

The Implementation of Municipal Waste Management Policy in Bandung City

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Abstract: This research is motivated by the increasing production of waste in Bandung City but is not balanced with optimal waste management, based on the background of the research, the researcher identified the problem, namely: How is the implementation of waste management policies in Bandung City. The researcher's goal is to find out and analyze in depth the implementation of waste management policies in Bandung City. The theory used in this study is the Policy Implementation Theory put forward by Charle O. Jones which includes Organization, Interpretation, and Application. Based on the theoretical approach, the researcher formulated the proposition that the implementation of waste management policies in Bandung City will run optimally if the Organization, Interpretation and Application factors are implemented. The method used in this study is the Qualitative Method with a descriptive approach. The data collection techniques in this study were through Observation, Interviews and Documentation. Based on the results of the study, it can be concluded that the Implementation of Waste Management Policies in Bandung City based on Bandung City Regional Regulation number 9 of 2018 concerning waste management has not run optimally, there are still inhibiting factors including lack of external facilities and infrastructure, lack of coordination with various parties, lack of socialization, and lack of assertiveness in enforcing regulations. Efforts that must be made by the Bandung City and Regional Environmental and Sanitation Service are by improving facilities and infrastructure in the region, improving coordination with various parties, conducting routine socialization with the community directly, and increasing firmness in enforcing regulations.

Keyword: *Implementation policy; Waste Management; Regional Government.*

INTRODUCTION

Waste has become one of the most pressing environmental issues in urban Indonesia, particularly in Bandung City. Despite various efforts, the problem remains unresolved and requires serious attention. Addressing waste management cannot rely solely on government intervention; it demands collaborative efforts between the government and the community. Public awareness and understanding of both the benefits and dangers of waste are crucial, as society itself is a major contributor to waste generation. Therefore, community consciousness is essential to solving the waste crisis, especially considering that the impacts of poor waste management are not only local but also national and global in scope. Improperly managed waste can contaminate clean water, pollute the air, degrade fertile soil, and ultimately affect public health and environmental balance. Moreover, accumulated waste can obstruct drainage systems, leading to urban flooding. According to Rahmasary et al. (2021), Bandung faces significant governance challenges in managing water and waste, with poor waste collection and treatment systems contributing to large-scale pollution. In response to the growing waste problem, the Indonesian government enacted Law No. 18 of 2008 on Waste Management, which defines waste management as a systematic, comprehensive, and sustainable activity encompassing both waste reduction and handling. The law mandates that waste management

must be carried out from upstream to downstream, involving central and regional governments, as well as public and private stakeholders. However, enforcement of this law often faces obstacles, including limited infrastructure and low public compliance.

Bandung City exemplifies the challenges of urban waste management. Between 2021 and 2022, the city generated over 1,500 tons of waste per day, with 80% of it transported to the Sarimukti landfill, which has now exceeded its capacity. The landfill crisis escalated in May 2023, when Sarimukti was declared in a state of emergency due to overcapacity and a major fire incident. The situation highlights the urgent need for alternative waste processing facilities and improved waste reduction strategies. To address these issues, the Bandung City Government enacted Regional Regulation No. 9 of 2018 on Waste Management. This regulation emphasizes the importance of public participation in waste sorting and management, especially at the household level. It promotes programs such as Kang Pisman (Reduce, Reuse, Recycle), aiming to instill sustainable waste practices as part of daily life. However, studies show that while the regulation has been implemented, its effectiveness is limited due to low public awareness and inadequate infrastructure.

Community participation is a cornerstone of successful waste management. Valentina et al. (2025) argue that collaborative governance, which involves government, civil society, and private actors, is essential for mobilizing local communities and enhancing policy effectiveness. Initiatives such as waste banks and educational programs have shown promise in increasing public engagement and reducing waste volumes. Despite these efforts, Bandung still struggles with fragmented policy implementation and insufficient coordination among stakeholders. A study by Maskun et al. (2023) recommends the establishment of a National Regional Harmonization Council to improve vertical coordination and policy coherence between national and local regulations.

Table.1 Waste Production in Bandung City (2021–2023)

| Type of Garbage | 2021 | 2022 | 2023 |
|-----------------------|---------|---------|---------|
| Food Waste and Leaves | 736.76 | 709.73 | 716.53 |
| Wood and Twigs | 65.88 | 63.45 | 64.07 |
| Papper | 217.17 | 209.16 | 211.2 |
| Plastics | 276.43 | 266.23 | 268.83 |
| Metal | 14.9 | 14.35 | 14.49 |
| Fabric | 78.63 | 75.72 | 76.46 |
| Rubber and Leather | 39.4 | 37.94 | 38.31 |
| Hazard Waste | 30.13 | 29.01 | 92.56 |
| Other | 195.98 | 188.59 | 127.33 |
| Garbage Totals | 1529.04 | 1594.04 | 1609.76 |

Source: Dinas Lingkungan Hidup dan Kebersihan Kota Bandung, 2023

According to data from the Dinas Lingkungan Hidup dan Kebersihan Kota Bandung (DLHK), the volume of waste production in Bandung has shown a consistent upward trend over the past three years. In 2021, the city generated approximately 1,529.04 tons of waste per day, which increased to 1,594.18 tons/day in 2022, and further rose to 1,609.76 tons/day in 2023. This increase spans nearly all waste categories, with food and leaf waste remaining the most dominant types. The persistent growth in organic waste highlights a critical challenge in Bandung's waste management system, particularly in handling biodegradable materials. The environmental and social implications of this trend are significant, ranging from pollution and public health risks to urban flooding caused by clogged drainage systems. Addressing this issue requires a comprehensive and collaborative effort involving both government institutions and the community. Public awareness and behavioral change are essential to achieving a clean and healthy urban environment.

Observations indicate that waste management in Bandung is not yet optimal. The rising volume of waste has not been matched by improvements in infrastructure, human resources, or policy enforcement. Several indicators reflect this gap: (1) inadequate staffing and facilities for waste handling, coupled with weak inter-agency collaboration; (2) insufficient dissemination of waste management policies and lack of strict enforcement, as evidenced by continued violations and poor waste sorting practices; and (3) limited monitoring and evaluation, with some districts failing to report their activities. These challenges suggest that the implementation of waste management policies in Bandung requires a more structured and strategic approach.

Applying Charles O. Jones' theory of policy implementation which includes organization, interpretation, and application provides a useful framework for analyzing Bandung's situation. Organizationally, the city lacks sufficient resources and coordination mechanisms. In terms of interpretation, the translation of policy into actionable programs is hindered by poor communication and public understanding. Finally, the application of waste management practices remains inconsistent across different areas. To overcome these issues, Bandung must strengthen institutional capacity, improve public outreach, and ensure consistent policy enforcement. Only through a holistic and participatory approach can the city effectively manage its waste and enhance its environmental sustainability.

RESEARCH METHOD

The research method employed in this study is descriptive with a qualitative approach. Data collection was conducted through interviews, observations, and documentation. According to Creswell (2014), qualitative research is a method used to explore and understand the meaning individuals or groups ascribe to a social or human problem. This approach allows researchers to gain in-depth insights into the implementation of waste management policies by engaging with credible sources and exploring the phenomenon in its natural context. Through qualitative inquiry, the researcher is able to respond to and interpret the complexities of the issue, providing a nuanced understanding of the challenges and dynamics involved.

The use of a qualitative approach in this study is particularly relevant given the multifaceted nature of waste management in urban settings like Bandung. As noted by Merriam & Tisdell (2016), qualitative research is well-suited for examining processes, meanings, and perspectives that are not easily quantifiable, especially in policy implementation studies. In this research employing this method, the researcher aims to produce a clear and factual description of the data and information required, ensuring that the findings reflect actual conditions rather than speculative assumptions (Sugiyono, 2018).

Furthermore, qualitative research enables the identification of gaps between policy formulation and execution, particularly in areas such as organizational capacity, public interpretation of regulations, and the practical application of waste management programs. This aligns with the policy implementation framework proposed by Charles O. Jones, which emphasizes three key dimensions: organization, interpretation, and application. These components serve as analytical tools to assess how well the waste management policy in Bandung has been translated into practice, and to what extent it addresses the growing environmental concerns in the city.

RESULT AND DISCUSSION

The researcher will present and analyze data obtained from the Bandung City Environmental and Sanitation Agency (DLHK), using a descriptive method with a qualitative approach. Data collection techniques include observation and interviews with informants directly involved in the implementation of waste management policies in Bandung City. The theoretical framework applied in this study is

Charles O. Jones' policy implementation theory, which consists of three key components: organization, interpretation, and application (Jones, 1996:296). This framework provides a structured lens through which the researcher can assess how waste management policies are translated into practice at the local level.

As Creswell (2014) explains, qualitative research is a method for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. Through this approach, the researcher is able to obtain rich, contextual data from credible sources, allowing for a deeper understanding of the phenomenon under investigation. The qualitative method also enables the researcher to respond to and interpret the complexities of waste management implementation, ensuring that the findings are grounded in actual conditions rather than speculative assumptions for the information.

The researcher will provide a detailed description of the findings, both from direct observations and interviews with key stakeholders who possess expertise in the field. The Bandung City Environmental and Sanitation Agency plays a crucial role in waste reduction and handling efforts, contributing to a cleaner urban environment and fostering public compliance with regulations. Their initiatives also aim to raise community awareness regarding the importance of proper waste management.

Bandung City comprises 30 districts, of which two Panyileukan and Bandung Kidul have demonstrated full compliance with waste management practices. For the purpose of this study, the researcher focuses on Bandung Kidul District, which has achieved 100% status as a waste-free zone, and Bojongloa Kaler District, which represents areas with the lowest levels of waste sorting and management. This comparative analysis allows the researcher to examine the varying degrees of policy implementation and identify factors that contribute to success or hinder progress in different urban contexts.

Policy Implementation of Waste Management In Bandung City: Organizational Dimension

According to Charles O. Jones (1996), the organizational dimension is a critical component in the implementation of public policy. He emphasizes that organization refers to the structuring of resources, units, and methods to ensure that a program can be effectively executed. In the context of waste management in Bandung City, this dimension plays a pivotal role in determining the success or failure of policy implementation.

Table 2. Data on the Ideal and Actual Amount of Waste Management Resources in Bandung City

| Category | Ideal Value | Actual Value |
|----------------------|-----------------|-----------------|
| Filed Officer | 302 / 151 | 60/ 30 |
| Operational Personel | 3000/ 2.591,763 | 1500/ 2.591,763 |
| Vichicles Units | 1600 / 2591,763 | 750/ 2.591,763 |

Sourcer: Dinas Lingkungan Hidup dan Kebersihan Bandung, 2023)

Based on data from the Dinas Lingkungan Hidup dan Kebersihan (DLHK), there is a significant gap between the ideal and actual availability of resources required for effective waste management. As shown in Table 2, the city ideally requires 302 field officers to cover 151 urban villages (kelurahan), yet only 60 officers are currently deployed across 30 sub-districts. Similarly, the number of operational personnel needed is approximately 3,000 to serve a population of 2.59 million, but only 1,500 are available. The vehicle fleet also falls short, with only 750 units available out of the 1,600 units ideally required.

The significant disparity in resource allocation critically undermines both the operational reach and the overall effectiveness of waste management services across Bandung City. Field officers tasked with the dual responsibility of educating residents and facilitating community-based waste sorting and reduction initiatives—are insufficiently distributed, rendering them incapable of providing consistent coverage across all urban districts. Consequently, numerous neighborhoods experience a lack of sustained engagement and institutional support, which in turn contributes to diminished public awareness, limited behavioral change, and low levels of community participation in waste management practices, thereby perpetuating systemic inefficiencies and environmental risks.

Interviews and field observations conducted during this study reveal that organizational capacity is a key determinant of policy success. Without sufficient human resources and infrastructure, policy implementers must rely on community structures such as neighborhood associations to disseminate information and encourage behavioral change. However, this informal collaboration is often inconsistent and lacks formal support mechanisms. In many cases, education and outreach are conducted sporadically or through word-of-mouth, resulting in limited public understanding of waste sorting and processing techniques.

The lack of routine and structured engagement between stakeholders and the community further exacerbates the problem. As Montjoy and O'Toole (1979) argue, intra-organizational implementation problems often arise when new mandates are introduced without adequate resources or clear coordination mechanisms. In Bandung, the absence of a robust organizational framework and the shortage of vehicles and personnel hinder the city's ability to meet its waste management goals. Therefore, the organizational dimension of policy implementation in Bandung requires urgent attention. Strengthening institutional capacity, formalizing community partnerships, and ensuring adequate resource allocation are essential steps toward achieving effective and sustainable waste management. Without these improvements, the gap between policy intent and practical outcomes will persist, undermining public trust and environmental quality.

Policy Implementation of Waste Management in Bandung City: Interpretation Dimension

Charles O. Jones (1996) emphasizes that the interpretation dimension in policy implementation involves translating general and abstract policies into concrete and actionable steps. This process ensures that the policy is not only understood but also effectively executed by all relevant stakeholders. Interpretation is crucial in bridging the gap between policy formulation and practical implementation, particularly in complex areas such as urban waste management.

Based on interviews and field observations conducted during this study, it was found that while most organizational actors involved in waste management in Bandung have a clear understanding of their roles and responsibilities, many members of the public still lack sufficient awareness and comprehension of their duties in supporting waste management efforts. This discrepancy highlights the need for continuous and structured socialization of waste management policies to the community.

As Sabatier and Mazmanian (1980) argue, successful policy implementation requires that target groups understand and accept the goals and procedures of the policy. In Bandung, however, the lack of regular and direct engagement between stakeholders and the community has resulted in limited public compliance. Although some residents are aware of the importance of waste sorting and reduction, the absence of consistent education and outreach has led to weak enforcement and frequent violations of waste-related regulations.

Moreover, the failure to impose clear social sanctions for non-compliance further undermines the effectiveness of the policy. As noted by Grindle (1980), policy implementation is influenced not only by administrative capacity but also by the clarity of policy objectives and the commitment of implementers to enforce them. In Bandung, the lack of assertiveness in applying sanctions and the

informal nature of communication often relying on word of mouth have contributed to a fragmented understanding of waste management responsibilities among citizens.

Therefore, the interpretation dimension of waste management policy in Bandung requires significant improvement. Stakeholders must prioritize routine and inclusive socialization efforts, ensuring that all community members are informed and engaged. This includes organizing regular meetings with neighborhood leaders, conducting direct educational campaigns, and fostering stronger relationships between policy implementers and the public. Only through such efforts can the policy be internalized by the community and translated into sustainable waste management practices.

Policy Implementation of Waste Management in Bandung City: Application Dimension

Charles O. Jones (1996) defines application in policy implementation as the stage where routine activities such as service delivery, payments, or other operational functions are carried out consistently to ensure that policy objectives are achieved. In the context of waste management in Bandung City, the application dimension reflects how well the policy is translated into daily practices by all stakeholders, including government agencies, operational staff, and the community.

Actual data the performance of Bandung's waste management from 2022 to 2023. In 2022, the city generated 581,876.52 tons of waste, with 93,497.38 tons reduced and 469,653.69 tons handled, resulting in only 3.22% of unmanaged waste. However, in 2023 although total waste generation fluctuated, the percentage of unmanaged waste increased significantly to 14% in 2023 indicating a decline in the effectiveness of waste handling efforts.

Field observations and interviews conducted during this study reveal that policy application in Bandung is not yet optimal. Many policy implementers do not fully carry out their responsibilities, and community compliance remains low. This gap between policy and practice undermines the overall effectiveness of waste management. As highlighted by Rahmasary et al. (2021), inadequate monitoring and weak coordination among stakeholders are major governance challenges in Bandung's environmental management.

Effective application requires that all parties involved adhere to their roles in both waste reduction and handling. The community, as the primary recipient of the policy, must actively participate in sorting and processing waste. However, the lack of consistent education and outreach has led to limited public understanding and engagement. Programs such as Kang Pisman (Reduce, Reuse, Recycle) have been introduced to promote behavioral change, but their impact is constrained by insufficient follow-up and evaluation.

To ensure successful application, monitoring and evaluation mechanisms must be strengthened. These tools are essential for assessing whether the policy is being implemented effectively and whether it is producing tangible environmental and social benefits. As noted by Christiady et al. (2021), performance measurement using dynamic systems and zero waste indices can help identify priority areas and guide strategic improvements.

In conclusion, the application dimension of waste management policy in Bandung requires more than just operational execution it demands continuous evaluation, stakeholder accountability, and community empowerment. Without these elements, the policy risks becoming symbolic rather than transformative, failing to address the city's growing waste crisis.

Academic Discussion: Implementation of Waste Management Policy in Bandung City

The increasing volume of municipal waste in Bandung City, reaching over 1,600 tons per day by 2023, underscores the urgency of effective waste management strategies. Despite the enactment of Regional Regulation No. 9 of 2018, the implementation remains suboptimal due to organizational, interpretative, and application-related challenges.

The organizational capacity of Bandung's waste management system is critically under-resourced. As shown in Table 2 of the journal, the number of field officers, operational personnel, and vehicles falls significantly short of the ideal requirements. This gap hampers service delivery and community outreach, leading to low public engagement in waste sorting and reduction. This finding aligns with Arisman & Fatimah (2023), who emphasize that successful waste management in Indonesia requires robust institutional support and the adoption of circular economy principles. The lack of adequate infrastructure and human resources in Bandung reflects broader national challenges in transitioning to sustainable urban waste systems.

The interpretation of waste management policy in Bandung suffers from limited public understanding and weak communication strategies. Although stakeholders are aware of their roles, the community lacks clarity on their responsibilities, resulting in poor compliance and ineffective waste sorting practices. Sabatier and Mazmanian's framework (1980), cited in the journal, remains relevant, but recent studies suggest that inclusive and adaptive governance models are essential. Schraven et al. (2023) argue that cities must integrate community participation and clear policy messaging to ensure successful implementation. In Bandung, the absence of structured socialization and enforcement mechanisms has led to fragmented policy interpretation.

The application of waste management practices in Bandung is inconsistent. The percentage of unmanaged waste rose from 3.22% in 2022 to 14% in 2023, indicating a decline in operational effectiveness. Programs like Kang Pisman (Reduce, Reuse, Recycle) have been introduced but lack sustained follow-up and evaluation. Christiady et al. (2021) recommend dynamic performance measurement systems and zero-waste indices to monitor progress. Without such tools, Bandung's waste management efforts risk becoming symbolic rather than transformative. Moreover, the lack of accountability and community empowerment further weakens policy application.

Strategic Recommendations in this chase address these challenges, Bandung City must Strengthen organizational capacity through increased staffing, vehicle procurement, and infrastructure investment. Enhance policy interpretation via regular community education, stakeholder engagement, and clear enforcement protocols. Improve application mechanisms by adopting performance metrics, conducting routine evaluations, and fostering community-led initiatives. The integration of circular economy principles, as discussed by Khan et al. (2023), offers a promising pathway for Bandung to transition from linear waste systems to sustainable resource management. Collaborative governance, involving public, private, and civil society actors, is essential to mobilize local communities and ensure long term success.

CONCLUSION

The implementation of municipal waste management policy in Bandung City, as analyzed through Charles O. Jones' framework of organization, interpretation, and application, reveals a complex interplay of institutional limitations, public engagement challenges, and operational inconsistencies. Despite the existence of Regional Regulation No. 9 of 2018 and national mandates such as Law No. 18 of 2008, Bandung continues to struggle with the practical realization of its waste management goals. The organizational dimension is particularly constrained by a significant gap between ideal and actual resources, including personnel and infrastructure. This shortfall directly affects the city's ability to deliver consistent waste services and engage communities effectively. The lack of coordination among agencies and insufficient support for field officers further exacerbates the problem, resulting in fragmented service delivery and low public participation. Without adequate organizational capacity, even well-designed policies risk failing in execution, as evidenced by the rising volume of unmanaged waste and the overburdened Sarimukti landfill.

The interpretation of waste management policy also presents critical challenges. While government actors generally understand their roles, the broader public remains inadequately informed about their responsibilities in waste sorting and reduction. This disconnect stems from limited and inconsistent socialization efforts, which fail to translate policy objectives into actionable community practices. The absence of structured educational campaigns and clear enforcement mechanisms contributes to low compliance and frequent violations. Moreover, the informal nature of communication often relying on word of mouth undermines the clarity and legitimacy of the policy. As highlighted by recent studies, successful policy implementation requires not only administrative capacity but also the active involvement and understanding of target groups. In Bandung, the lack of assertiveness in applying sanctions and the failure to foster a culture of accountability have weakened the interpretative dimension of the policy. To bridge this gap, stakeholders must prioritize inclusive and sustained outreach efforts, ensuring that waste management becomes a shared responsibility across all levels of society.

Finally, the application of waste management policy in Bandung reveals a troubling decline in effectiveness. The increase in unmanaged waste from 3.22% in 2022 to 14% in 2023 signals a deterioration in operational performance, despite the introduction of programs like Kang Pisman. Field observations and interviews indicate that many implementers do not fully carry out their duties, and community engagement remains superficial. The absence of robust monitoring and evaluation systems further limits the city's ability to assess progress and adapt strategies. Without continuous feedback loops and performance metrics, policy application risks becoming symbolic rather than transformative. To address these issues, Bandung must invest in dynamic evaluation tools, strengthen stakeholder accountability, and empower communities through participatory initiatives. Only through a holistic and integrated approach combining organizational reform, interpretative clarity, and consistent application can Bandung achieve sustainable waste management and safeguard its urban environment for future generations.

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