Research Article

# Governance in Waste Management: An Analysis of the Implementation of Qanun No. 4 of 2017 in Aceh Barat

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**Abstract**

Waste management remains a persistent challenge in many regions of Indonesia, including Aceh Barat, where waste generation continues to rise annually. To address this issue, the local government enacted Qanun No. 4 of 2017 on Waste Management, which aims to establish a clean, healthy, and sustainable environment. This study examines the implementation of the regulation through the governance perspective using Van Meter and Van Horn's policy implementation model. Employing a qualitative case study approach, data were collected through in-depth interviews with key stakeholders and direct field observations in areas where unmanaged waste persists. The findings reveal that although the qanun has been formally implemented, its execution is not yet optimal. The main obstacles include limited community participation in proper waste disposal and insufficient knowledge among waste management officers regarding the regulation. Strengthening community engagement, improving the capacity of implementing officers, and enhancing monitoring mechanisms are essential to ensure more effective governance of waste management in Aceh Barat.

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**Introduction**

The escalating challenge of waste generation poses a grave threat to global environmental sustainability, largely driven by factors such as population growth, urbanization, and socio-economic progress. In Indonesia, this challenge is notably pronounced, as highlighted by the *Sistem Informasi Pengelolaan Sampah Nasional* (SIPSN) in its 2022 report, which documented a total of 21.1 million tons of waste generated nationally, with only 65.71% being properly managed. The remaining 34.29%, approximately 7.2 million tons, remains untreated, underscoring significant deficiencies in waste governance at both national and regional levels (Ferronato & Torretta, 2019; Singh et al., 2014).

Focusing on the context of Aceh Barat Regency, the region mirrors the broader national trend, as SIPSN data indicates the generation of about 37,000 tons of waste in 2023, averaging 110 tons per day. This increase is significant when compared to the 73–75 tons per day produced in 2021 and an increment to 80 tons per day in 2022, emphasizing a concerning trajectory in waste generation. To combat this pressing challenge, local authorities have instituted Qanun No. 4 of 2017 on Waste Management, which aims to facilitate a clean, healthy, and safe environment through comprehensive waste governance strategies (Cruz Ramos et al., 2024; Muzanni et al., 2022). However, the regulation's implementation has been suboptimal, leading to persistent waste accumulation in various areas, thereby revealing a disparity between policy formulation and execution(Musiana et al., 2024; Rahmat et al., 2021).

The effectiveness of waste management practices in Aceh Barat is hindered by systemic issues identified by policy scholars, who assert that the success of public policy relies not only on the establishment of comprehensive regulations but also on the efficacy of their implementation(Poletto et al., 2016; Singh et al., 2014). From a governance perspective, the roles of institutions, stakeholders, and community engagement are pivotal to achieving desired policy outcomes(Barta et al., 2024;

Das et al., 2021). The challenges confronting waste management in Aceh Barat exemplify this, necessitating a thorough investigation into the operational dynamics underlying the governance framework.

This study seeks to analyze the implementation of Qanun No. 4 of 2017 through the lens of Van Meter and Van Horn's policy implementation model, which delineates six critical dimensions: policy standards and objectives, resources, inter-agency communication, characteristics of implementing organizations, socio-political and economic conditions, and the attitudes of implementing officials (Dewi, 2023; Muhammad et al., 2023). By employing this framework, the research aspires to evaluate the governance effectiveness pertaining to waste management in Aceh Barat, identify the setbacks impeding successful implementation, and propose recommendations aimed at enhanced local waste management practices (Dewi, 2023; Musiana et al., 2024).

## Literature Review

### *Waste Management and Policy Challenges in Indonesia*

Waste management has emerged as a pressing governance issue in Indonesia; wherein legislative foundations are established by regulations such as Law No. 18 of 2008. This law defines waste as the residual products of human activities and/or natural processes, which necessitate proper management to mitigate adverse environmental and health impacts. Nonetheless, the practical implementation of waste management policies remains deficient, evidenced by the reported 7.2 million tons of unmanaged waste in 2022, highlighting systemic failures in governance (Ferronato & Torretta, 2019; Kemenko PMK, 2023). Prior studies have indicated that escalating population density, economic activity, and technological advancements considerably exacerbate waste generation, creating substantial burdens on local governments to devise effective waste management policies (Singh et al., 2014; Ta'Jana et al., 2022). The confluence of these challenges

underscores the necessity for multifaceted approaches in both policy formulation and execution.

### *Local Governance and Qanun No. 4 of 2017*

At the regional level, the Aceh Barat Regency promulgated Qanun No. 4 of 2017 on Waste Management, establishing a framework for systematic, integrated, and sustainable waste governance aimed at fostering a clean and healthy environment. However, the effectiveness of such local regulations is contingent upon multiple factors, including institutional capacity, resource allocation, and public participation (Cruz Ramos et al., 2024; Nurfalah, 2023). Empirical investigations across various Indonesian locales—including Probolinggo, Pidie, and Ciamis—reveal that waste management policies frequently encounter constraints due to limited resources, inadequate inter-agency coordination, and a lack of robust enforcement mechanisms (Aminullah et al., 2022; Cruz Ramos et al., 2024; Hansyar & Halimah, 2022; Muzanni et al., 2022; Nurfalah, 2023; Rahmat et al., 2021). These findings illuminate the critical need for strengthening local governance structures to enhance waste management efficacy.

### *Community Participation in Waste Management*

The role of community participation emerges as a fundamental aspect of successful waste governance. Research indicates that without active involvement from local residents, even the most well-structured policies are prone to failure (Jumarni et al., 2021; Musiana et al., 2024). In many Indonesian regions, including Aceh Barat, pervasive low awareness levels and poor waste disposal habits present significant barriers to effective waste management. Strategies to ameliorate these challenges frequently emphasize the importance of strengthening community-based initiatives, incentivizing waste segregation, and implementing educational campaigns targeted at elevating awareness and participation in waste management practices (Nurahmah & Arifin, 2020; Poletto et al., 2016). Theories of community

engagement thus serve as valuable frameworks for optimizing waste management outcomes.

### *Policy Implementation Models*

Policy implementation theories offer essential analytical frameworks for understanding the practical successes or failures of various regulations. While the model proposed by George C. Edwards III—focusing on communication, resources, disposition, and bureaucratic structure—has gained prominence in Indonesian waste management studies, this research adopts the Van Meter and Van Horn model. This framework encompasses six analytical dimensions: (1) policy standards and objectives, (2) resources, (3) inter-organizational communication, (4) characteristics of implementing agencies, (5) socio-political and economic conditions, and (6) implementers' disposition (Das et al., 2021; Marwiyah, 2022). Prior studies utilizing this model have demonstrated its applicability in evaluating waste governance policies while exposing persistent challenges regarding enforcement, resource availability, and community collaboration (Afandi et al., 2024; Barta et al., 2024). The comprehensive nature of this model allows for a nuanced assessment of the intricacies involved in waste management policy implementation.

### Methods

This study employed a qualitative case study design conducted in Aceh Barat Regency, focusing on selected areas where unmanaged waste accumulation remains visible, to analyze the implementation of Qanun No. 4 of 2017 on Waste Management. Informants were selected by purposive sampling, including local residents with at least five years' residence in the region and officials from the Environmental Agency (*Dinas Lingkungan Hidup*, DLH), to capture both implementer and beneficiary perspectives. Data collection was carried out via in-depth interviews with these key stakeholders and through direct field observations at waste disposal and accumulation sites. For data analysis, the

study used the three-step qualitative analysis framework of Miles, Huberman (2002) consisting of data reduction, data display, and drawing & verifying conclusions – as outlined in Qualitative Data Analysis: A Methods Sourcebook (Miles, Huberman, & Saldaña, 2014). The waste generation and management performance data for Aceh Barat were referenced from the *Sistem Informasi Pengelolaan Sampah Nasional* (SIPSN) maintained by *Kementerian Lingkungan Hidup dan Kehutanan*, particularly the *'Timbulan Sampah'* and *'Capaian Kinerja Pengelolaan Sampah'* datasets

## Results and Discussion

The implementation of Qanun No. 4 of 2017 on Waste Management in Aceh Barat can be evaluated using Van Meter and Van Horn's six indicators of policy implementation. The analysis shows that although the regulation has established a formal governance framework, its effectiveness is hindered by social, institutional, and operational barriers.

### *Policy Standards and Objectives*

The qanun outlines clear policy standards by emphasizing the principles of waste reduction, reuse, and recycling. On paper, these objectives provide a strong foundation for sustainable waste governance, aiming to ensure a clean and healthy environment for the community. However, the practical translation of these standards into measurable indicators and operational practices remains limited. Waste is still found in many public spaces, suggesting that the objectives have not been effectively internalized either by the implementing agency or by the community. This points to a weakness in monitoring and evaluation mechanisms, as goals that remain at the normative level without concrete operationalization are unlikely to achieve the desired outcomes.

A deeper challenge lies in the absence of adaptive strategies to bridge the gap between policy goals and field realities. Standards that are too general can cause ambiguity, leaving room for inconsistent interpretations by implementers. Moreover, when policy objectives are not broken down into specific, measurable

targets, it becomes difficult to assess progress or identify areas requiring intervention. In the context of Aceh Barat, this gap illustrates that the existence of regulations alone does not guarantee behavioral change unless accompanied by systematic translation into actionable programs.

### Resources

Resources, both human and material, remain a central determinant of policy success. In Aceh Barat, the number of sanitation workers is relatively sufficient, yet their technical capacity is inadequate. Many staff members lack training in modern waste management practices, leading to inefficiencies in collection, disposal, and recycling. Similarly, while the Environmental Agency possesses several waste collection trucks, many are outdated, requiring frequent maintenance and limiting their operational effectiveness. The mismatch between the quantity and quality of resources creates a bottleneck that prevents the qanun from being implemented to its full potential.

Financial resources also play a significant role in shaping implementation. Although budget allocations are available, much of the funding is used for routine administrative expenses and equipment maintenance rather than for strategic initiatives such as public awareness campaigns, staff development, or innovative recycling programs. This reflects a short-term, operational focus rather than a long-term investment in governance capacity. Without reallocation toward activities that enhance skills, encourage community participation, and modernize infrastructure, the qanun risks remaining a regulatory framework with little transformative impact.

### Inter-Organizational Communication

The success of waste governance depends heavily on the coordination between government agencies, private actors, and civil society. In Aceh Barat, the Environmental Agency has established cooperative relationships with several

institutions, including the Public Works Department and local organizations that support waste infrastructure provision. These collaborations show an encouraging recognition of the need for multi-actor engagement. However, the absence of institutionalized communication channels means that these efforts are often fragmented, reactive, and limited in scope.

The challenge is not only the existence of partnerships but also their sustainability and effectiveness. Without formalized agreements, clear role division, and joint accountability mechanisms, inter-agency communication risks being sporadic and dependent on individual initiatives. In governance terms, this reflects weak horizontal integration, where stakeholders operate in silos rather than as part of a coherent system. Strengthening coordination structures—through joint task forces, regular inter-agency meetings, or shared monitoring platforms—could transform fragmented efforts into a more systematic approach to waste governance.

### *Characteristics of Implementing Agencies*

The Environmental Agency, as the primary implementer, demonstrates visible commitment and enthusiasm in carrying out its responsibilities. Officers generally express willingness to fulfill their duties, which is an important foundation for policy execution. However, this commitment is not always supported by institutional systems that ensure consistency and accountability. In many cases, implementation relies more on individual dedication than on organizational routines, leaving outcomes vulnerable to staff turnover or shifting political priorities.

The dependence on personal motivation rather than institutional strength reflects a structural weakness. Effective policy implementation requires not only committed staff but also clear standard operating procedures, performance indicators, and accountability mechanisms. Without these, efforts remain ad hoc and risk losing momentum over time. The agency's positive disposition, while

commendable, must therefore be reinforced by stronger bureaucratic structures to ensure that implementation is consistent, scalable, and sustainable.

### *Socio-Political and Economic Conditions*

The social dimension presents one of the most significant barriers to effective waste governance in Aceh Barat. Despite the presence of designated disposal sites and government efforts, many residents continue to dispose of waste indiscriminately. This behavior reflects low levels of environmental awareness and weak community engagement. In governance terms, it highlights a disconnect between top-down regulatory frameworks and bottom-up practices within the community. Without strong participation from the public, even well-formulated policies cannot achieve their intended outcomes.

Political and economic factors also play a dual role. On one hand, the local government has provided political support by enacting the qanun and offering some infrastructure, which shows commitment at the policy level. On the other hand, economic opportunities related to recycling and waste management remain underutilized by the community. Waste that could be converted into economic value is still largely discarded, indicating that potential livelihood benefits are not being effectively communicated or facilitated. This suggests the need for more incentive-based programs that integrate waste management with economic empowerment at the local level

### *Implementers' Disposition*

The attitudes and orientations of implementers significantly influence the effectiveness of policy execution. In Aceh Barat, officers of the Environmental Agency generally show a positive disposition, maintaining consistency in managing waste and conducting awareness campaigns. This reflects a willingness to engage

with the community and promote behavioral change. However, the campaigns tend to be conventional, relying on standard approaches such as public announcements, which may not resonate with diverse audiences or lead to sustained changes in behavior.

A more innovative approach to community engagement could enhance the impact of these efforts. For instance, interactive educational tools, school-based programs, competitions, and incentives could make waste management practices more appealing and relevant to local residents. While the current disposition of officers provides a solid foundation, it needs to be complemented with creativity and adaptability to local cultural contexts. Without such innovation, the positive attitudes of implementers risk being underutilized, limiting the long-term effectiveness of the qanun's implementation.

## Conclusion

The implementation of Qanun No. 4 of 2017 on Waste Management in Aceh Barat demonstrates that while the regulation provides a clear legal and institutional framework, its practical execution remains suboptimal. The analysis using Van Meter and Van Horn's model reveals that challenges persist across all six indicators, ranging from vague operationalization of policy standards, resource limitations, weak inter-agency coordination, and reliance on individual commitment within the implementing agency, to low levels of community participation and limited innovation in public awareness campaigns. These findings underscore that governance in waste management requires more than regulatory instruments; it demands systemic integration of institutional capacity, community engagement, and political-economic incentives.

To address these shortcomings, several recommendations can be made. First, policy standards should be translated into measurable targets accompanied by routine monitoring and evaluation mechanisms to ensure accountability and

continuous improvement. Second, resource allocation must shift from a narrow focus on routine operations to broader investments in staff training, infrastructure modernization, and innovative awareness programs. Third, inter-agency collaboration should be formalized through joint task forces, structured communication channels, and shared accountability frameworks to reduce fragmentation. Fourth, the Environmental Agency must institutionalize organizational routines that go beyond individual dedication, ensuring consistency and resilience in implementation. Fifth, community participation should be enhanced through interactive and culturally relevant campaigns, supported by incentive-based initiatives that connect waste management to economic opportunities. Finally, public awareness strategies should embrace more creative approaches, leveraging education, gamification, and participatory activities to foster lasting behavioral change.

In summary, the qanun has established the foundation for waste governance in Aceh Barat, but its success will depend on bridging the gap between policy and practice. Strengthening institutional capacity, engaging communities as active partners, and integrating economic incentives into waste management can transform current challenges into opportunities for sustainable governance.

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