



Effectiveness of administrative sanctions in improving waste management at final waste processing sites

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ABSTRACT

Background: Waste management represents an urgent environmental issue in Indonesia. According to data from the National Waste Management Information System in 2025, Indonesia generates approximately 144,839 tonnes of waste per day, of which only 34.49% is properly managed. As a follow-up measure, the Ministry of Environment (MoE) has imposed administrative sanctions in the form of government coercion orders against 250 final waste processing sites (landfill sites) at the district/city and provincial levels that continue to operate the open dumping systems. This study aims to evaluate the effectiveness of administrative sanctions in driving improvements in waste management, and identify the constraints faced by local governments in fulfilling administrative sanctions obligations. **Methods:** A mixed-methods approach combining quantitative-qualitative analysis with descriptive statistics was applied to secondary data comprising 230 compliance monitoring reports, supervisory inspection reports, and 63 sanction extension request documents from 2025. **Findings:** The findings demonstrate that administrative sanctions implementation has proven ineffective. Of 230 monitored landfill sites, only 5 (2.17%) were declared compliant, while 97.83% were non-compliant, with an average compliance score of 47.7%. This low compliance rate is not caused by a single factor but rather results from a three-constraint causal chain: budgetary limitations (37%) weaken technical capacity (34%), which exacerbates administrative barriers (29%). Furthermore, the 2025 national budget efficiency policy and the 2026 reduction in Regional Transfer Funds also exerted a significant impact. **Conclusion:** This study concludes that repressive and reactive administrative sanctions failed to promote sustainable behavioural change in waste management without support from preventive approaches, institutional capacity strengthening, and cross-level governmental collaboration. **Novelty/Originality of this article:** The study recommends strengthening technical assistance, vertical and horizontal resource distribution, integration of repressive-preventive instruments, and flexibility in the phasing of administrative sanctions obligations according to regional capacity.

KEYWORDS: administrative sanctions; enforcement effectiveness; environmental law; final waste disposal sites; local government compliance; open dumping.

1. Introduction

Law Number 32 year 2009 on Environmental Protection and Management provides the primary legal framework for environmental governance in Indonesia, establishing a comprehensive approach to environmental administration—from permit issuance as a preventive measure to law enforcement as a repressive instrument. The subsequent enactment of the Job Creation Law in 2020 shifted the conceptual basis of business activities from permit-based to risk-based regulation, thereby facilitating investment-oriented

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permitting. Simplification of permit issuance is carried out through procedural simplification, including the requirements and bureaucracy in government through the implementation of an electronic-based system (Rosari et al., 2024). It simultaneously demanding that law enforcement functions be carried out decisively particularly through the application of administrative sanctions as the embodiment of the *ultimum remedium* principle.

Regarding Indonesia's waste management challenges, data from the World Population Prospects 2025 published by United Nations indicate that Indonesia is the world's fourth most populous nation, with a population of approximately 283.49 million. This demographic scale is directly proportional to the volume of household and household-equivalent waste generated daily. Nevertheless, Indonesia continues to confront serious waste management challenges. Data from the National Waste Management Information System of the Ministry of Environment indicate that waste generation reached at a minimum of 144,839 tonnes per day. Of this total, only 34.49% is adequately managed, while the remainder continues to be disposed of at final processing sites using open dumping methods.

Open dumping practices in Indonesia are normatively prohibited. Article 44 of Law Number 18 year 2008 on Waste Management explicitly mandates the closure of landfill site operating under open dumping systems. This legislation also delineates waste management authority between district/city and provincial governments according to service scale, and requires local governments to reduce and manage household waste, including the provision of waste processing facilities/*tempat pembuangan sampah* (TPS), Reduce-Reuse-Recycle waste processing sites/*tempat pengolahan sampah Reduce, Reuse, Recycle* (TPS3R), and final waste processing site. In practice, however, significant non-compliance by local governments persists. Data from the 2025 Performance Report of the Directorate of Administrative Environmental Sanctions indicate that at least 262 regions remain subject to administrative sanction, with 16 lacking the landfill site entirely and 246 continuing to operate the landfill site under open dumping. This reflects a serious gap between legal norms and field reality, as identified by Squintani (2020), who found that many unlawful acts cannot be terminated through legal rulings or governmental coercion alone.

The administrative sanction instrument, in the form of government coercive orders applied against 246 open-dumping landfills in 2025, requires local governments to transition to sanitary landfill or at least controlled landfill methods within specified timeframes, with the objective of ending open dumping practices. Additionally, complete landfill site closure is mandated for sites that have exceeded capacity or are situated in locations incompatible with land use plans.

Listiyani & Nopliardy (2022) have argued that, as the primary enforcement instrument under the Omnibus Law era, administrative sanctions require the state to respond the violators of the law by applying sanctions appropriate to the characteristics of the violation. Administrative sanctions, as the first-tier instrument of environmental law enforcement, should produce a deterrent effect and force corrective action or environmental restoration. This study aims to evaluate how effectively administrative sanctions imposed on local governments drives improvement in waste management at landfill sites facilities, particularly in ending open dumping practices, as well as to identify the structural constraints underlying this low compliance.

1.1 Environmental legal policy in Indonesia

Law Number 32 year 2009 on Environmental Protection and Management constitutes the principal foundation of environmental legal instruments in Indonesia. Environmental law encompasses three primary domains: protection, management, and law enforcement (Yusmiati et al., 2023). Environmental protection encompasses all efforts to preserve the environment through conservation, biodiversity preservation, and pollution prevention. Environmental management involves the sustainable utilisation of natural resources,

including spatial planning, environmental impact assessment, and regulatory oversight of industrial activities.

Substantively, Law Number 32 of 2009 addresses the following aspects as follows. Planning, including environmental inventory, ecoregion delineation, and formulation of Environmental Protection and Management Plans that are contained the utilization natural resources; maintenance and protection of environmental functions; control, monitoring; and adaptation and mitigation to climate change (Lisdiyono & Assalmani, 2017). Utilization, based on Environmental Protection and Management Plans. In the absence of such plans, natural resources are utilised according to environmental carrying and assimilative capacity. Control, encompassing prevention, mitigation, and remediation. Control over pollution and/or environmental damage is exercised by the central government, local governments, and business operators within their respective jurisdictional remit. Conservation, including natural resource conservation, preservation, and atmospheric function conservation. Monitoring/Inspection, carried out by the minister, governor, or regent/mayor to ensure compliance with environmental law by business/activity operators. Law Enforcement, any regulation of environmental pollution such as air, water and land cannot be effective without proper monitoring and enforcement (Chakraborti, 2022). It pertaining to administrative, civil, and criminal mechanisms for environmental violations. The enactment of the Job Creation Law reinforces the position of administrative sanctions as the primary tier of law enforcement in accordance with the *ultimum remedium* principle, under which criminal sanctions are applied after the imposition of administrative sanctions (Safitri, 2023). This means that the effectiveness of administrative sanctions is a prerequisite for the functioning of the entire environmental law enforcement system.

1.2 Regulatory framework for administrative sanctions

The government holds authority as stipulated in Article 76 of Law Number 6 of 2023 on the Enactment of Government Regulation in Lieu of Law Number 2 of 2022 on Job Creation into Law, which states that "the central government or regional government shall impose administrative sanctions on business and/or activity operators if violations against business licensing or central/regional government approvals are found during supervision". Article 77 further provides that if local governments fail to impose administrative sanctions for serious violations in environmental protection and management, the minister may impose administrative sanctions through a second-line enforcement mechanism.

The detailed mechanism for imposing administrative sanctions is regulated under Ministerial Regulation on Environment and Forestry Number 14 of 2024 on the Implementation of Supervision and Administrative Sanctions in the Environmental Sector. Administrative sanctions constitute obligations, orders, and/or revocation of administrative decisions imposed on business actors and/or activities due to non-compliance with licensing requirements and applicable laws and regulations. In form, administrative sanctions may comprise written reprimands, government coercion, administrative fines, suspension of business licences, and/or revocation of business licences, applied according to the severity of the violation. Environmental law enforcement through administrative sanctions aims to terminate unlawful conduct and restore the environment to its original condition (Wongkar et al., 2025).

The portrayal of criminal law as the *ultimum remedium* in environmental law enforcement does not always become an alternative option for resolving environmental issue because the losses suffered by the environment and surrounding communities are often not considered for the application of criminal law against environmental perpetrators (Handayani & Hardiyanti, 2025). Therefore, administrative sanctions are a key element in environmental law enforcement, aiming to prevent violations, stop harmful actions, and restore the environment polluted or damaged by the perpetrator's activities. Experts state that these sanctions focus on protecting and mitigating environmental damage, making

them an important tool for maintaining the sustainability of ecosystems (Suryawan et al., 2025).

Listiyani & Nopliardy (2022) emphasise that administrative sanctions constitute a more appropriate means of addressing violators while simultaneously correcting environmental pollution and degradation. Administrative sanctions demands that the state act swiftly with sanctions commensurate with the characteristics of the violation. However, Mtavangu (2024) has noted that administrative measures do not produce a deterrent effect against mining companies that frequently commit environmental offences. Administrative orders may be dominant, yet they are insufficient to generate deterrence. The effectiveness of judicial enforcement mechanisms (civil and criminal) and administrative mechanisms (orders and administrative sanctions) depends on the strength of enforcement institutions, judicial capacity, and public awareness of environmental issues.

1.2.1 Waste management and open dumping

Law Number 18 of 2008 on Waste Management explicitly prohibits open dumping practices and mandates the closure of landfill sites that do not meet technical standards. Normatively, this regulation reflects the state's commitment to the principles of sustainability and environmental protection. In practice, however, a significant gap persists between legal norms and implementation (Squintani, 2020). Open dumping waste management methods give rise to various negative impacts on both environmental and social dimensions. Open dumping of waste threatens the environment and public health, causing soil, air and groundwater pollution, and accelerating the destruction of environmental balance (Osra et al., 2024). Gunarathne et al. (2024) detail that this practice generates methane gas (CH₄) that contributes to global warming, produces leachate that has the potential to contaminate groundwater, and promotes the proliferation of disease vectors due to exposed waste accumulation.

1.3 Effectiveness of administrative sanctions on open dumping waste management

The implementation of administrative sanctions constitutes an important instrument in law enforcement and the regulation of activities that violate environmental regulations. These sanctions are intended to create a deterrent effect and encourage compliance with applicable regulations (Afif & Sunggara, 2025). The administrative sanctions imposed on local governments as landfill site operators takes the form of government coercive sanctions, essentially requiring local governments to cease open dumping and transition to sanitary landfill management within a specified timeframe. Beyond imposing obligations, administrative sanctions also emphasise the possibility of sanction escalation in accordance with applicable legislation should the coercive order not be fulfilled.

Garcia & Fonseca (2018) state tha enforcement plays a key role in the success of environmental regulations. Furthermore, the effectiveness of administrative sanctions is highly dependent on the firmness and consistency of its implementation Afif & Sunggara (2025). Accordingly, this study evaluates administrative sanctions effectiveness based on the percentage compliance rate of local governments in fulfilling their sanctioned obligations. The literature review identifies three clusters of factors influencing the effectiveness of administrative sanctions, which in the context of local governments interact causally as follows. Institutional and Administrative Factors: Khaidar et al. (2023) identify that law enforcement mechanisms, consistency of application at both regional and central levels, and a clear legal framework are key factors in administrative sanctions effectiveness, unchecked discretion may lead to excessively low or high penalties, breaking our balance the level of violation (Ma et al., 2023). Similar to research by Anggraini et al. (2025) which revealed that less than optimal waste management was caused by a lack of political, cultural and community participation support. Institutional barriers include lengthy bureaucratic processes, weak inter-agency coordination, and inflexible authority structures. Technical Factors: Sari et al. (2025) conclude that the success of landfill sites management depends

on the provision of infrastructure and the strengthening of regional technical capacity. The absence of heavy equipment, difficulties in procuring covering soil, and a lack of technical personnel are commonly encountered technical constraints. Funding Factors: Rampjapedi et al. (2026) reveal that insufficient investment in waste management infrastructure stems from a lack of political will to allocate adequate budgets. Manalu et al. (2022) identify that budget constraints constitute one of the primary barriers to the implementation of household waste management policies.

What distinguishes this study from prior research is the integrated analysis of these three factors, not as separate variables, but as a causal chain in which limitations in one factor systematically exacerbate the others. Furthermore, this study examines administrative sanctions applied to local governments as the subject of sanctions, which possess different capacities and characteristics from corporations as the typical subject of sanctions. Additionally, this study attempts to measure effectiveness from the perspective of actual compliance by the sanctioned subject, rather than solely from the regulatory or sanctioning authority's capacity.

2. Methods

This study employs a quantitative approach with quantitative-qualitative analytical methods (mixed methods). The effectiveness of administrative sanctions is evaluated through descriptive analysis in two stages. Stage 1, compliance level evaluation (quantitative), quantitative descriptive analysis of 230 monitoring reports from 2025. Data includes percentage compliance scores for each administrative sanction's obligation and final compliance status (compliant/non-compliant). Sugiyono (2013) states that quantitative methods utilise numerical research data with analysis conducted using statistics. This technique is appropriate for answering the first research question by elaborating secondary data in the form of administrative sanctions monitoring reports, which contain facts regarding the implementation of obligations. These reports include an assessment matrix containing quantitative percentage compliance data for each obligation, while the supervision result reports contain internal information on the compliance status of sanctioned subjects, compiled by the supervisory team. If the percentage of compliant sanctioned subjects is greater, the application of administrative sanctions may be assessed as having been effective.

Stage 2, identification of structural constraints (qualitative), analysis was conducted descriptively through literature review and content analysis of 63 administrative sanctions time-extension request documents submitted by local governments to MoE, combined with a literature review to construct constraint categorisation and identify causal relationships between factors. Secondary data from MoE include compliance monitoring reports, supervisory inspection reports, and extension request documents. Compliance determination was made following field supervisory monitoring, as documented in the monitoring reports. Of the 230 landfill site monitored, 63 local governments submitted sanction extension request documents due to incomplete administrative sanctions obligation fulfilment. Constraints are therefore identified through these 63 documents. The data used to address both research questions are summarised as follows.

Type and content of administrative sanctions, during 2025, 250 government coercive administrative sanctions were issued against local governments managing waste through open dumping. These comprise 226 sanctions for the cessation of open dumping practices and 24 sanctions for complete closure of open-dumping landfill site. Of these, 230 landfill sites were monitored in 2025. The remaining 20 landfill sites could not be monitored due to natural disasters in the Sumatra region, which were treated as force majeure. The MoE exercised discretion regarding their supervision. Accordingly, this study's compliance analysis is based on 230 monitoring reports as units of analysis, without affecting the overall compliance rate calculation.

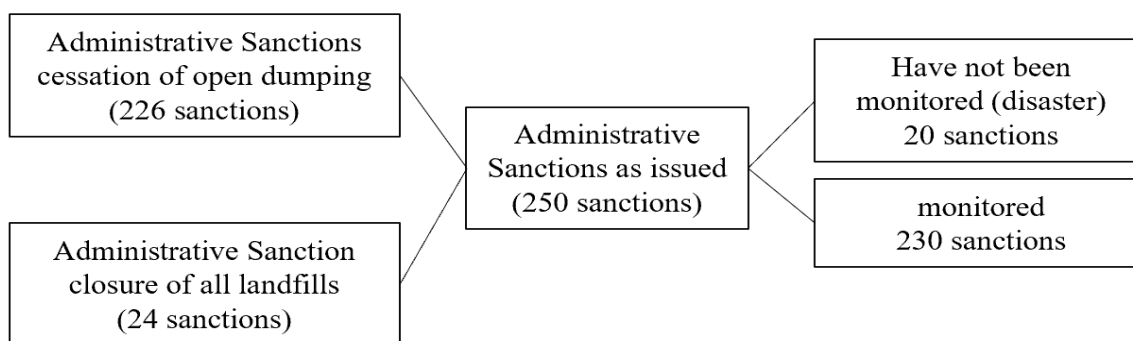


Fig. 1. Summary of administrative sanctions decrees issued and monitored for landfill site
(Ministry of Environment, 2025)

The types of administrative sanctions and the number of monitoring activities conducted in 2025 are depicted in Figure 1. The obligation content of open dumping cessation administrative sanctions and complete landfill closure administrative sanctions differs. Open dumping cessation is designated for landfill site with existing locations conforming to spatial planning and/or with environmental approval but still operating under open dumping; the sanction content accordingly targets improvement of the existing system. Complete landfill site closure is imposed on regions whose landfill sites are located in non-conforming areas—such as ravines, coastal zones, forest areas, or other locations incompatible with spatial plans—and the obligation content therefore directs complete cessation and relocation.

Table 1. Content of administrative sanction obligations for final waste processing sites (landfill site)

Administrative sanction	Amount of obligations	Obligation content
Cessation of open dumping	6 (six)	(1) Cease open dumping waste management; (2) Possess a plan for cessation of open dumping; Implement and obtain environmental approval for landfill with sanitary landfill final processing; Address impacts arising from cessation of open dumping; (5) Implement waste reduction and handling provisions; (6) Conduct closure and termination of open dumping areas.
Complete landfill site closure	5 (five)	(1) Cease all landfill sites operations; (2) Possess a plan for cessation of all landfill activities; (3) Implement construction and operation of landfill as sanitary landfill; (4) Implement remediation of environmental pollution and damage; (5) Close landfill in accordance with statutory provisions.

(Ministry of Environment, 2025)

This difference in obligation content carries implications for the difficulty encountered by local governments in fulfilling administrative sanctions requirements. In determining compliance with the sanctions, monitoring reports are accompanied by a landfill site supervisory checklist containing compliance percentage scores derived from field verification of sanctions implementation. These scores are contained in supervisory inspection reports and serve as the basis for determining administrative sanctions follow-up actions.

Table 2. Compliance score criteria for landfill site administrative sanctions

Compliance status	Score	Follow-up action
Non-compliant	0 – 50	Warning/sanction escalation
Non-compliant	$50 < X < 90$	Extension of implementation period
Compliant	> 90	Revocation of administrative sanctions

(Ministry of Environment, 2025)

The criteria for determining follow-up actions based on compliance scores are presented in Table 2. Based on scoring results, 5 landfill sites were declared compliant and issued revocation decrees, 181 landfill sites were non-compliant and granted extensions, and 44 landfill sites were subject to sanction escalation. An overview of compliance scoring outcomes is presented in Figure 2.

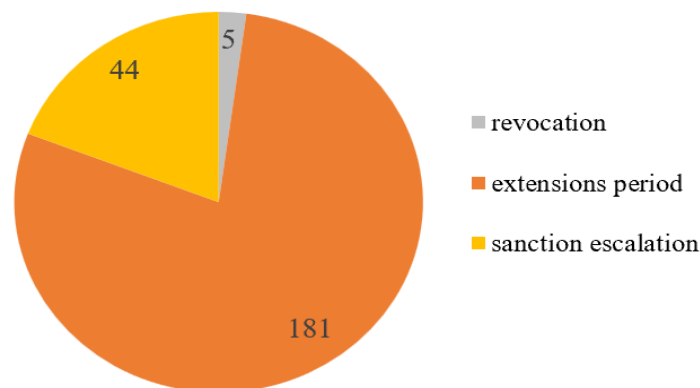


Fig. 2. Follow-up actions based on administrative sanctions supervisory results
(Ministry of Environment 2025, processed)

Data related to administrative sanctions implementation constraints, information regarding constraints encountered by local governments in administrative sanctions implementation was obtained from sanction extension request documents submitted by local governments to the MoE. During 2025, 63 district/city local governments were unable to complete all administrative sanctions obligations and submitted extension requests. Based on the content of these documents, constraints to fulfilment of administrative sanctions obligations are categorised in Table 3.

Table 3. Categorisation of constraints to administrative sanctions fulfilment

Category	Description of Constraints
Technical	Unavailability of heavy machinery for waste compaction; Difficulty sourcing soil suppliers for compaction; Difficulty securing relocation land for landfill site; Additional time required for landfill site construction and improvement; Natural disasters (tidal flooding)
Administrative	Third-party cooperation processes; Awaiting guidance/recommendations from ministries or other regional agencies; Awaiting issuance of Land Suitability Confirmation for environmental approval amendment; Awaiting confirmation of landfill sites construction by other regional organisations; Failed tender for sanitary landfill construction; Improvement requires government procurement procedures; Moratorium on landfill sites construction from the Ministry of Public Works and Housing
Budgetary	Budget allocation constraints due to national budget efficiency policy in 2025; Budgetary proposal process for 2026 still ongoing; Absence of landfill site improvement budget allocation for the current fiscal year (2025); Insufficient budget for compaction soil procurement

(Ministry of Environment, 2025)

3. Results and Discussion

3.1 Administrative sanctions compliance rate

The administrative sanctions compliance rate in this study refers to the level of adherence by the subjects in fulfilling the obligations enumerated in administrative sanctions decrees. The indicator employed is compliance in executing administrative sanctions orders. Variable measurement utilises compliance percentage scores, subsequently categorised into two categories: compliant and non-compliant.

Table 4. Administrative sanctions compliance percentage

Secondary Data	Compliance Score	Compliance Status	Follow-up action	n	%
230 Compliance Monitoring Reports	> 90	Compliant	Administrative sanctions Revocation	5	2.17%
	$50 < X < 90$	Non-compliant	Extension period	181	78.69%
	0 – 50	Non-compliant	Warning/Sanction Escalation	44	19.14%

(Ministry of Environment, 2025)

Based on data collected from 230 compliance monitoring reports, an overview of local government compliance in fulfilling administrative sanctions obligations was obtained. Data indicate that 2.17% of administrative sanctions subjects were categorised as compliant and 97.83% as non-compliant. The overall mean compliance rate was 47.7%. Compliance score data also serve as the basis for determining follow-up supervisory actions, including sanction escalation, period extension, and administrative sanctions revocation. Compliance rate data are presented in Table 4.

The analysis reveals that the majority of administrative sanctions subjects fall within the non-compliant category. In more granular terms, compliance percentage scores range from a minimum of 5% to a maximum of 96.35%, with a mean of 47.7%. This distribution indicates that sanctions have not produced an adequate deterrent effect, reflecting both the weak coercive force of the sanctions and the limited capacity of local governments. The variation in compliance rates further demonstrates that local governments differ substantially in their capability, challenges, and constraints in fulfilling administrative sanctions obligations.

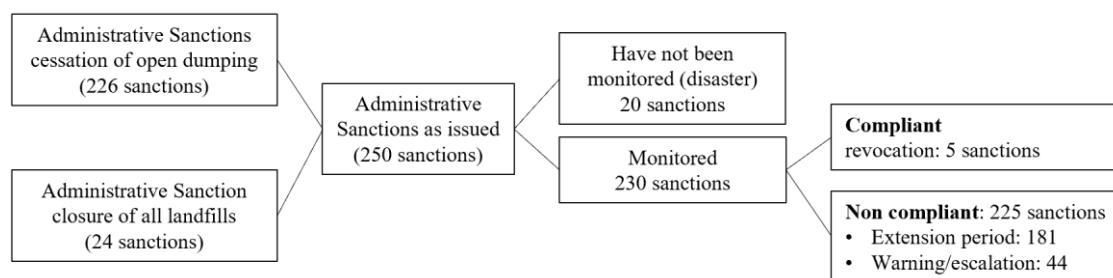


Fig. 3. Follow-up actions based on supervisory results
(Ministry of Environment, 2025)

Based on the analysis and comparison with prior research, this study does not merely examine whether sanctions are executed or not, but assesses the deterrent effect of administrative sanctions by determining whether administrative sanctions subjects genuinely comply with their obligations in improving landfill sites management and complete them within the stipulated timeframe. The results of this study demonstrate that administrative sanctions application has not been effective, as it has not produced a

deterrent effect for sanctioned subjects. This finding is consistent with those of prior studies, which similarly demonstrate that administrative sanctions tend to be weak in creating a deterrent effect, albeit faster and less costly than other sanctions.

Conceptually, the low effectiveness of administrative sanctions can be explained through the theoretical perspective of environmental law enforcement, which emphasises that repressive instruments alone are insufficient to change behaviour. This is consistent with the findings of Nizardo et al. (2021), who state that persuasive approaches such as counselling, training, and public education, combined with law enforcement, are recommended to promote long-term behavioural change. The application of administrative sanctions as a downstream law enforcement instrument is implemented after a violation has occurred; its impact is therefore limited if not accompanied by preventive approaches. Accordingly, one key implication of these findings is the need to strengthen the supervisory/guidance function as an upstream instrument. Such guidance functions to assist local governments in understanding their technical obligations, formulating realistic improvement stages, and addressing implementational constraints in the field, thereby promoting more substantive compliance.

3.2 Administrative sanctions implementation constraints

Analysis of administrative sanctions implementation constraint was conducted through content analysis of 63 administrative sanctions extension request documents. The constraints were categorised into three principal categories: technical constraints, administrative constraints, and budgetary constraints, adopting the categorisation framework from Manalu et al. (2022). Each document was analysed to identify one or more constraint categories, with the frequency of each category calculated to determine proportions and identify primary barriers.

Table 5. Percentage of administrative sanctions implementation barriers

Secondary Data	Implementation Constraints	n	%
63 extension request documents	Budgetary: budget limitations; budget efficiency policies; budget amendment processes	30	37%
	Technical: infrastructure availability; compaction soil procurement; availability of new relocation sites; constructive landfill improvement; natural disasters	28	34%
	Administrative: third-party cooperation procedures; environmental approval processes; Land Suitability Confirmation issuance processes; coordination with other agencies; competitive procurement procedures; landfill construction moratorium	24	29%

(Ministry of Environment, 2025)

Causal chain analysis of administrative sanctions implementation constraints. The most critical finding of this study is not merely the composition of these three constraints, but rather how they interact within a single, interconnected system of cause and effect. Table 6 presents the mechanism of this causal chain in a structured manner. Budgetary constraints directly generate technical constraints. Without available funds, local governments cannot procure heavy equipment, purchase covering soil, construct sanitary landfill facilities, or acquire land for landfill sites relocation. This technical unpreparedness subsequently exacerbates administrative barriers: tenders fail due to the absence of funding; technical documents cannot be prepared to process environmental approvals or spatial planning permits; and inter-institution coordination stalls due to the absence of concrete outputs. Furthermore, the landfill construction moratorium and lengthy inter-agency bureaucratic processes create additional barriers that local governments cannot resolve independently.

Table 6. Causal chain of administrative sanctions implementation constraints: mechanisms and impacts

Factor	Constraint Mechanism	Direct Impact	Causal Linkage
Budgetary (37%) — Upstream Point	Low budget allocation for waste; 2025 budget efficiency; 2026 regional transfer fund cuts	No funds for procurement of heavy equipment, covering soil, sanitary landfill construction, and land acquisition	Directly weakens technical capacity → delays all improvement processes
Technical (34%) — Midstream Point	Absence of infrastructure; difficulty in material procurement; limited human resource capacity	Landfill sites improvement halted; technical documents cannot be prepared; construction delayed	Triggered by budgetary deficit → produces document unpreparedness that exacerbates administrative barriers
Administrative (29%) — Downstream Point	Lengthy procurement processes; environmental/spatial planning permit approvals not yet issued; landfill construction moratorium; weak inter-institution coordination	Improvement project delayed even when partial budgets are available; administrative sanctions not completed on time	Exacerbated by technical and fiscal unpreparedness → prolongs the cycle of non-compliance

(Ministry of Environment, 2025)

This causal chain demonstrates that partial interventions will not be effective in resolving administrative sanctions. Addressing administrative barriers without strengthening technical and fiscal capacity will only generate additional problems. On the other hand, the highly significant variation in compliance scores (5% to 96.35%) indicates that the causal chain of administrative sanctions resolution constraints does not apply uniformly to every subject. Local governments with compliant status and high compliance scores have demonstrably been able to overcome various constraints by leveraging strong regional leadership, effective inter-institution coordination, and local policy commitment. This affirms that non-budgetary variables such as political commitment and managerial capacity also play a role, yet remain dependent on the availability of an adequate fiscal base.

3.3 Theoretical implications and comparison with prior research

The findings of this study reinforce the argument of Mtavangu (2024) that administrative sanctions tends to be weak in creating a deterrent effect. However, this study provides additional analytical contribution by demonstrating that the weakness of administrative sanctions is not merely a matter of regulatory design or supervisory capacity, but also reflects an instrument-subject mismatch between: administrative sanctions of a reactive and repressive character, and the sanctioned subject of local governments bound by a bureaucratic system with structural budgetary limitations.

Unlike the application of administrative sanctions to corporations, which possess economic capability and independent resources to fulfil sanction obligations, local governments face constraints that are institutional and systemic in nature. Conceptually, the low effectiveness of administrative sanctions can be explained through environmental law enforcement theory, which emphasises that repressive instruments alone are insufficient to change behaviour. This is consistent with Nizardo et al. (2021), who recommend that persuasive approaches—such as outreach, training, and public education—combined with law enforcement be adopted to promote long-term behavioural change. As a downstream enforcement instrument deployed post-violation, administrative sanctions have limited impact unless complemented by preventive approaches. A key implication is accordingly the need to strengthen the technical guidance function as an

upstream instrument, enabling local governments to understand their technical obligations, develop realistic improvement timelines, and address field-level implementational barriers toward more substantive compliance.

A further practical implication pertains to the need for policy integration between law enforcement and institutional capacity building. This study shows that some local governments face limitations in technical aspects—insufficient waste management infrastructure, limited processing technology, and insufficient technical expertise—rendering administrative sanctions obligations difficult to fulfil. This is consistent with Rampjapedi et al. (2026), who note that weak institutional capacity of central and local government results in an inability to manage solid waste effectively. Administrative sanctions effectiveness therefore also depends on the extent to which central and local governments can provide adequate resource support in the form of funding, technology, and human resource capacity development.

The implementation of collaborative governance is also necessary as an effort to increase the effectiveness of SA to achieve comprehensive and influential governance. As described by Valentina et al. (2025) that Collaborative governance entails an approach to governance that prioritizes cooperation, partnership, and inclusive decision-making among diverse stakeholders, encompassing government agencies, non-governmental organizations, private sector companies, and individuals. In the realm of environmental concerns, collaborative governance entails a comprehensive and inclusive strategy for tackling intricate environmental problems by means of the active involvement and cooperation of governmental entities, environmental non-governmental organizations, businesses, local communities, and individuals. It frequently includes the establishment of transparent communication channels, the exchange of information, collective problem-solving, and the consolidation of resources to formulate and execute policies, programs in improving waste management.

3.4 Research limitations

This study has several limitations. The findings apply within a specific context: Administrative sanctions issued for the district/city local governments in Indonesia in 2025; the concurrent existence of a national budget efficiency policy during the same period; and data obtained from a single central government agency source. Future research on related topics should concern for contextual variability, including periods without fiscal pressure and regions with high institutional and budgetary capacity, which may yield different analytical perspectives.

A further limitation concerns potential bias in the data sources employed. Compliance rate analysis uses the compliance monitoring reports and compliance assessment matrices, which are considered highly accurate as they are derived from field verification. However, the primary data for identifying the constraints are sourced from extension request documents submitted by local governments to the MoE, which inherently represent the one-sided perspective of the sanctioned subject—namely, the local government as the petitioner with an interest in obtaining approval for extensions.

In other words, the conditions depicted through these request documents may differ from more complex field realities. Furthermore, of the 225 non-compliant regions, data were only obtained from 63 extension request documents (28%). Local governments that did not submit extension requests are not represented in the constraint analysis, potentially yielding a portrait of constraint that is not fully representative of the entire non-compliant administrative sanction's subject population.

Future research should strengthen data validity by not only relying on local government request documents, but also supplementing these with independent monitoring reports, in-depth interviews with field supervisors and local officials, and cross-validation with regional budget data and waste management planning documents. Such supplementary data would produce a more balanced picture of constraint, reconciling the perspective of the sanctioned subject with independently verified field conditions.

Additionally, the descriptive quantitative methodology limits the depth of understanding of the complexity of issues. Time constraints also become a limitation, given the dynamic compliance status as administrative sanctions subjects continue to make progress even after the period has elapsed. This study therefore captures a temporal snapshot consistent with the data collection period. Future research may be completed qualitative material through in-depth interviews to obtain a more comprehensive explanation of the phenomena and based the most current data for compliance assessment and extension documents.

Based on these conclusions, the following recommendations are proposed: strengthening technical guidance as an upstream instrument (addressing capacity deficits). MoE should develop a technical assistance programme to accompany administrative sanctions imposition, comprising: assistance in formulating realistic open dumping cessation plans in accordance with regional capacity; training for landfill management human resources; and (technical guidance on incorporating waste management budget proposals into the regional budget.

Furthermore, the open dumping cessation roadmaps formulated by individual local governments should be elaborated into a national risk- and capacity-based roadmap, enabling the central government to prioritise support allocation to regions with the lowest capacity and highest environmental risk. Vertical and Horizontal Distribution of Resource Support (Addressing Fiscal Deficits). Resolution of open dumping cannot be placed as a sole responsibility of district/city governments. A concrete collaborative funding mechanism is required, including: allocation of Environmental Specific Allocation Funds targeted specifically for the conversion of open-dumping landfill to sanitary/controlled landfill; strengthening the General Allocation Fund scheme for waste management, particularly for regions currently subject to administrative sanctions; coordination between MoE and the Ministry of Finance to ensure that regional transfer fund cuts do not proportionally impact waste management budget lines currently operating under the administrative sanctions framework; establishment of cross-institution working teams at the regional level and cross-ministerial/agency working teams at the central level to resolve landfill sites problems through horizontal-vertical coordination. As described by Behnke & Petersohn (2025), horizontal coordination involves collaboration between governments at the same level, ranging from special task forums to permanent structures with formal meetings and regular interactions, while vertical coordination connects different levels of government, both central and regional.

Integration of repressive and preventive instruments (addressing the limitations of reactive administrative sanctions). The imposition of administrative sanctions must be combined with preventive instruments, including counselling, landfill sites management training, and public awareness programmes as recommended by Nizardo et al. (2021). Regional political commitment should be encouraged through the establishment of a minimum waste management budget allocation of 3% of the regional budget, with reference to the best practices of Surabaya, Ciamis, and Balikpapan, which received the highest ratings in the 2025 Adipura Award.

Flexibility in the phasing of administrative sanctions obligations (addressing instrument mismatch). The content of administrative sanctions obligations should be calibrated to the actual capacity of each region through realistic phasing, without reducing the targets that constitute the objectives of administrative sanctions imposition. Flexibility may be realised in the form of: phased scheduling of obligations with measurable milestones; differentiation of obligations between cessation-of-open-dumping and complete landfill closure, given the differences in complexity and resources required; and a mechanism for periodic review of administrative sanctions obligations in the event of significant fiscal context changes (such as regional transfer fund cuts) beyond the control of the sanctioned subject.

Future research agenda, subsequent research is recommended to: supplement quantitative analysis with in-depth interviews with field supervisors and regional officials to obtain a more comprehensive picture of institutional dynamics; conduct comparative

studies between regions with high and low compliance levels to identify replicable best practices; expand administrative sanctions effectiveness indicators to encompass actual impacts on the reduction of open dumping and improvement of environmental quality; and validate the causal chain findings with regional budget data and waste management planning documents to strengthen the analytical basis for constraint identification.

4. Conclusions

This study yields two interrelated primary findings, first, governmental compulsion administrative sanction has proven ineffective. Of 230 monitored landfill sites, only 5 (2.17%) were declared compliant, with an average compliance score of 47.7%. This is not a marginal failure but a widespread structural failure: 97.83% of subjects did not complete their obligations within the stipulated timeframe. This demonstrates that administrative sanctions has not produced a deterrent effect in promoting improvements in landfill sites management. Conceptually, administrative sanctions is inherently reactive and repressive, imposed after violations have occurred. Without the support of preventive approaches, resource capacity, and institutional guidance, administrative sanctions cannot bring a sustainable improvement in waste management behaviour. Second, non-compliance stems from a three-constraint causal chain, budgetary limitations—exacerbated by the 2025 national budget efficiency policy and the 2026 regional transfer fund cuts—constitute the factor that weakens technical capacity, which in turn exacerbates administrative barriers. These three factors cannot be understood in isolation; therefore, partial interventions targeting any single factor will not produce sustainable improvement.

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Author Contribution

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During the preparation of this work, the author used Grammarly to assist in improving grammar, clarity, and academic tone of the manuscript. After using this tool, the authors reviewed and edited the content as needed and took full responsibility for the content of the

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