

The Perspective of Green Politics in Waste Management Policy in The City of Tangerang

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Keywords:

Green Politics; Waste
Management; Tangerang City

Abstract

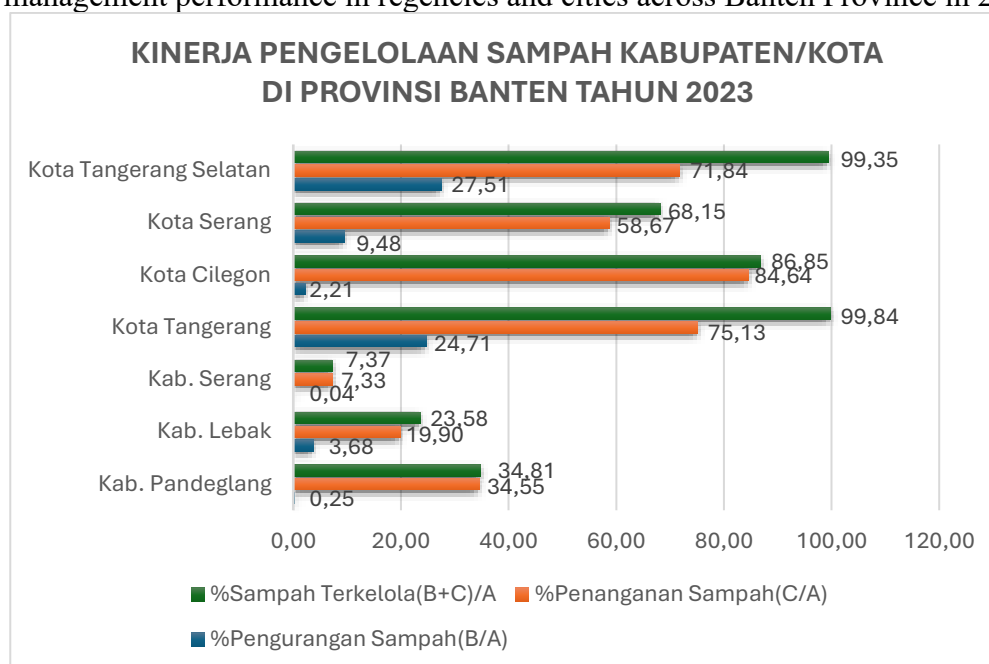
The progress of the industrial and economic sectors has led to changes in human activities and consumption patterns, which have contributed to the increasing volume and variety of waste generated daily. The growing amount of waste has become a challenge for the Tangerang City Government, requiring efforts to encourage waste reduction, particularly through waste sorting and recycling processes to support the development of an inclusive, safe, resilient, and sustainable city and community. This article aimed to analyze waste management policies in Tangerang City, as stipulated in Tangerang City Regional Regulation Number 2 of 2022 concerning Waste Management, from the perspective of green politics. This article employed a descriptive qualitative method with a case study approach, using Paul Picker's policy analysis framework through document analysis, literature reviews, and in-depth interviews with relevant informants who possessed the required knowledge and information. The results showed that the Tangerang City Government had implemented policy transformation through Regional Regulation Number 2 of 2022 by prioritizing a sustainability-oriented paradigm. However, a gap remained between administrative achievements (99.90%) and ecological conditions, as reflected in the overcapacity condition of the Rawa Kucing Landfill. The implementation of green politics principles still faced challenges related to ecological justice, the depth of participatory democracy, and the effectiveness of Extended Producer Responsibility (EPR). This study recommends accelerating the legalization of strategic policy documents and shifting from downstream waste management approaches toward upstream community empowerment.

INTRODUCTION

Waste is a by-product or unwanted material generated from human, household, industrial, agricultural, and other activities (Shamsuzzaman et al., 2025). The development of the industrial sector and economic growth has resulted in changes in human activities and consumption patterns. Consumption patterns that were previously oriented toward fulfilling basic needs have shifted toward satisfying personal desires (wants). These changes have contributed to the increasing volume and variety of waste generated daily. Increasing national prosperity, industrialization, urbanization, changes in consumption and housing patterns, and the growing variety of products available in the market have contributed to the increase in the average amount of municipal waste generated per capita. Furthermore, higher population density, greater economic prosperity, and increased participation in global trade and exchange activities have resulted in larger amounts of waste requiring effective processing and disposal management (United Nations Environment Programme, 2024; (Kaza et al., 2018).

Based on data from the National Waste Management Information System (Sistem Informasi Pengelolaan Sampah Nasional/SIPSN) of the Ministry of Environment and Forestry of the Republic of Indonesia, Indonesia generated 38,795,897.60 tons of waste annually in 2023, with an average daily waste generation of 106,290.13 tons (Rittl et al., 2025). This condition highlights the importance of comprehensive waste management systems. Governments worldwide continue to focus on innovation to reduce waste generation, particularly through sorting and recycling processes. This effort aligns with the eleventh Sustainable Development Goal (SDG), namely Sustainable Cities and Communities, which emphasizes various targets related to waste management, environmental protection, and public health. Municipal solid waste management is an essential public service that, if improperly managed, may contribute to declining air quality and deteriorating living conditions. Therefore, ensuring universal access to municipal solid waste (MSW) management services is crucial for creating inclusive, safe, resilient, and sustainable cities and communities (Jiang et al., 2020). In line with the global formulation of the SDGs, Indonesia has adopted and integrated these goals into the 2020–2024 National Medium-Term Development Plan (Rencana Pembangunan Jangka Menengah Nasional/RPJMN). One of the policies outlined in the 2020–2024 RPJMN related to SDG achievement is improving waste management performance by both central and regional governments (United Nations Environment Programme, 2024).

Java Island is the largest contributor to waste generation in Indonesia, while Banten Province ranks fifth among provinces in terms of waste generation, producing approximately 2.62 million tons of waste annually in 2023. The following section presents an overview of waste management performance in regencies and cities across Banten Province in 2023.



Based on the data presented in the figure, the percentage of waste reduction in each regency/city remained relatively low, while the levels of waste handling and managed waste tended to be high. Tangerang City demonstrated the highest waste management performance and waste handling rate compared with other regencies/cities in Banten Province. However, despite achieving the highest percentage of managed waste and waste handling performance in the province, Tangerang City continues to face significant waste management challenges that require immediate attention. The high percentage of waste handling indicates that a substantial amount of waste is transported to the Final Processing Site (Tempat Pemrosesan Akhir/TPA).

This condition has become a serious concern because the Rawa Kucing Landfill, the only landfill owned by Tangerang City, is currently experiencing critical conditions. The landfill has become overloaded, with accumulated waste reaching approximately 25 meters in height from the surface (Vaverková, 2019)

The high volume of waste accumulated at the Rawa Kucing Landfill has raised concerns among communities, particularly those living around the landfill area. Waste accumulation and inadequate waste processing activities have contributed to air, soil, and water pollution, which may negatively affect public health and environmental quality. In addition, increasing waste piles create potential risks of landslides and fires at the landfill. Therefore, the Tangerang City Government has implemented various policies to address the increasing waste management challenges. One of these efforts is Tangerang City Regional Regulation Number 2 of 2022 concerning Waste Management. However, considering the current conditions, this policy (Beggs, 2024) requires further analysis (Lawado, 2025) to determine whether its implementation aligns with environmental sustainability principles. Such an assessment is necessary to assist the government in formulating appropriate strategies for addressing existing waste management challenges.

Waste management has become an important concern at both local and global levels, encouraging extensive research on waste policies and practices from various perspectives. Previous studies have examined waste management issues through approaches related to policy communication, community participation, technology, economics, policy evaluation, and sustainability. (Balcarova et al., 2024) highlighted policy communication from the perspective of green politics, while (Arif et al., 2024) and (Mursalin, 2024) emphasized pentahelix collaboration and community participation. Meanwhile, (Fatimah et al., 2020) and (Margallo et al., 2019) discussed technology-based solutions and the Life Cycle Assessment (LCA) approach in waste management.

Other studies have further enriched discussions on waste management, including research on policy effectiveness evaluation by (Lukman et al., 2022), (Nurikah et al., 2024), Primary Medicine and Shergi (2024), (Corte et al., 2024), and (Abubakar et al., 2022), which examined various dimensions of waste policy implementation and environmental inequality, particularly in the Global South. Furthermore, (Torang Hadomuan & WD Tuti, 2022) São Paulo and Sugar (2024), (Morton et al., 2017), and (Tulebayeva et al., 2020) highlighted issues related to medical waste management, zero-waste strategies, waste banks, Sustainable Development Goals (SDGs), and green economy approaches. These studies demonstrate that waste management research has developed extensively, particularly in the areas of technology, community empowerment, policy evaluation, and sustainability.

However, research specifically examining the substance of regional waste management policies through the perspective of green politics remains relatively limited. This perspective is important because it considers policies not only as administrative and technical instruments but also as reflections of ecological values, participatory democracy, social justice, and sustainable economic principles. Therefore, this research aimed to address this gap by examining the extent to which green politics principles are integrated into local waste management policies. Specifically, this study analyzed the substance of Tangerang City Regional Regulation Number 2 of 2022 concerning Waste Management, identified gaps between administrative achievements and ecological conditions, and assessed the implementation of ecological justice, participatory democracy, and sustainable economy principles within the policy framework. The findings are expected to provide references for stakeholders in formulating and implementing waste management policies. Furthermore, this research offers a social welfare perspective to support improvements in residential environmental quality and strengthen the direction of sustainable waste management policies toward achieving Indonesia's No TPA (Non-Landfill Option) target by 2045.

METHODS

This article employed a descriptive qualitative method with a case study approach to analyze waste management policies in Tangerang City from the perspective of green politics. The research was conducted within the Tangerang City Government, involving relevant stakeholders, including the Environment Agency (Dinas Lingkungan Hidup/DLH), Regional Development Planning Agency (Badan Perencanaan Pembangunan Daerah/Bappeda), Inspectorate, and community groups involved in waste management policy implementation. Data were collected through in-depth interviews with key informants, analysis of regulatory and policy documents, and literature reviews. The collected data were analyzed using Spicker's (2006) policy analysis framework, which consisted of assessing the policy environment, aims and objectives, methods, constraints and resources, effectiveness and efficiency, implementation, and evaluation.

Through this framework, the study examined waste management policies comprehensively, including policy formulation contexts, objectives, available resources, implementation challenges, and evaluation processes. The analysis aimed to provide an evidence-based understanding of waste management policy implementation in Tangerang City and assess the extent to which these policies addressed urban waste challenges from the perspective of green politics.

RESULTS AND DISCUSSION

Waste Management Policy in Tangerang City

Waste management policies in Tangerang City have undergone important developments through the enactment of Tangerang City Regional Regulation Number 2 of 2022 concerning Waste Management, which at the same time revokes Regional Regulation Number 3 of 2009. This change in regulation shows that there is a policy adjustment to the increasing complexity of urban waste problems and the need for more integrated, comprehensive, and sustainability-oriented management. Although both regional regulations refer to Law Number 18 of 2008 concerning Waste Management, Regional Regulation Number 3 of 2009 is considered not to fully accommodate the mandate of national regulations and the development of more up-to-date waste management policies, especially related to financing, compensation, waste reduction, and strengthening the role of the community and the business world.

In substance, Regional Regulation No. 3 of 2009 still tends to place waste as a matter of cleanliness and public services, with the main emphasis on collection, transportation, and disposal activities. Thus, the policy orientation in that period is still relatively reactive and focuses more on the final handling. On the contrary, Regional Regulation Number 2 of 2022 shows a broader paradigm shift, namely viewing waste as a multidimensional problem related to the environment, public health, spatial planning, social, economic, and sustainable regional development. This is reflected in more detailed arrangements regarding the formulation of regional policies and strategies, waste management master plans, waste reduction from sources, specific waste management, application of environmentally friendly technology, information systems, incentives and disincentives, compensation for landfill impacts, and coaching and supervision mechanisms.

The expansion of the scope shows that the role of the Tangerang City Government is no longer limited as a technical implementer of waste services, but also as a strategic policy formulator, collaboration facilitator, and supervisor of waste management implementation. This policy direction is strengthened through derivative regulations, including the Regulation

of the Mayor of Tangerang Number 99 of 2018 concerning Tangerang City Policies and Strategies in the Management of Household Waste and Household Waste, as well as Tangerang Mayor Regulation Number 102 of 2023 concerning the Management of Household Waste and Household Waste. Through the regulatory framework, the Tangerang City Government has established a policy basis that includes waste reduction and handling, development of facilities and infrastructure, strengthening the role of local governments, community and business participation, providing compensation for affected communities, and the implementation of sanctions, incentives, and disincentives in waste management.

Based on the analysis of assessing the environment, the strategic problem in the waste management policy in Tangerang City still lies in the lack of optimal waste reduction from upstream and the lack of strong implementation of the circular economy. The Tangerang City Government has basically prepared a Waste Management Master Plan (RIPS) as a grand design for regional waste management. However, the document has not been legalized into binding regulations, so it cannot fully function as a strategic guideline in directing policies, programs, financing, and the division of roles between actors in a sustainable manner. In terms of policy objectives (aims), the direction of waste management has been in line with the vision of sustainable development of Tangerang City. At the operational level (goals), indicators of successful waste management are measured by the Waste Management Quality Index (IKPS). On the other hand, there is a change in the definition of waste reduction, which is now limited to waste that is managed directly at the source or household, while the Waste Bank and TPS3R are included in the handling category, demanding a more serious policy strengthening on changes in community behavior at the upstream level.

In its implementation, the waste management policy in Tangerang City still faces various obstacles, both from administrative, financial, and human resource aspects. Administratively, there is still a missynchronization between the mandate to sort waste from sources and transportation practices that still mix various types of waste. This condition causes the sorting carried out by the community to potentially lose its meaning if it is not supported by an integrated transportation and processing system. The high administrative achievement of waste management of 99.90% does not fully reflect the ecological conditions in the field, considering that landfills are still experiencing overload. This condition shows a discrepancy between formal performance indicators and the environmental realities faced in waste management

From the financial aspect, the operational costs of downstream waste handling, especially for transportation and landfill operations, absorb a very large portion of the budget, which reaches 59.57% of the total budget of the Environment Agency. As a result, fiscal space for education, socialization, and persuasion activities to the community is limited. In addition, the capacity of human resources is also an important challenge because the majority of personnel are still used for transportation technical activities, such as drivers and kernetes, while the number of extension functional officials who play a role in building awareness and changing community behavior is still very limited. The mandate of the Regional Regulation related to the certification of waste management competencies based on SKKNI has also not been fulfilled, so strengthening the capacity of policy implementers is still an urgent need.

Ecology as the Focus in Green Politics

From the perspective of green politics, ecology is placed not only as a technical issue, but as the main foothold in policy formulation. Thus, the success of waste management policies is not only judged by administrative achievements or efficiency in the use of the budget, but also by the extent to which the policy is able to maintain environmental balance, support sustainability, and bring ecological and social justice. In the context of Tangerang City, the main challenges of waste management are still seen in the lack of optimal waste reduction efforts from the source, low public awareness in sorting, and the lack of strong application of

circular economy principles. This condition causes waste management to still rely a lot on transportation and final processing activities at the landfill.

Normatively, Tangerang City Regional Regulation Number 2 of 2022 has shown a change in policy orientation from the conventional pattern of "gathering-transport-disposing" to a more preventive, participatory, and sustainable management system. This shift can be seen through regulations regarding the reduction of waste from sources, the use of environmentally friendly technology, strengthening the role of the community and business actors, and the implementation of incentive and disincentive mechanisms. However, changes at the regulatory level cannot be fully interpreted as ecological transformation if its implementation still emphasizes the provision of infrastructure facilities and the sustainability of waste services.

When analyzed further through the perspective of green politics, waste management policies in Tangerang City still show a reactive-managerial tendency. From the aspect of ecological sustainability, the policy focus is still more dominant on handling residues downstream than on preventing waste generation from upstream. The use of technology such as Refuse Derived Fuel (RDF) does show innovation in waste management, but this technology cannot be a comprehensive solution if the waste that enters the treatment system is still in a mixed condition. Thus, the success of waste management technology remains highly dependent on the effectiveness of waste sorting and reduction from the source.

In practice, policy effectiveness still tends to be measured based on operational achievements, especially in the aspects of transportation and waste management at landfills. On the other hand, human resources in waste management are still more dominantly positioned as technical implementers, not yet as strategic actors who play a role in education and change in community behavior. Waste management policies also still face challenges in the form of tug-of-war between economic interests and environmental protection. This shows that ecological interests have not been fully oriented in the decision-making process.

Thus, waste management policies in Tangerang City already have a normative basis that leads to sustainable management, but still need to be strengthened in the implementation stage. In the framework of green politics, waste management needs to be understood not only as an urban service, but as part of socio-ecological transformation. This transformation requires strengthening the reduction of waste from the source, changing community behavior, and placing ecological interests as an important basis in every development policy.

Social and Environmental Justice

From the perspective of green politics, waste management cannot be understood solely as a technical and administrative issue, but also as a matter of social and ecological justice. Waste policy needs to be analyzed from the way the environmental burden is distributed, the most affected community groups, and the role of the government in ensuring citizens' rights to a clean and healthy environment. Normatively, Tangerang City Regional Regulation Number 2 of 2022 has shown attention to this aspect through compensation arrangements for people affected by final waste processing activities, the provision of information systems that are open to the public, and the provision of legal space for the public to file lawsuits if they suffer losses due to waste management activities.

However, the existence of these regulations has not fully ensured the realization of social justice in the implementation of policies. The results of the study show that the ecological burden still tends to be concentrated in people living around waste facilities, especially around the Rawa Kucing landfill. Complaints about bad odors, soil pollution due to leachate, and public concerns about the environmental impact of waste management facilities show that environmental risks have not been evenly distributed. In these conditions, the community around waste facilities bears a heavier impact, although they are not the only ones, not necessarily the largest contributors to waste generation. Therefore, compensation arrangements

need to be complemented by more concrete preventive measures, environmental restoration, and social protection.

The dimension of justice is also seen from the unbalanced division of responsibilities between the government, society, and producers. Although the Regional Regulation has included the obligation of producers to limit waste generation and recycling packaging as part of the Extended Producer Responsibility (EPR) principle, its implementation is still constrained by weak law enforcement. As a result, the responsibility for waste management is still largely borne by local governments and communities, while producers who contribute greatly to waste generation have not fully borne ecological obligations commensurately. Thus, within the framework of green politics, waste management policies in Tangerang City need to be directed not only at improving services and strengthening regulations, but also at a fairer distribution of ecological burdens so that environmental sustainability can go hand in hand with social justice.

Participatory Democracy

From the perspective of green politics, participatory democracy is an important principle in realizing a fair and sustainable environmental policy. Waste management is not enough to rely only on the government's capacity to provide waste services, but also requires community involvement in formulation, implementation, supervision, and behavior change. Normatively, Tangerang City Regional Regulation Number 2 of 2022 has provided space for the public to submit proposals, considerations, suggestions, and opinions in the formulation of waste management policies and strategies. This shows that the community is not only positioned as a recipient of services, but also as a party that has the right to be involved in the policy process.

In its implementation, the Tangerang City Government has operationalized community participation through the Public Consultation Forum, City Musrenbang, as well as dialogue conducted by the Environment Agency with the community and young cadres. The forum is a space for the public to submit input, criticize the program, and provide feedback on the quality of waste services. However, from the perspective of green politics, participation is not enough to be interpreted as a mechanism for consultation or evaluation of service satisfaction. Participation needs to be directed as a process of ecological empowerment, which encourages the community to be actively involved in reducing and sorting waste from the source. This challenge is important because there is still a perception that the payment of the levy has transferred all responsibility for waste management to the government.

In addition, two-way communication from the early stages of policy planning is an important factor in strengthening participatory democracy. Public rejection of waste management facilities, such as TPS3R, often arises due to limited information and involvement from the outset, but can be reduced through dialogue and discussion forums. Thus, participatory democracy in waste management in Tangerang City already has a normative basis and implementation mechanism, but it still needs to be improved in quality. The community needs to be involved not only as recipients of information or service users, but also as subjects who participate in building ecological awareness, reducing waste from sources, and supporting environmental sustainability and social justice.

Sustainable Economy

In the perspective of green politics, sustainable economics emphasizes that economic activities are not only directed at growth and efficiency, but must also consider ecological sustainability and social justice. In the context of waste management, this principle drives a shift from a linear "produce-use-throw" economic pattern to a circular economy that places waste as a valuable resource. Normatively, Tangerang City Regional Regulation Number 2 of 2022 has contained this direction through the regulation of the principles of reduce, reuse, and recycle, the existence of Waste Banks and TPS3R, the use of waste as raw materials, the

application of incentives and disincentives, and the obligation of producer responsibility or Extended Producer Responsibility (EPR). These provisions show that waste management policies in Tangerang City have begun to integrate a sustainable economic approach in their regulatory framework.

However, the implementation of the circular economy in Tangerang City still faces a number of obstacles. One of the main problems is that the separation of waste from the source is not optimal, so that waste that actually still has economic value, such as food waste and plastics, often ends up in landfills. This condition causes the potential for recycling and reuse to not be maximized. In addition, the financing structure of waste management still shows a downstream orientation, as most of the budget is absorbed for the transportation and operation of landfills. The weak implementation of producer responsibilities also shows that the ecological costs of products and packaging are still more borne by local governments and communities, not by those who contribute to waste generation.

Thus, waste management policies in Tangerang City have normatively adopted sustainable economic elements, but their implementation has not fully reflected the transformation towards a circular economy. Policy strengthening needs to be directed at changing the orientation from downstream handling financing to upstream waste management empowerment. This can be done through strengthening the separation from sources, increasing the capacity and economic stability of waste banks, enforcing producer responsibility, and increasing the competence of human resources in waste management based on environmentally friendly technology. Within the framework of green politics, the success of a sustainable economy is not only measured by the government's ability to finance waste services, but also by the ability of policies to maintain the economic value of waste, reduce ecological pressures, and distribute environmental responsibilities more fairly among all actors involved.

CONCLUSION

Based on the findings of the study, waste management policies in Tangerang City demonstrated a shift toward a more comprehensive and sustainable system. This transformation was reflected in the implementation of Regional Regulation Number 2 of 2022, which no longer positioned waste solely as a technical issue related to sanitation services but also as part of a broader agenda involving waste reduction, community participation strengthening, waste reuse, and shared responsibility among various stakeholders. However, this policy transformation has not yet achieved full strategic strength because the Waste Management Master Plan has not been legalized as a regional strategic framework, while the validity period of the Waste Management Strategy (Rittl et al., 2025) and Action Plan (Jakstrada) has expired. This condition indicates that the coherence between planning documents and long-term policy directions still requires further strengthening.

This study also revealed a gap between administrative achievements and ecological conditions in practice. Although waste management performance reached 99.90% administratively, this achievement did not fully represent ecological sustainability because the Rawa Kucing Landfill had exceeded its optimal capacity. Existing policy success indicators still emphasized waste transportation, handling, and final processing, while waste reduction at the source remained insufficient. Furthermore, the principle of ecological justice has not been fully achieved because negative impacts of waste management, such as odors and leachate pollution, remain concentrated among communities living near the landfill. Producer responsibility through the principle of Extended Producer Responsibility (EPR) has also not been effectively implemented, resulting in the waste management burden remaining largely dependent on the regional budget (Anggaran Pendapatan dan Belanja Daerah/APBD) and community participation.

Therefore, waste management policies in Tangerang City have established a normative foundation toward sustainability but still require stronger implementation to align with the principles of green politics. Strengthening efforts should focus on legalizing the Waste Management Master Plan, improving the implementation of producer responsibility mechanisms, expanding community participation from formal consultation toward more meaningful empowerment, and enhancing human resource capacity as agents of ecological behavioral change. In addition, incentive and disincentive mechanisms should be consistently implemented, while waste management financing should gradually shift from a downstream-oriented approach toward upstream strengthening through waste separation at the source, optimization of waste banks and Tempat Pengolahan Sampah dengan Prinsip 3R (TPS3R), and the development of a circular economy. Through these measures, waste management can function not only as an urban public service but also as an instrument for ecosystem protection, social justice, participatory democracy, and sustainable development.

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