting the surrounding environment. Thus, technical aspects are not only a managerial issue, but also have a direct impact on public health and quality of life in the surrounding area.

Normatively, Local Regulation No. 6 of 2012 has provided a legal framework for regional waste management, but its implementation is still inconsistent due to limited harmonization and coordination between agencies (Hottaruli & Kamal, 2025). The gap between norms and implementation prevents policy objectives from being fully achieved.

When analyzed through the lens of Edwards III's policy implementation theory, the first obstacle arises from ineffective communication between policymakers and technical implementers, resulting in uneven application of performance standards (Edwards, 1980). This shows that information gaps have a knock-on effect on the quality of program implementation.

In addition, resource constraints are also a real obstacle, particularly in terms of the availability of transport fleets, sorting facilities, and investment in regional-based processing infrastructure, which is still minimal. When supporting facilities are insufficient, policy implementation will certainly not be able to produce maximum results.

Meanwhile, the attitudes or dispositions of implementers also show variation, with some officials demonstrating initiative and creativity, while others still think administratively and procedurally without encouraging implementative breakthroughs (Hottaruli & Kamal, 2025). Differences in the characters of implementers show that policy implementation is greatly influenced by individual and institutional values and preferences (Prastya et al., 2024).

An analysis of the bureaucratic structure shows that sectoral patterns still hinder cross-agency policy integration, meaning that innovations that are successful in one area cannot necessarily be replicated in other locations (Mustafia & Sukmana, 2024). This shows that

the success of implementation is greatly influenced by coordination patterns and the distribution of authority.

The application of the 3R principle (Reduce, Reuse, Recycle) as mandated by Law No. 18 of 2008 has also not been optimal because the majority of waste is still not sorted at the source, causing a drastic decline in processing efficiency (Law No. 18 of 2008). When sorting fails at the outset, efforts to reduce waste at the source become difficult to achieve.

The low level of public compliance is also due to unsupportive social behavior, marked by the continued practice of littering and resistance to new policies. Enforcement of local regulations without changing social values only results in temporary compliance (Purnamasari & Sitogasa, 2024).

On the other hand, the education and guidance programs implemented by the government have proven to have a positive impact, especially through the existence of waste banks as a model of independent community participation. Waste banks have economic and social potential if developed through adequate institutional support.

However, waste banks still face obstacles in marketing recycled products due to supply chain instability and unpredictable material price fluctuations. Without market guarantees or economic policy interventions, it is difficult for waste banks to develop into sustainable business units.

There are also local innovations such as recycling and communal composting training that are developing at the village level, but they are still isolated in nature so that their impact has not yet reached the city level (Field Observations 2024–2025). If strengthened with replication programs and special financing, these innovations have the potential to become standard practices in urban waste management (Sembiring et al., 2024).

Data triangulation through observation, interviews, and documents reinforces the finding that the four key elements of communication, resources, implementer attitudes, and bureaucratic structure interact and influence each other, so that one weakness can exacerbate the others (Edwards III, Public Policy Implementation). This cycle is the main cause of suboptimal implementation of regional policies (Ramdani et al., 2025).

Given these conditions, the technical transformation of waste management towards sanitary landfills or decentralized processing models is an urgent strategic choice, considering that the Jatibarang landfill has reached an unsustainable ecological load (Hottaruli & Kamal, 2025). Long-term investment is urgently needed so that waste management does not rely solely on landfills as the final destination.

Ultimately, effective waste management must be multidimensional, combining technical, institutional, behavioral change, and market intervention aspects so that Local Regulation No. 6 of 2012 does not merely become a formal document but a policy that results in sustainable and equitable urban waste management for the community (Mustafia & Sukmana, 2024).

CONCLUSION

Waste management in Semarang City still faces major challenges despite having a legal basis through Local Regulation No. 6 of 2012. The main problem lies in the imbalance between the increasing amount of waste and the available processing capacity, especially at the Jatibarang landfill, which has exceeded its ideal capacity. This condition is exacerbated by waste management methods that still rely on controlled landfills and open dumping, causing environmental impacts such as leachate pollution, odors, and increased emissions of hazardous gases. From a policy implementation perspective, obstacles arise in several important aspects, namely inconsistent policy communication, limited technical and operational resources, differences in the commitment and attitudes of implementers, and a bureaucratic structure that is still sectoral and lacks integration. These factors have prevented

the optimal implementation of policies in the field. On the community side, the low culture of waste sorting and the habit of littering also contribute to the obstacles. This shows that the issue of waste management is not only technical, but also touches on aspects of public awareness, social behavior, and legal compliance. However, the government's efforts through education, waste banks, and community involvement have begun to show positive results, although they are still limited in scale and have not been standardized throughout the city. Therefore, sustainable waste management in Semarang must be carried out through a comprehensive approach by increasing technical processing capacity, strengthening cross-sector coordination, expanding community participation, and developing incentive mechanisms so that the 3R system can be implemented from upstream to downstream. If these steps are implemented simultaneously and consistently, waste management in Semarang City can develop more effectively, sustainably, and provide tangible benefits for improving environmental quality and community welfare.

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