

Legal Protection of the Right to a Healthy Environment from Waste Pollution in Indonesia

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ABSTRACT

Waste that is not managed in an environmentally sound manner has become a major source of secondary pollution in Indonesia, affecting soil, water, air quality, public health, and the enjoyment of constitutional environmental rights. This study examines the positive-law framework protecting the public right to a good and healthy environment from waste pollution and evaluates the effectiveness of preventive and repressive legal instruments available to affected communities. The research uses normative legal research with statutory and conceptual approaches. Primary legal materials include the 1945 Constitution, Law No. 32 of 2009 on Environmental Protection and Management, and Law No. 18 of 2008 on Waste Management; secondary materials consist of environmental law scholarship and official institutional reports. The study finds that Indonesian law provides a layered architecture of protection through constitutional environmental rights, environmental approvals, strategic environmental assessment, public participation, administrative sanctions, civil remedies, criminal enforcement, class actions, and Anti-SLAPP protection. Nevertheless, enforcement remains constrained by weak local oversight, conventional end-of-pipe waste governance, high litigation costs, and scientific difficulties in proving causation. The article argues that civil environmental protection should be strengthened through effective application of strict liability and evidentiary mechanisms that reduce the disproportionate burden borne by pollution victims. Such an approach is necessary to improve access to justice and advance environmental justice for communities exposed to waste pollution.

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1. INTRODUCTION

Environmental protection is no longer treated solely as a policy preference concerning natural-resource management. In contemporary constitutionalism, environmental quality is increasingly understood as a precondition for the enjoyment of life, health, dignity, housing, and other fundamental rights. Indonesian environmental law reflects this development by placing the right to a good and healthy environment within the constitutional catalogue of human rights. The ecological dimension of citizenship therefore creates not only an interest in environmental quality but also a legally cognizable entitlement that may be invoked when public authorities or private actors permit serious environmental degradation (Constitution of the Republic of Indonesia, 1945, art. 28H(1); Arifardhani, 2020, pp. 112-115).

The urgency of this constitutional protection is visible in the national waste crisis. The source study reports that Indonesia generates approximately 68.5 million tonnes of waste per year, with household waste constituting the largest source at 42.2 percent. It further describes a management pattern in which around 60 percent of waste is disposed of and accumulates at final disposal sites, approximately 25 percent remains unmanaged through illegal dumping, burning, or discharge into rivers, and only around 15 percent enters recycling or circular-economy channels (Ministry of Environment and Forestry, 2024). These figures illustrate a governance problem that extends beyond urban cleanliness. Unmanaged waste creates leachate contamination, uncontrolled methane emissions, microplastic pollution, disease vectors, fire and landslide risks, and long-term pressure on the carrying capacity of disposal sites.

Waste pollution is especially problematic because its harms are diffuse, cumulative, and frequently delayed. Toxic leachate may migrate from open dumping areas into groundwater used by nearby communities. Plastic waste fragments into microplastics that can move through rivers, coastal ecosystems, aquatic organisms, and food chains. Organic waste deposited without adequate gas management can produce methane, while open burning transfers solid-waste problems into air-pollution and public-health problems. The affected population may therefore suffer environmental, health, economic, and social losses even when a single source of contamination is difficult to identify. In this sense, waste pollution exposes the structural weakness of conventional fault-based litigation, because the party experiencing the harm may have far less access to technical data, laboratory testing, and expert evidence than the operator, producer, or public authority controlling the waste system (Santosa, 2011, pp. 132-138; Wibisana, 2017, pp. 64-72).

The Indonesian legal order contains several layers of norms intended to respond to these risks. Article 28H(1) of the 1945 Constitution guarantees the right to a good and healthy environment. Law No. 32 of 2009 on Environmental Protection and Management (Environmental Protection Law) translates that guarantee into subjective environmental rights, including rights to environmental information, participation, education, and access to justice. Law No. 18 of 2008 on Waste Management (Waste Management Law) provides a sector-specific framework for waste reduction and handling, while also recognizing community interests in protection from the negative impacts of waste management (Law No. 32 of 2009, arts. 65-66; Law No. 18 of 2008, art. 11). Together, these instruments place environmental quality, public participation, state supervision, and legal accountability within one regulatory architecture.

The constitutional character of the right is also consistent with the development of international environmental human-rights norms. Principle 1 of the Stockholm Declaration linked adequate environmental conditions to dignity and well-being, while United Nations General Assembly Resolution 76/300 later recognized the right to a clean, healthy, and sustainable environment at the global level (United Nations Conference on the Human Environment, 1972; United Nations General Assembly, 2022). Indonesian scholarship has similarly described environmental rights as part of a green constitutional order in which ecological sustainability must be integrated into state decision-making, rather than treated as an external consideration after economic policy has already been determined (Asshiddiqie, 2009, pp. 87-91).

Despite the breadth of this legal framework, the original study identifies a persistent gap between legal norms and implementation. Waste governance in many localities remains oriented toward collection and final disposal rather than prevention, reduction, producer responsibility, material recovery, and ecosystem restoration. Administrative oversight may be constrained by budgets and institutional capacity. Communities facing pollution may encounter high litigation costs and evidentiary barriers. Criminal prosecution can be difficult when causation, the responsible actor, or the precise pollutant source is contested. Civil claims based on ordinary unlawful-act principles may place a disproportionate burden on victims who are required to establish fault and causal connection through complex scientific evidence (Cholidin et al., 2021, pp. 88-92; Mukhlis, 2018, pp. 73-75).

This article therefore addresses two questions. First, how does Indonesian positive law regulate and protect the public right to a good and healthy environment in relation to waste pollution? Second, what forms of preventive and repressive legal protection are available to affected communities, and how effective are those mechanisms in overcoming the practical barriers of environmental enforcement? The study aims to map the constitutional and statutory foundations of environmental rights, evaluate the instruments of prevention and enforcement, and examine the relevance of strict liability as a civil-law mechanism for improving access to environmental justice.

Methodologically, the article is a normative legal study using statutory and conceptual approaches. It examines the hierarchy and interaction of constitutional norms, environmental legislation, waste-management regulation, environmental-law doctrines, and selected institutional materials. The analysis is qualitative and deductive: general legal principles are used to assess the specific problem of waste pollution and the protection of communities exposed to its consequences. The method is explained in greater detail in the following section.

2. METHODS

This research uses normative legal research, also referred to as doctrinal legal research. The object of analysis is not a statistically defined population but the system of legal norms governing environmental rights, waste management, legal protection, and environmental liability. The study focuses on the coherence of legal rules, the legal consequences attached to those rules, and the doctrinal concepts used to interpret them. The normative design is appropriate because the central questions concern the legal basis of the right to a healthy environment and the legal instruments through which that right may be protected when waste pollution occurs.

Two approaches are combined. The statutory approach examines the 1945 Constitution, Law No. 32 of 2009 on Environmental Protection and Management, Law No. 18 of 2008 on Waste Management, and related regulatory materials identified in the source paper. The purpose of this approach is to trace the hierarchy of norms from the constitutional right to sectoral operational duties and enforcement mechanisms. The conceptual approach examines environmental justice, green constitutionalism, preventive and repressive legal protection, polluter-pays reasoning, enterprise-risk theory, strict liability, public participation, and access to justice (Asshiddiqie, 2009; Silalahi, 2001; Wibisana, 2017).

The legal materials are classified into primary, secondary, and supporting materials. Primary materials consist of binding legal instruments, including the Constitution and the principal statutes governing environmental protection and waste management. Secondary materials include environmental-law books, legal scholarship, and an official study by the National Legal Development Agency. Supporting materials include official waste-management reporting, particularly the national waste-management information cited by the original paper (National Legal Development Agency, 2013; Ministry of Environment and Forestry, 2024). Materials were collected through documentary study, inventoried according to the research questions, and organized by legal function: rights, duties, preventive controls, enforcement, civil remedies, criminal sanctions, and evidentiary doctrines.

The materials were analyzed qualitatively through legal interpretation and deductive reasoning. Constitutional and statutory provisions provide the general normative premises; those premises are then applied to the specific problem of waste pollution. The study also compares ordinary fault-based

civil liability with strict liability to identify the evidentiary implications for affected communities. Because the research is doctrinal, its assessment of effectiveness is limited to legal-institutional obstacles identified in the source materials rather than an empirical measurement of enforcement outcomes in a particular locality.

3. FINDINGS AND DISCUSSION

Constitutional and Statutory Construction of Environmental Rights

The first finding is that the right to a good and healthy environment has a high normative status within the Indonesian legal system. Article 28H(1) of the 1945 Constitution places environmental quality within the chapter on human rights. This placement changes the legal character of environmental protection: it is not merely a discretionary governmental program but a constitutional interest attached to every person. The right can therefore function as a benchmark for evaluating legislation, administrative decisions, and governmental omissions that expose communities to serious environmental harm (Constitution of the Republic of Indonesia, 1945, art. 28H(1); Arifardhani, 2020, pp. 112-115).

The source paper interprets this constitutional development through the theory of the green constitution. In that perspective, environmental sovereignty or ecocracy must be balanced with democracy and the rule of law. Constitutional governance is not complete if it secures political participation and legality but allows ecological carrying capacity to collapse. Environmental rights consequently require the state to integrate ecological limits into development planning and to prevent public policy from transferring environmental costs to communities that have little control over the activities creating those costs (Asshiddiqie, 2009, pp. 87-91).

The constitutional guarantee is operationalized by Law No. 32 of 2009. Article 65 recognizes the right to a good and healthy environment and expands that right through access to environmental education, information, participation, and justice. These procedural dimensions are important because environmental rights cannot be protected only after pollution has caused irreversible damage. Access to information allows the public to understand risks; participation enables affected communities to influence decisions; and access to justice provides a mechanism to challenge unlawful pollution or defective decision-making (Law No. 32 of 2009, art. 65; Sood, 2019, pp. 45-48).

Article 66 of the same law provides an additional layer of protection for persons who defend the right to a good and healthy environment. The original study connects this provision with the Anti-Strategic Lawsuit Against Public Participation (Anti-SLAPP) doctrine. Its function is to prevent civil or criminal proceedings from being used as retaliation against environmental participation. In waste disputes, this protection is significant because residents opposing pollution from a disposal site, illegal dumping activity, or industrial waste stream may otherwise face legal intimidation intended to silence collective action. The provision therefore protects not only individual litigants but the broader democratic function of environmental participation (Law No. 32 of 2009, art. 66; Santosa, 2011, pp. 132-136).

At the sectoral level, Law No. 18 of 2008 on Waste Management translates general environmental rights into more concrete expectations concerning waste services and protection from adverse impacts. The law supports a shift from a simple collect-transport-dispose model toward reduction and environmentally sound handling. For communities living near waste infrastructure, this sectoral framework is directly relevant to leachate, odors, methane, vectors, landslide risks, and other externalities associated with inadequate waste management. The legal protection is therefore layered: constitutional norms define the right, environmental legislation establishes general rights and enforcement tools, and waste legislation provides operational obligations in the specific sector (Law No. 18 of 2008, arts. 5, 11).

Table 1. Layered legal protection of the right to a healthy environment in waste governance

Legal level	Core instrument	Principal protection	Relevance to waste pollution
Constitutional	1945 Constitution, art. 28H(1)	Right to a good and healthy environment	Constitutional benchmark for state action and environmental quality
General environmental law	Law No. 32 of 2009	Environmental rights, information, participation, access to justice, enforcement	Provides preventive and repressive legal instruments
Sectoral waste law	Law No. 18 of 2008	Waste reduction, handling, protection from negative impacts	Regulates operational responsibilities in the waste sector
International normative context	Stockholm Declaration; UNGA Resolution 76/300	Recognition of environmental quality as a human-rights concern	Reinforces rights-based interpretation of environmental protection

State Obligations and Corporate Environmental Responsibility

A constitutional environmental right necessarily corresponds to duties. The state is the primary duty bearer because it has the legal authority to regulate environmental risks, organize public waste services, monitor compliance, and impose sanctions. The source study groups these responsibilities into three linked functions: regulation, supervision, and enforcement. Regulation establishes environmental standards, waste-reduction requirements, planning controls, and permit conditions. Supervision verifies whether operators comply with those standards. Enforcement responds when prevention and supervision fail. If one function is weak, the effectiveness of the others is reduced.

The regulatory function is preventive in character. It includes environmental-quality standards, planning instruments, environmental approvals, waste-management policies, and producer obligations. The supervisory function requires inspection, monitoring of leachate and emissions, verification of waste-handling practices, and institutional follow-up when non-compliance is identified. The enforcement function gives legal consequences to violations through administrative measures, civil actions, or criminal prosecution. In this structure, a local government that knows of persistent illegal dumping or contamination but fails to act may be criticized not merely for poor service delivery but for failing to perform a legal protective function attached to environmental rights (Arifardhani, 2020, pp. 112-115).

Private corporations also occupy a central position. Modern waste governance rejects the idea that a producer's responsibility ends when a product is sold. The original paper highlights Extended Producer Responsibility (EPR), under which producers are expected to consider the post-consumer phase of product life cycles and to reduce the environmental burden of packaging and other residual materials. In legal-policy terms, EPR internalizes part of the waste-management cost into the production and distribution system rather than leaving municipalities and affected communities to bear the full externality.

The normative basis of corporate responsibility is strengthened by the polluter-pays principle. The principle requires the actor responsible for pollution to bear the cost of prevention, compensation, and environmental restoration rather than shifting those costs to public budgets or victims. Enterprise-risk reasoning similarly treats the party that creates and benefits from a hazardous activity as the party best positioned to distribute or insure against the associated risk. These ideas are particularly important where waste streams contain hazardous substances, where operational control is concentrated in a

company, or where communities lack access to technical information needed to prove fault (Silalahi, 2001, pp. 210-215; Wibisana, 2017, pp. 64-72).

State and corporate duties should not be treated as mutually exclusive. Waste governance is often institutionally mixed: local governments organize waste services, private contractors operate facilities, producers generate packaging, hospitals generate medical waste, retailers distribute disposable products, and households contribute municipal waste. Environmental protection therefore depends on a chain of responsibility. The legal challenge is to ensure that fragmented institutional arrangements do not produce fragmented accountability in which every actor points to another actor while the affected community continues to bear the environmental burden.

Preventive Legal Protection: Controlling Waste Pollution Before Harm Occurs

Environmental law gives priority to prevention because many forms of ecological damage are difficult, expensive, or impossible to reverse. Preventive protection is therefore not ancillary to enforcement; it is the first line of legal defense for environmental rights. The original paper identifies strategic environmental assessment, spatial planning, environmental impact assessment, environmental approval, access to information, and public participation as key instruments through which risk should be addressed before waste facilities or other pollution-generating activities cause harm (Cholidin et al., 2021, pp. 88-92).

Strategic Environmental Assessment and spatial planning operate at the policy and territorial levels. Their purpose is to ensure that ecological carrying capacity and environmental capacity are considered before an area is allocated for development or waste infrastructure. In the context of a final disposal site, this analysis should consider proximity to settlements, groundwater vulnerability, hydrology, slope stability, transport routes, prevailing winds, and the cumulative burden already borne by surrounding communities. Integrating those factors into planning is more protective than attempting to compensate residents only after contamination or a waste landslide has occurred.

Environmental Impact Assessment (AMDAL) operates at the project level. Large-scale waste infrastructure, including regional disposal facilities and certain waste-treatment installations, requires prior environmental assessment and management commitments. The source study emphasizes the Environmental Management Plan (RKL) and Environmental Monitoring Plan (RPL) as instruments for identifying and mitigating impacts such as leachate infiltration, air emissions, odors, traffic, and risks to nearby water sources. The legal value of AMDAL lies in the fact that it links scientific assessment to administrative authorization. An environmental approval that is based on materially defective assessment or that excludes legally required participation may be vulnerable to administrative challenge (Rahmadi, 2014, pp. 104-108).

Public participation is a substantive component of prevention, not merely a procedural ceremony. Residents who will live with the environmental consequences of a waste facility often possess local knowledge about wells, seasonal flooding, agricultural land, access roads, informal livelihoods, and prior pollution incidents. Article 65 of Law No. 32 of 2009 recognizes rights to information and participation, enabling affected communities to scrutinize risk assumptions and proposed mitigation measures before a decision becomes final (Law No. 32 of 2009, art. 65). When participation is meaningful, it can improve the factual basis of environmental decisions and reduce the likelihood that environmental burdens will be concentrated on politically weak communities.

The preventive framework is nevertheless only as strong as its implementation. The source paper notes that bureaucratic limitations, insufficient supervision budgets, and a development model focused on short-term economic targets can weaken environmental controls. A formally complete environmental document does not guarantee protection if monitoring data are not reviewed, violations are tolerated, or permit conditions are not enforced. Preventive law must therefore be connected to credible monitoring and the realistic prospect of sanctions. Without that connection, permits risk becoming documentary compliance rather than instruments for controlling environmental risk.

Repressive Legal Protection: Administrative, Civil, and Criminal Enforcement

When prevention fails and pollution occurs, environmental rights require effective repressive remedies. Indonesian environmental law provides three main enforcement tracks: administrative, civil, and criminal. Each has a different function. Administrative enforcement seeks rapid restoration of compliance and can directly stop unlawful operations. Civil enforcement focuses on compensation and environmental restoration. Criminal enforcement expresses public condemnation and deterrence for conduct that meets the elements of an environmental offence. The three tracks should be understood as complementary rather than as isolated alternatives.

Administrative enforcement is often the fastest mechanism because it can be exercised by the competent authority without waiting for a lengthy civil trial. The source paper identifies written warnings, government coercion, suspension of environmental approvals, and revocation of business authorization as examples of escalating administrative consequences. Government coercion is especially important in ongoing pollution because it can require the cessation of a discharge, sealing of an illegal outlet, implementation of remedial measures, or other direct action designed to halt the violation. The effectiveness of administrative sanctions, however, depends on monitoring capacity and political willingness to impose consequences on non-compliant operators (Rusu, 2006, pp. 156-159).

Civil enforcement provides a route for affected persons to claim compensation and seek restoration. Under the conventional unlawful-act framework associated with Article 1365 of the Indonesian Civil Code, a claimant generally confronts questions of unlawful conduct, fault, loss, and causal connection. In ordinary disputes those elements may be manageable, but environmental disputes frequently involve multiple sources, cumulative exposure, delayed health effects, or technical pathways that are expensive to prove. The evidentiary burden may therefore become a practical barrier to justice even where pollution and community harm are apparent (Wibisana, 2017, pp. 64-69).

Table 2. Main repressive enforcement instruments and their legal functions

Enforcement track	Typical instruments	Primary function	Main practical limitation
Administrative	Warnings, government coercion, suspension or revocation of authorization	Immediate compliance and cessation of violations	Depends on monitoring capacity and administrative willingness
Civil	Unlawful-act claims, collective actions, compensation, restoration	Compensation and environmental remediation	Cost and scientific proof of causation
Criminal	Imprisonment, fines, corporate sanctions and additional measures	Punishment and deterrence	High evidentiary threshold and attribution of responsibility

Collective procedures are important in this context because waste pollution often affects many residents in a similar geographical area. The source study discusses representative or class actions as a mechanism through which a smaller group can represent a larger affected community. Collective litigation can reduce duplication of proceedings and make legal action more economically feasible when individual losses are too small to justify separate cases but the aggregate environmental harm is significant. It also allows the court to address common factual questions about a pollution source, an operator's conduct, and a shared exposure pathway in one proceeding.

Criminal environmental enforcement has a different objective. It is directed toward conduct that the legislature has defined as an offence and may involve both imprisonment and fines, including

corporate liability and additional measures. The source paper distinguishes material offences, which focus on harmful environmental outcomes, from formal offences, which can attach to prohibited conduct or regulatory non-compliance. Criminal law can provide a strong deterrent signal, but it also faces demanding evidentiary and procedural standards. Where the source, causation, responsible corporate actor, or scientific mechanism is uncertain, prosecution may be difficult despite the seriousness of the environmental consequences (Mukhlis, 2018, pp. 73-75).

The protection of environmental defenders through Article 66 of Law No. 32 of 2009 is relevant across all enforcement pathways. Communities cannot make effective use of administrative complaints, civil suits, or public advocacy if environmental participation exposes them to retaliatory litigation. Anti-SLAPP protection therefore supports access to justice by safeguarding the communicative and participatory activity that often precedes formal enforcement. In waste-pollution disputes, this includes protests, community reporting, advocacy, participation in environmental assessment, and collective legal claims (Law No. 32 of 2009, art. 66; Santosa, 2011, pp. 132-136).

Strict Liability as an Instrument of Environmental Justice

The most important analytical issue in the source study is the relationship between conventional fault-based liability and strict liability. Ordinary civil liability is traditionally associated with the requirement that the claimant prove fault. Environmental harm, however, has characteristics that make this model difficult to apply. Pollution can be produced by complex industrial or waste-management processes. Data about hazardous materials, operational failures, monitoring results, and waste composition may be held by the defendant. The claimant may need laboratory analysis and expert testimony simply to identify the pathway of contamination. This information asymmetry means that a formally neutral evidentiary rule can produce substantively unequal access to justice (Santosa, 2011, pp. 132-138).

Strict liability responds to that asymmetry by attaching responsibility to defined high-risk activities without requiring the claimant to establish fault in the conventional sense. The source study relies on Article 88 of Law No. 32 of 2009 as the statutory foundation for this doctrine in Indonesian environmental law. It associates strict liability particularly with activities involving hazardous and toxic substances, hazardous waste, or serious threats to the environment. The doctrinal justification is risk allocation: an actor that creates or controls a serious environmental risk and benefits from the relevant activity is generally in a better position than the victim to prevent, insure against, document, and distribute the cost of that risk (Law No. 32 of 2009, art. 88; Wibisana, 2016, pp. 412-435).

The polluter-pays principle reinforces this reasoning. If the cost of pollution is borne by residents, taxpayers, or future generations, the market price of the polluting activity does not reflect its true environmental cost. Requiring the polluter to pay compensation and restoration costs internalizes at least part of that externality. This is not only a remedial principle but also a preventive incentive: the more accurately environmental costs are allocated to the risk creator, the stronger the economic reason to invest in safer waste reduction, treatment, monitoring, and disposal practices (Silalahi, 2001, pp. 210-215).

The original paper further argues for evidentiary arrangements that shift or reduce the burden borne by victims once threshold facts are established. In practical terms, an affected community should not be required to reconstruct every technical detail of the defendant's internal operations when the relevant data are under the defendant's control. A more balanced approach would require the claimant to establish the existence of the relevant activity and credible environmental harm, while placing a greater evidentiary responsibility on the operator to demonstrate that the harm is unrelated to its activity or falls within a legally recognized exception. The study treats this evidentiary adjustment as a necessary complement to strict liability in order to address scientific uncertainty and inequality of information (Santosa, 2011, pp. 132-138; Wibisana, 2017, pp. 64-72).

From an environmental-justice perspective, the value of strict liability lies in its capacity to change who bears the risk of uncertainty. Under a strongly fault-based approach, uncertainty may operate

against the victim: if the community cannot prove negligence and causation with sufficient technical precision, the claim fails. Under a risk-based model, at least some uncertainty is allocated to the actor that created or controlled the hazardous activity. This allocation is particularly defensible where the potential harm is severe, where the activity is profit-generating, and where the defendant has superior access to technical records and expertise.

Strict liability should nevertheless be understood as one component of a broader enforcement system. It cannot substitute for prevention, monitoring, administrative action, public participation, or access to scientific evidence. If authorities do not collect reliable environmental data, courts may still face difficulties in determining the existence and scale of harm. If communities lack legal assistance, a favorable liability doctrine may remain inaccessible. The most effective model therefore combines preventive controls, transparent monitoring, administrative enforcement, collective procedures, legal aid, and civil liability rules that do not impose impossible burdens on pollution victims.

Contemporary Waste-Pollution Disputes and the Limits of Existing Enforcement

The relevance of these doctrines becomes clearer when applied to contemporary waste-pollution problems. The first is microplastic contamination. Plastic waste in rivers and coastal environments progressively fragments into small particles that can enter aquatic organisms and food chains. The harm is cumulative and difficult to attribute to a single discarded item. A conventional litigation model that requires residents to identify the precise package responsible for contamination would be practically ineffective. The source study therefore connects microplastic disputes with producer responsibility and system-level failures in post-consumer waste management rather than with the tracing of a single physical object.

The second problem concerns medical and hazardous waste. Used masks, personal protective equipment, needles, chemical residues, and other infectious or hazardous materials create risks that differ from ordinary municipal waste. When such waste enters general disposal streams without appropriate handling, informal waste workers and nearby communities may be exposed to injuries, pathogens, or hazardous substances. Because the waste category and the responsible generator may be more readily identifiable, strict environmental duties and risk-based liability can have particular significance in this setting (Mukhlis, 2018, p. 73).

The third problem is the structural failure of final disposal sites operated through open dumping or otherwise inadequate containment. Such sites can generate leachate migration, methane accumulation, odors, fires, vector proliferation, and landslide risk. Communities living around disposal sites may therefore bear a concentrated environmental cost generated by consumption patterns across a much larger urban area. This is a classic environmental-justice problem: the beneficiaries of the waste-producing economy are geographically dispersed, while the negative externalities are concentrated in specific, often less powerful, communities.

The source paper's diagnosis of enforcement weakness is therefore institutional as well as doctrinal. The availability of legal rules does not automatically produce protection. Local environmental agencies require personnel, budgets, laboratories, reliable monitoring systems, and authority to act. Courts require access to credible experts and methods for evaluating scientific evidence. Communities require information, legal assistance, and procedural protection. Producers and waste operators require clear and enforceable obligations. Without those institutional conditions, even a sophisticated statutory framework may have limited practical effect.

Another limitation is the continued dominance of an end-of-pipe approach. When policy concentrates on collecting and transporting waste to a final disposal location, legal governance tends to focus on the capacity and operation of that location rather than on upstream reduction. Yet waste pollution is more effectively controlled by preventing waste generation, redesigning products and packaging, increasing reuse and recycling, separating hazardous streams, and applying producer responsibility. A circular-economy orientation is therefore legally relevant because it changes the object of regulation from disposal alone to the entire material life cycle.

The gap between legal rights and implementation also raises the question of state omission. Environmental rights can be violated not only by an affirmative act of pollution but also by failure to regulate, supervise, or enforce against known risks. Where authorities repeatedly receive information about illegal dumping, leaking leachate, or unsafe disposal practices and do not take reasonable protective action, the issue moves beyond administrative inefficiency. It becomes a question of whether the state has fulfilled its obligation to protect the constitutional environmental rights of affected residents.

For this reason, the article finds that environmental protection against waste pollution must be evaluated as a system. Constitutional rights provide the normative foundation; planning and environmental assessment provide prevention; information and participation provide democratic control; administrative sanctions provide rapid compliance tools; civil and collective actions provide compensation and restoration; criminal law provides deterrence for serious offences; Anti-SLAPP rules protect environmental defenders; and strict liability addresses the evidentiary imbalance created by hazardous activities. Weakness at any one point can transfer excessive burdens to another part of the system, usually to the affected community.

Directions for Strengthening Legal Protection

The first direction is to strengthen upstream waste governance. Central and local governments should accelerate the transition away from open dumping and ensure that disposal facilities meet environmental-protection standards. However, technical improvement at final disposal sites is not sufficient. Waste reduction, segregation, recycling, and producer responsibility should be treated as legal compliance priorities because reducing the volume and hazardous character of waste at the source lowers the environmental burden throughout the system (Law No. 18 of 2008).

Second, environmental supervision should be treated as a core public-protection function. Monitoring must be capable of detecting leachate contamination, unlawful disposal, hazardous-waste mixing, and other violations before they develop into large-scale community harm. The source paper emphasizes that weak oversight is often connected to budget constraints and institutional priorities. Strengthening supervision therefore requires not only legal authority but operational capacity, transparent data, and follow-up procedures that ensure monitoring results lead to corrective action.

Third, access to justice should be made more realistic for affected communities. Environmental litigation can require lawyers, laboratory testing, field sampling, medical evidence, and expert testimony. These costs can exclude precisely the communities that experience the greatest environmental burden. Legal aid, collective procedures, access to official monitoring data, and judicial management of scientific evidence are therefore substantive components of environmental protection rather than peripheral procedural conveniences (National Legal Development Agency, 2013; Santosa, 2011, pp. 132-138).

Fourth, courts should apply environmental liability doctrines in a manner consistent with their protective purpose. The source study's central recommendation is the effective use of strict liability in cases falling within its statutory scope and an evidentiary approach that recognizes information asymmetry. The objective is not to eliminate proof but to prevent legal doctrine from requiring victims to establish facts that are realistically accessible only to the operator. Environmental adjudication should therefore focus on risk creation, control of information, seriousness of harm, and the remedial objective of restoring ecological functions (Wibisana, 2016, pp. 412-435).

Finally, environmental participation should be protected as part of enforcement. Communities are often the first to observe changes in water quality, odors, waste fires, illegal dumping, or health patterns. Their ability to report, criticize, organize, and litigate is essential to the regulatory system. Anti-SLAPP protection should therefore be understood as a safeguard for environmental governance itself, because retaliation against public participation can suppress the information and accountability mechanisms on which effective enforcement depends (Law No. 32 of 2009, art. 66).

4. CONCLUSION

This study concludes that Indonesian law provides a strong normative foundation for protecting the public right to a good and healthy environment from waste pollution. The right is constitutionally guaranteed by Article 28H(1) of the 1945 Constitution and is operationalized through the Environmental Protection Law and the Waste Management Law. The legal framework recognizes substantive environmental quality as well as procedural rights to information, participation, and access to justice. It also distributes responsibilities among the state, waste operators, corporations, and other actors whose activities create or control environmental risks.

The available legal protection is dual in character. Preventive instruments include strategic environmental assessment, spatial planning, environmental impact assessment, environmental approvals, monitoring, and public participation. Repressive instruments include administrative sanctions, civil compensation and restoration, collective actions, criminal enforcement, and protection for environmental defenders. On paper, these mechanisms are capable of addressing the principal stages of a waste-pollution dispute, from risk identification to remediation. Their practical effectiveness, however, is reduced by weak local oversight, limited institutional capacity, continued dependence on end-of-pipe waste management, expensive litigation, and the scientific difficulty of proving causal relationships in complex pollution cases.

The central doctrinal implication is that civil environmental liability must respond to these evidentiary realities. Strict liability, where its statutory requirements are satisfied, can reduce the excessive emphasis on proving fault and allocate environmental risk to actors that create or control hazardous activities. Evidentiary arrangements should likewise take account of information asymmetry so that communities are not required to prove technical facts that are substantially within the defendant's control. This risk-based approach is consistent with the polluter-pays principle and with the broader goal of environmental justice.

Future legal and policy development should therefore focus on three connected priorities: strengthening upstream waste reduction and producer responsibility; improving the capacity and transparency of environmental supervision; and making environmental remedies genuinely accessible through collective procedures, legal assistance, credible scientific evidence, and consistent judicial application of environmental-liability doctrines. Further empirical research is needed to test how these legal instruments operate in specific waste-pollution disputes, including communities surrounding final disposal sites, microplastic contamination, and hazardous or medical-waste management.

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