



A Legal Analysis of the Application of Strict Liability and the Role of Courts in Civil Litigation for Environmental Pollution

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ABSTRACT

The principle of strict liability constitutes a fundamental instrument in environmental law aimed at strengthening accountability for high-risk business activities and ensuring the restoration of environmental damage. In Indonesia, this principle is codified in Article 88 of Law Number 32 of 2009 on Environmental Protection and Management. However, its application in environmental civil litigation continues to encounter significant challenges, particularly following regulatory changes introduced through the Job Creation Law. This study analyzes the legal framework governing strict liability in Indonesian environmental law, the juridical constraints affecting its implementation in environmental civil lawsuits, and the judicial reasoning reflected in Decision Number 20/Pdt.G/LH/2024/PN Surabaya. The research employs a normative legal research method, utilizing statutory, conceptual, and case approaches. The findings indicate that the application of strict liability in judicial practice still faces several obstacles, particularly in proving environmental loss and establishing complex causal relationships, as well as the reliance on scientific evidence. Nevertheless, the court's decision demonstrates a progressive interpretation of strict liability by emphasizing the precautionary principle, the polluter pays principle, and the imperative of environmental restoration. This study underscores the importance of strengthening regulatory frameworks and developing technical guidelines for environmental damage valuation in order to enhance the effectiveness of strict liability implementation in environmental civil litigation.

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1. Introduction

Over the past several decades, the intensification of industrial activities, the expansion of natural resource exploitation, and the acceleration of economic development have significantly increased the risk of environmental pollution and ecological degradation across many regions of the world.¹ Environmental pollution not only causes ecological damage but also generates substantial social and economic consequences for communities whose livelihoods depend on the sustainability of environmental resources.² In this context, environmental legal systems face a fundamental challenge: ensuring that economic activities with potential environmental risks remain subject to an effective framework of legal accountability.

One of the primary challenges in environmental law enforcement lies in the difficulty of proving fault in environmental pollution cases. Unlike conventional civil disputes, environmental damage frequently involves complex scientific processes, causal relationships that are not easily identifiable, and significant information asymmetries between industrial actors and affected communities.³ As a result, fault-based liability regimes often prove inadequate in providing effective legal protection for victims of environmental pollution. Consequently, modern environmental law has increasingly adopted more progressive liability mechanisms, one of which is the application of the principle of strict liability.

The doctrine of strict liability enables victims of environmental pollution to claim compensation without the necessity of proving fault on the part of the actors responsible for the environmental harm.⁴ In environmental law scholarship, this principle is widely regarded as a crucial legal instrument for overcoming the limitations of traditional liability regimes, particularly in cases involving activities that pose high risks to the environment. By eliminating the requirement to prove fault, strict liability is expected to strengthen the accountability of industrial actors while simultaneously improving access to justice for communities affected by environmental pollution.⁵

¹ R D Magomet dan N A Mironenkova, "The impact of anthropogenic activities on the indicators of environmental pollution," *Biosciences Biotechnology Research Asia* 12, no. 1 (2015): 7–14, <https://doi.org/10.13005/bbra/1629>.

² M Ruzieva dan U Ruziev, "Assessing environmental problems: Primary indicators and their role in ecosystem management," in *E3S Web of Conferences*, vol. 587, 2024, <https://doi.org/10.1051/e3sconf/202458702012>.

³ C Cholkami, M J M AlQudah, dan M Albasha, "Legal Frameworks for Liability for Damages Resulting from Industrial Activities: Towards Environmental and Economic Sustainability," in *Studies in Systems, Decision and Control*, vol. 227, 2026, 1881–94, https://doi.org/10.1007/978-3-031-95310-1_136.

⁴ M A Al Fikri, "Implementation of Strict Liability by Companies in Cases of Environmental Damage in Indonesia: An Overview of State Administrative Law in Indonesia," *Indonesian State Law Review* 5, no. 2 (2022): 41–52, <https://doi.org/10.15294/islrev.v5i2.47460>.

⁵ Z Putri Faizal, "Strict Liability in Environmental Dispute Responsibility Before and After the Enabling of Omnibus Law," *Administrative and Environmental Law Review* 2, no. 1 (2021): 53–60, <https://doi.org/10.25041/aclr.v2i1.2318>.

Within the broader framework of environmental governance, the application of strict liability is also closely related to several fundamental principles of environmental law, including the precautionary principle and environmental justice. The precautionary principle emphasizes the importance of preventive measures when there is a risk of serious environmental harm, even in situations where scientific certainty regarding the extent of the damage has not yet been fully established.⁶ Meanwhile, the environmental justice perspective highlights the necessity of ensuring a fair distribution of environmental risks and equal access to legal protection for communities affected by industrial activities or development projects.⁷ In this regard, the application of strict liability serves not only as a mechanism for compensating environmental losses but also as a normative instrument to ensure that environmental risks are borne by the parties responsible for creating those risks.

In Indonesia, the recognition of strict liability in environmental law is explicitly stipulated in Article 88 of Law No. 32 of 2009 on Environmental Protection and Management.⁸ This provision establishes that any party whose activities involve hazardous and toxic substances, generate hazardous waste, or pose a serious threat to the environment may be held liable without the need to prove fault. This regulatory framework reflects the legislature's effort to strengthen environmental accountability mechanisms in response to industrial activities that may generate complex and far-reaching ecological impacts.

Nevertheless, the existence of legal norms governing strict liability does not automatically guarantee their effective implementation in law enforcement practices.⁹ In environmental disputes, courts play a crucial role in interpreting and operationalizing environmental law principles through the legal reasoning contained in their judgments. Through judicial reasoning, courts not only determine legal responsibility in specific cases but also shape interpretative standards and practical approaches to the application of environmental law principles within the judicial system.

However, several studies indicate that the application of strict liability in environmental litigation often encounters significant practical challenges. Although the doctrine conceptually removes the requirement to prove fault, courts frequently continue to demand complex evidence regarding the causal relationship between the defendant's

⁶ J M De Cózar Escalante, "The precautionary principle and the environment," *Revista Espanola de Salud Publica* 79, no. 2 (2005): 133–44, <https://doi.org/10.1590/s1135-57272005000200003>.

⁷ C Wood-Donnelly, "Environmental Justice," in *Theorising Justice: A Primer for Social Scientists*, 2023, 141–54, <https://doi.org/10.51952/9781529232233.ch009>; L Wagner, "Environmental justice," in *The Routledge Handbook to the Political Economy and Governance of the Americas*, 2020, 93–102, <https://doi.org/10.4324/9781351138444-9>.

⁸ Any person whose actions, business activities, and/or operations involve the use of hazardous and toxic substances (B3), generate and/or manage hazardous and toxic waste, and/or pose a serious threat to the environment shall be held strictly liable for any resulting damage, without the necessity of proving fault.

⁹ I Rachmawati, "The Transformation from Fault Liability to Strict Liability: A Cutting-edge Indonesian Maritime Tort Law," in *E3S Web of Conferences*, vol. 622, 2025, <https://doi.org/10.1051/e3sconf/202562202006>.

activities and the environmental damage that has occurred.¹⁰ This situation creates a paradox in the application of strict liability, as excessively demanding evidentiary standards may undermine the effectiveness of the doctrine in providing legal protection for victims of environmental pollution.¹¹ In other words, there appears to be a potential gap between the normative construction of strict liability in statutory regulations and its practical implementation within judicial practice.

Several previous studies have examined the principle of strict liability within the Indonesian environmental law framework. Research conducted by Al-Khowarizi and Muhammad Ibnu Musa demonstrates that the doctrine of strict liability is designed to facilitate environmental victims in claiming compensation from high-risk actors, as plaintiffs are not burdened with the obligation to prove fault.¹² While this study provides an important contribution in explaining the normative foundation of strict liability, it primarily focuses on conceptual analysis and does not extensively examine how the principle is implemented in judicial practice. Another study conducted by Riadhi Alhayyan and Jelly Leviza situates strict liability within the context of regional government authority in environmental law enforcement. Their research contributes to an understanding of the institutional dimensions of environmental governance, particularly concerning the role of local governments in ensuring compliance with environmental regulations.¹³ However, the study does not specifically address how courts interpret and operationalize the strict liability principle in the resolution of environmental civil disputes. Meanwhile, research conducted by Arif Fathurahman analyzes the application of strict liability within judicial reasoning in an environmental case decided by the Surabaya District Court. The study reveals that although the doctrine conceptually eliminates the requirement to prove fault, plaintiffs must still demonstrate the existence of environmental damage as well as the causal relationship between the activities conducted and the losses suffered.¹⁴ Although this research provides empirical insight into judicial reasoning in a specific case, its scope remains limited to the analysis of a single court decision and does not examine more broadly how judicial practice shapes the standards for applying strict liability in environmental disputes.

¹⁰ Rachmawati.

¹¹ Irfan Amir et al., "Climate Constitutionalism in Indonesia: Legal Pathways for Climate Action," *Al Bayyinah* 9, no. 2 (2025): 260–71, <https://doi.org/https://doi.org/10.30863/al-bayyinah.v9i2.10733>.

¹² Muhammad Ibnu Musa Al-Khowarizi, "Penerapan Asas Tanggungjawab Mutlak (Strict Liability) Dalam Kasus Pencemaran Lingkungan (Analisis Hukum Terhadap Putusan No 107/Pdt. G/LH/2019/PN Jmb)," *Dinamika* 28, no. 9 (2022): hlm. 4463-4480.

¹³ Riadhi Alhayyan dan Jelly Leviza, "Peranan Dan Kewenangan Pemerintah Provinsi Sumatera Utara Terkait Penerapan Asas Tanggung Jawab Mutlak (Strict Liability) Berdasarkan Undang-Undang Nomor 32 Tahun 2009 Tentang Perlindungan Dan Pengelolaan Lingkungan Hidup," *Jurnal Hukum Samudra Keadilan* 15, no. 2 (2020): hlm. 223-236, <https://doi.org/https://doi.org/10.33059/jhsk.v15i2.2806>.

¹⁴ Arif Fathurahman, "Penerapan prinsip pertanggungjawaban mutlak dalam gugatan pemerintah atas pencemaran lingkungan hidup," *PUSKAPSI Law Review* 5, no. 1 (2025): hlm. 101-118, <https://doi.org/https://doi.org/10.19184/puskapsi.v5i1.53728>.

A review of these studies indicates that research on strict liability in Indonesian environmental law has predominantly focused either on normative analysis or on limited case studies. Consequently, a research gap remains concerning how courts concretely interpret and operationalize the strict liability principle in environmental dispute resolution processes, as well as the extent to which judicial reasoning contributes to shaping the effectiveness of its application in practice.

Based on this research gap, the present study aims to analyze the application of the strict liability principle in civil litigation concerning environmental pollution, with particular emphasis on judicial reasoning in interpreting and operationalizing this doctrine. Specifically, the study addresses three main research questions: (1) How is the strict liability principle regulated and conceptually framed within Indonesian environmental law?; (2) How do courts apply the strict liability principle in civil lawsuits related to environmental pollution?; (3) How does judicial reasoning influence the effectiveness of strict liability in the practice of environmental dispute resolution?

To address these questions, this study conducts an in-depth analysis of the application of strict liability in Decision of the Surabaya District Court No. 20/Pdt.G/LH/2024/PN Surabaya, which concerns a civil lawsuit relating to alleged environmental pollution. The analysis of this decision is intended not only to examine the resolution of a particular case but also to understand how courts interpret and operationalize the doctrine of strict liability within environmental adjudication.

More broadly, this study contributes to the academic discourse on the role of courts in the development of environmental liability doctrines, particularly within the context of legal systems in developing countries. Unlike previous studies that primarily focus on the normative analysis of strict liability regulations or limited case studies, this research places judicial interpretation practices at the center of analysis in order to understand how the doctrine of strict liability is operationalized in judicial practice. Accordingly, this study not only explains the gap between the normative construction of strict liability in statutory regulations and its implementation in judicial practice but also demonstrates how judicial reasoning may shape the standards governing the application of this principle in environmental dispute resolution.

Within a broader framework, the findings of this research are expected to contribute conceptually to ongoing discussions concerning the effectiveness of environmental liability mechanisms in modern legal systems, particularly regarding the role of courts in ensuring that the strict liability principle genuinely functions as a legal instrument capable of strengthening environmental accountability and improving access to justice for communities affected by environmental pollution.

2. Legal Material and Methods

This study employs doctrinal legal research, which aims to analyze the normative construction of the application of the strict liability principle in civil litigation concerning environmental pollution, as well as to examine the role of courts in operationalizing this principle through judicial practice in Indonesia. Doctrinal legal research conceptualizes

law as a normative system manifested in statutory regulations, judicial decisions, and legal doctrines developed within academic scholarship.¹⁵ This approach is utilized to examine how the doctrine of strict liability is constructed within the regulatory framework of environmental law and how such norms are interpreted and applied by courts in resolving civil disputes related to environmental pollution.

This research adopts three primary approaches: the statutory approach, the case approach, and the conceptual approach. The statutory approach is used to analyze the regulatory framework governing civil liability for environmental pollution, particularly provisions relating to the strict liability principle as stipulated in Law No. 32 of 2009 on Environmental Protection and Management. The case approach is applied to examine judicial decisions related to environmental pollution disputes in order to understand how judges interpret and apply the strict liability principle in judicial practice. One of the decisions analyzed in detail in this study is the Decision of the Surabaya District Court No. 20/Pdt.G/LH/2024/PN Surabaya, which is selected as a case study to examine the legal reasoning of judges in applying the doctrine of strict liability in civil litigation concerning environmental pollution. Meanwhile, the conceptual approach is employed to analyze the development of legal doctrines regarding strict liability within environmental law and its relationship with the precautionary principle and environmental justice.

The legal materials used in this research consist of primary, secondary, and tertiary legal materials. Primary legal materials include statutory regulations related to environmental protection and management as well as civil liability, particularly Law No. 32 of 2009 on Environmental Protection and Management, and judicial decisions relevant to environmental pollution cases. Secondary legal materials are obtained from textbooks, scholarly journal articles, and academic works discussing environmental law, civil law, and the development of the strict liability doctrine. Tertiary legal materials include legal dictionaries, legal encyclopedias, and other reference sources used to clarify the legal terminology and concepts employed in this research.

The collection of legal materials is conducted through library research and documentation techniques involving statutory regulations, judicial decisions, and academic literature relevant to the research topic.¹⁶ All legal materials are subsequently analyzed qualitatively through doctrinal analysis and legal interpretation of legal norms as well as judicial reasoning contained in court decisions. The analytical process focuses on examining the consistency between the normative construction of the strict liability principle within the regulatory framework of environmental law and its application in judicial practice. Through this analysis, the study identifies patterns of judicial interpretation, the scope and limitations of the application of strict liability, and the

¹⁵ Nanda Dwi Rizkia dan Hardi Fardiansyah, *Metode Penelitian Hukum (Normatif dan Empiris)* (Penerbit Widina, 2023), hlm. 43.

¹⁶ Peter Mahmud Marzuki, *Penelitian Hukum*, Edisi Revi (Jakarta: Prenadamedia Group, 2015).

juridical implications of the doctrine in resolving civil litigation related to environmental pollution in Indonesia.

3. Results and Discussion

3.1. Regulation of the Strict Liability Principle in Indonesian Environmental Legislation

The principle of strict liability, or absolute liability, constitutes one of the fundamental instruments in the development of modern environmental law aimed at strengthening accountability mechanisms for damages arising from activities that are inherently high-risk. From a doctrinal perspective, this concept evolved within the tort law tradition of the common law system,¹⁷ particularly through the landmark precedent of *Rylands v Fletcher* (1868), which introduced the notion of liability without proof of fault for parties who control or accumulate hazardous substances or activities that subsequently cause harm through their escape or release.¹⁸ In subsequent jurisprudential developments, this doctrine has often been associated with the regime of private nuisance, which addresses harmful interferences with the use and enjoyment of land as well as environmental interests.¹⁹ In the context of environmental pollution, environmental damage frequently involves complex technological processes, cumulative ecological impacts, and dispersed chains of causation that are difficult to establish through traditional fault-based liability mechanisms. Such structural conditions often render negligence-based liability regimes inadequate in ensuring effective legal protection for affected communities.²⁰ Consequently, the strict liability principle has developed as a legal mechanism that shifts the burden of responsibility to actors engaged in high-risk activities without requiring proof of fault, thereby strengthening both the compensatory and preventive functions of environmental law regimes.²¹

Within environmental law frameworks, the application of strict liability is frequently regarded as reflecting an important transformation in liability regimes - from a purely fault-based approach toward a risk-based liability framework. This approach is

¹⁷ C M G Himsworth, "Unsustainable developments in lawmaking for environmental liability?," in *Justice, Property and the Environment: Social and Legal Perspectives*, 2018, 161–77, <https://doi.org/10.4324/9780429451805-11>.

¹⁸ M B Ishak dan M A A Samah, "Strict liability versus policy and regulation for environmental protection and agricultural waste management in Malaysia," *EnvironmentAsia* 3, no. SPECIAL ISSUE (2010): 11–19, <https://www.scopus.com/inward/record.uri?eid=2-s2.0-76849104831&partnerID=40&md5=5e2c6081f45daf03800b104ddc9f3c48>.

¹⁹ Himsworth, "Unsustainable developments in lawmaking for environmental liability?"

²⁰ H Wamuyu, C Odote, dan S Anyango, "Compensating Toxic Torts in Kenya: Overcoming the Causation Dilemma," *Journal of Sustainable Development Law and Policy* 12, no. 2 (2021): 258–81, <https://doi.org/10.4314/jsdlp.v12i2.5>.

²¹ Cholkami, AlQudah, dan Albasha, "Legal Frameworks for Liability for Damages Resulting from Industrial Activities: Towards Environmental and Economic Sustainability."

grounded in the assumption that parties who derive economic benefits from activities that potentially generate environmental risks should bear the legal consequences of any resulting harm. In this regard, strict liability functions not only as a mechanism for compensating victims of environmental pollution but also as a preventive instrument encouraging business actors to adopt higher standards of precaution in managing activities that may generate environmental impacts.

The regulation of strict liability within the Indonesian environmental legal system has evolved gradually alongside broader developments in environmental protection policies. The early foundation of environmental liability regulation can be traced back to the enactment of Law No. 4 of 1982 on Basic Provisions for Environmental Management. This statute represented the first comprehensive environmental legislation in Indonesia that systematically regulated environmental protection obligations within development activities.²² However, the law did not explicitly adopt the concept of strict liability. At this stage, regulatory provisions primarily focused on the prevention and control of environmental pollution through administrative instruments and general obligations imposed on business actors to maintain environmental sustainability.²³ Consequently, the liability regime governing environmental pollution during this period remained predominantly based on a fault-based approach.

A significant development in strengthening environmental liability mechanisms occurred with the enactment of Law No. 23 of 1997 on Environmental Management. In this legislation, the principle of strict liability was explicitly introduced through Article 35(1), which stipulates that business actors whose activities generate significant environmental impacts and involve hazardous and toxic substances may be held liable for resulting damages without the need to prove fault.²⁴ This provision marked a paradigmatic shift in Indonesian environmental law—from a fault-based liability regime toward a risk-based liability framework.

The introduction of strict liability in Law No. 23 of 1997 played an important role in strengthening the effectiveness of environmental law enforcement. By eliminating the requirement to prove fault, this mechanism simplifies the ability of victims of environmental pollution to claim compensation for environmental damage caused by

²² Raynaldo Sembiring et al., *Anotasi Undang-Undang Nomor 32 Tahun 2009 Tentang Perlindungan Dan Pengelolaan Lingkungan Hidup, Indonesian Center for Environmental Law (ICEL)*, Edisi Pert, 2014.

²³ Dewi Tuti Muryati, Dharu Triasih, dan Tri Mulyani, “Implikasi kebijakan izin lingkungan terhadap lingkungan hidup di indonesia,” *Jurnal usm law review* 5, no. 2 (2022): hlm. 693-707, <https://doi.org/https://doi.org/10.26623/julr.v5i2.5773>.

²⁴ Sembiring et al., *Anotasi Undang-Undang Nomor 32 Tahun 2009 Tentang Perlindungan Dan Pengelolaan Lingkungan Hidup*; Muryati, Triasih, dan Mulyani, “Implikasi kebijakan izin lingkungan terhadap lingkungan hidup di indonesia.”

business activities. Furthermore, the regulation reflects the adoption of modern environmental law principles that emphasize the accountability of actors engaged in high-risk activities for the environmental impacts they generate.

The strengthening of strict liability within Indonesian environmental law reached a more comprehensive stage with the enactment of Law No. 32 of 2009 on Environmental Protection and Management. This law not only expanded the scope of environmental protection regulation but also reinforced legal accountability mechanisms for environmental damage. Through Article 88, the law establishes that any person whose activities involve hazardous and toxic substances (B3), generate or manage hazardous waste, or otherwise pose serious threats to the environment shall bear absolute liability for resulting damages.

This provision reflects the core characteristic of strict liability, namely the removal of the plaintiff's obligation to prove fault on the part of the party responsible for the activity.²⁵ Nevertheless, the elimination of fault as an element of liability does not imply that the entire evidentiary burden in environmental cases is removed. In judicial practice, plaintiffs are still required to demonstrate the existence of environmental damage and establish a causal relationship between the defendant's activities and the resulting environmental harm.²⁶ Thus, strict liability in Indonesian environmental law essentially functions to simplify evidentiary processes in environmental pollution cases without eliminating the requirement to establish a causal nexus between the activity conducted and the environmental damage caused.

In the practice of environmental law enforcement, Article 88 of the Environmental Protection and Management Law has become a crucial legal basis for filing civil lawsuits concerning environmental pollution. Such lawsuits may be initiated by the government, affected communities through class action mechanisms,²⁷ or environmental organizations through citizen lawsuits.²⁸ In this context, the application of strict liability strengthens legal

²⁵ Jalu Akbar Maulana dan Fadila Nur Annisa, "Analisa Yuridis Perubahan Makna Strict Liability dalam Undang-Undang Lingkungan Hidup Pasca Pengesahan Undang-Undang Cipta Kerja," *Amnesti: Jurnal Hukum* 6, no. 2 (2024): hlm. 298-314, <https://doi.org/https://doi.org/10.37729/amnesti.v6i2.4935>.

²⁶ M Ali, M A Setiawan, dan W Sanjaya, "Punishing Environmental Offenses Without Guilty Mind: Regulatory Framework and Judicial Responses," *International Journal of Sustainable Development and Planning* 17, no. 3 (2022): 907-13, <https://doi.org/10.18280/IJSDP.170320>.

²⁷ N Listiyani dan M Yasir Said, "Political law on the environment: The authority of the government and local government to file litigation in law number 32 year 2009 on environmental protection and management," *Resources* 7, no. 4 (2018), <https://doi.org/10.3390/resources7040077>.

²⁸ Wisnu Spto Nugroho, Romana Harjiyatni, dan Sunarya Rahardja, "Gugatan warga melalui citizen lawsuit pada kebakaran hutan dan lahan dalam konsep ekokarsi Tinjauan putusan MA no 3555 kpdT 2018," *Kajian Hasil Penelitian Hukum* 4, no. 1 (2020): hlm. 713-735, <https://doi.org/http://dx.doi.org/10.37159/jmih.v4i1.1230>; A Fatah, "Citizen Lawsuit in Environmental Cases," *Lentera Hukum* 6, no. 2 (2019): 289-308, <https://doi.org/10.19184/ejllh.v6i2.9675>.

protection for communities affected by environmental pollution while also enhancing the effectiveness of environmental damage recovery mechanisms through judicial processes.

Nevertheless, the regulatory landscape of environmental law in Indonesia has undergone further transformation following the enactment of Law No. 11 of 2020 on Job Creation, as amended by Law No. 6 of 2023. One of the changes that has attracted considerable attention in the context of environmental liability is the removal of the phrase “without the need to prove fault” from Article 88 of the Environmental Protection and Management Law.²⁹ This amendment has generated academic debate regarding the consistency of the strict liability principle within the Indonesian environmental legal system.

Some scholars argue that the removal of this phrase does not automatically eliminate the applicability of strict liability, as the term “absolute liability” remains explicitly maintained within the provision. From this perspective, the concept of absolute liability continues to indicate that actors engaged in high-risk activities bear legal responsibility for damages arising from their activities, regardless of the existence of fault. However, from the standpoint of judicial practice, such textual changes may create interpretative uncertainty, particularly when defendants attempt to reintroduce the element of fault as part of their litigation strategy.

This development demonstrates that changes in environmental regulation affect not only the substantive content of legal norms but also shape the interpretative space within which courts apply environmental liability principles. In situations where normative ambiguity may arise, the role of courts becomes increasingly important in providing interpretations capable of maintaining the fundamental objectives of environmental protection.³⁰ Through judicial reasoning in court decisions, the strict liability principle can be operationalized more effectively as an instrument of environmental law enforcement and as a mechanism for protecting communities affected by environmental pollution.

In conclusion, the development of strict liability regulation within Indonesian environmental law reflects an evolving normative process aimed at strengthening the accountability of business actors for environmental risks generated by their activities. However, recent regulatory changes also illustrate ongoing challenges in maintaining the consistent application of this principle. Therefore, progressive judicial interpretation and environmentally oriented adjudicative practices remain crucial in ensuring that the strict

²⁹ Putri Faizal, “Strict Liability in Environmental Dispute Responsibility Before and After the Enabling of Omnibus Law.”

³⁰ E H Nyekwere et al., “Constitutional and Judicial Interpretation of Environmental Laws in Nigeria, India and Canada,” *Lex Scientia Law Review* 7, no. 2 (2023): 905–58, <https://doi.org/10.15294/lesrev.v7i2.69394>.

liability principle continues to function effectively within Indonesia's environmental law enforcement system.

3.2. Juridical Challenges and Implications of the Application of Strict Liability in Environmental Civil Litigation

Although the principle of strict liability has been explicitly adopted in Article 88 of Law No. 32 of 2009 on Environmental Protection and Management (EPM Law), its effectiveness in environmental civil litigation in Indonesia continues to face a number of juridical challenges. In theory, strict liability is intended to facilitate the process of establishing liability for business actors engaged in activities that pose high risks to the environment by eliminating the requirement to prove fault. However, judicial practice demonstrates that the application of this principle does not always operate in accordance with its normative objectives.

Within the framework of modern environmental law, strict liability serves as an important legal instrument to ensure that actors engaged in high-risk activities bear full responsibility for the ecological impacts resulting from their operations. The principle is closely aligned with the concept of risk-based liability, which places legal responsibility on parties who derive economic benefits from activities that potentially generate environmental harm.³¹ Consequently, strict liability within environmental law is not intended solely as a compensatory mechanism but also as a preventive instrument designed to encourage greater precaution among business actors in conducting economic activities that may generate environmental risks.

Nevertheless, the realities of judicial practice indicate that the implementation of this principle still faces several structural obstacles. These challenges are primarily related to evidentiary issues, the scientific complexity of environmental disputes, and variations in judicial interpretation of strict liability provisions within statutory regulations.

a. Juridical Challenges in the Application of Strict Liability

One of the primary challenges in the application of strict liability concerns the issue of proving causation between the defendant's activities and the resulting environmental damage.³² Although strict liability eliminates the requirement to prove fault, plaintiffs are still required to demonstrate the existence of environmental harm and establish a causal link between the defendant's conduct and the damage that occurred. In environmental cases, proving causation often becomes particularly complex because environmental damage does not always occur in a direct or immediately observable manner.

³¹ Al Fikri, "Implementation of Strict Liability by Companies in Cases of Environmental Damage in Indonesia: An Overview of State Administrative Law in Indonesia."

³² Fath, Loc.,cit.

Environmental harm is generally cumulative in nature, occurs gradually over time, and is influenced by multiple interrelated ecological factors.³³ As a result, establishing causation frequently requires extensive scientific analysis, including laboratory examinations, environmental modelling, and expert testimony from various scientific disciplines.³⁴ Consequently, evidentiary processes in environmental litigation tend to become highly technical and resource-intensive.

The strong reliance on scientific evidence also creates additional difficulties for communities affected by environmental pollution or environmental degradation. In many instances, affected communities occupy relatively weaker economic positions and lack adequate access to the scientific resources necessary to demonstrate environmental damage.³⁵ This situation may ultimately hinder public access to environmental justice, even though the legal framework formally provides mechanisms for liability without fault through the strict liability principle.

In addition to evidentiary challenges, other obstacles arise from defense strategies employed by defendants. In environmental litigation, business actors frequently raise various defensive arguments, such as the existence of force majeure, compliance with environmental permitting requirements, or the implementation of pollution prevention measures in accordance with operational standards.³⁶ Although such arguments are not always legally relevant within the conceptual framework of strict liability, they often remain central to litigation debates in practice. As a consequence, environmental disputes frequently evolve into complex technical litigation involving not only legal analysis but also scientific debates regarding pollution sources, the extent of environmental damage, and the methodologies used to calculate ecological losses.³⁷ In such circumstances, judges are required to engage not only with legal considerations but also with environmental scientific issues that often extend beyond conventional legal expertise.

³³ M Broderick, B Durning, dan L E Sánchez, “Cumulative effects,” in *Methods of Environmental and Social Impact Assessment*, 2017, 649–77, <https://doi.org/10.4324/9781315626932>.

³⁴ Cecep Aminudin, “Peranan Bukti Ilmiah (Scientific Evidence) Dalam Pengambilan Keputusan Hukum Perkara Tata Usaha Negara Lingkungan Hidup,” *Iblam Law Review* 4, no. 1 (2024): hlm. 265-275, <https://doi.org/https://doi.org/10.52249/ilr.v4i1.264>; R H Norris et al., “Analyzing cause and effect in environmental assessments: Using weighted evidence from the literature,” *Freshwater Science* 31, no. 1 (2012): 5–21, <https://doi.org/10.1899/11-027.1>.

³⁵ K Jamwal, “A litigation strategy for vulnerable communities pursuing climate litigation: The Indian iteration of the precautionary principle and the reversal of the burden of proof,” in *Climate Litigation and Vulnerabilities: Global South Perspectives*, 2025, 272–96, <https://doi.org/10.4324/9781003470632-12>.

³⁶ Ikhwan Aulia Fatahillah dan Linda Novianti, *Hukum perdata lingkungan* (PT. Revormasi Jangkar Philosophia, 2025), hlm. 20.

³⁷ L Smollin dan A Lubitow, “Environmental justice and interventions to prevent environmental injustice in the United States,” in *Encyclopedia of Environmental Health*, 2019, 561–68, <https://doi.org/10.1016/B978-0-12-409548-9.11820-2>.

Another significant challenge relates to the absence of consistent judicial standards in interpreting and applying the strict liability principle. Variations in judicial reasoning across different court decisions indicate that the understanding of strict liability remains diverse among law enforcement actors. In certain cases, judges apply the principle in a progressive manner by emphasizing environmental protection considerations. In other cases, however, the application of strict liability continues to be influenced by conventional civil litigation approaches that require strict proof of all elements of liability.

b. *Juridical Implications of the Application of Strict Liability*

These challenges generate several important juridical implications for the effectiveness of strict liability as an instrument of environmental law enforcement. One of the most prominent implications is the reduction of legal certainty in the application of the principle.³⁸ Inconsistent judicial interpretations of strict liability provisions may affect the predictability of court decisions in environmental disputes, thereby creating uncertainty for litigating parties. Another implication concerns the weakening of the preventive function of strict liability. In theory, strict liability is designed to create a deterrent effect that encourages business actors to exercise greater caution when conducting activities that may cause environmental harm. However, when the principle is not applied firmly and consistently, business actors may begin to perceive the risk of legal liability merely as a calculable operational cost within their business activities.³⁹

Such conditions contradict the fundamental objective of strict liability within environmental law, namely to place greater responsibility on actors engaged in high-risk activities. Without consistent application, the principle risks losing its strategic role as an instrument for controlling environmental risks. Furthermore, evidentiary challenges also have direct implications for public access to environmental justice. When the process of proving environmental damage becomes excessively complex and costly, communities affected by pollution often face significant barriers in pursuing their rights through civil litigation. This situation may produce structural inequalities between affected communities and business actors who possess substantially greater financial and technical resources.⁴⁰

From a broader perspective, these conditions demonstrate that the existence of strict liability norms within statutory regulations has not yet been fully supported by adequate institutional and technical infrastructure to ensure their effective implementation.

³⁸ Etheldreda E L T Wongkar, "Meninjau Kembali Strict Liability : Perkembangan Konseptual dan Tantangannya dalam Ajudikasi Lingkungan di Indonesia," *Jurnal Pro Natura* 1, no. 1 (2024): 1–18.

³⁹ E Purwanto, R Sjarief, dan M Z Saleh, "Legal Dynamics in Environmental Accountability: A Case Study of Forest Fire Litigation in Indonesia," *International Journal of Environmental Impacts* 7, no. 1 (2024): 25–30, <https://doi.org/10.18280/ijej.070103>.

⁴⁰ R Julianto dan R Arifin, "Intersection between administrative law and private law on environmental law litigation in indonesia legal system," *Indonesian Journal of Environmental Law and Sustainable Development* 2, no. 1 (2023): 69–104, <https://doi.org/10.15294/ijel.v2i1.65862>.

Therefore, strengthening technical guidelines for scientific evidence, developing standardized methods for environmental damage valuation, and improving judicial capacity in understanding environmental scientific issues are crucial steps to ensure that strict liability can function optimally within Indonesia's environmental law enforcement system.

3.3. Judicial Reasoning in Decision No. 20/Pdt.G/LH/2024/PN Surabaya

The practical application of the strict liability principle in judicial practice can be clearly observed through an analysis of the judicial reasoning in Environmental Case No. 20/Pdt.G/LH/2024/PN Surabaya. This decision provides important insight into how the strict liability norm stipulated in Article 88 of the Environmental Protection and Management Law (EPM Law) is applied in the context of environmental civil litigation. In this decision, the court positioned Article 88 of the EPM Law as the primary legal basis for assessing the defendant's liability. The judges considered that the business activities conducted by the defendant fell within the category of activities posing a high risk to the environment. Consequently, legal responsibility was no longer contingent upon proof of fault but rather upon the consequences arising from the activity itself (Decision No. 20/Pdt.G/LH/2024/PN Sby, 2024). This approach indicates that the court adopted a substantive understanding of strict liability, namely that actors engaged in high-risk activities must bear responsibility for environmental damage resulting from their operations regardless of the existence of fault. Accordingly, the central focus of the case shifted from proving negligence or intent to establishing the existence of environmental damage and the causal relationship between the defendant's activities and the resulting harm.

Nevertheless, the court emphasized the necessity of proving two essential elements in environmental civil litigation: the existence of environmental damage and the causal relationship between the defendant's activities and the damage that occurred. In this case, the judges concluded that the evidence presented by the plaintiff, including technical reports and expert testimony, sufficiently demonstrated the existence of significant environmental damage and its connection to the business activities conducted by the defendant.⁴¹ This reasoning illustrates that although strict liability eliminates the requirement to prove fault, causation remains a critical element in determining legal responsibility. In other words, strict liability does not completely eliminate evidentiary requirements in environmental litigation but rather shifts the focus of proof from fault toward the existence of environmental damage and causal linkage.

Furthermore, the court connected the imposition of liability in this case with fundamental principles of environmental law, particularly the precautionary principle and

⁴¹ Ibid.

the polluter pays principle.⁴² The judges emphasized that business actors who derive economic benefits from activities that pose environmental risks must bear legal responsibility when such activities result in environmental damage. From the perspective of environmental law, the polluter pays principle does not merely require financial compensation for damages but also imposes broader responsibilities upon polluters, including the obligation to bear the costs of environmental restoration and the social consequences arising from environmental harm.⁴³ Accordingly, the imposition of liability on business actors is not intended solely as a post-damage compensatory mechanism but also as a normative instrument to encourage pollution prevention from the earliest stages of business operations. This approach demonstrates that the court did not perceive the environmental dispute merely as a private civil conflict between litigating parties but rather as part of a broader effort to protect environmental interests that carry significant public dimensions. In this sense, the decision reflects the emergence of a more progressive judicial approach in environmental law enforcement.

In determining the amount of damages, the court also placed environmental restoration as the primary objective of civil liability. The award of damages amounting to IDR 48,030,291,929, payable to the State Treasury⁴⁴ indicates that the orientation of the judgment was not limited to compensating a particular party but was directed toward restoring the ecological functions of the damaged environment. This approach aligns with the paradigm of modern environmental law, which emphasizes environmental restoration as a central objective of legal enforcement. Within this framework, damages are understood not merely as a financial compensation mechanism but also as an instrument to ensure that degraded environmental conditions can be effectively restored.⁴⁵

Despite these progressive aspects, the analysis of the decision also reveals several critical issues that merit attention. One significant concern relates to the limited explanation provided regarding the methodology used to calculate environmental damages. In the judgment, the court stated that the valuation of damages was based on technical assessments submitted by the plaintiff; however, the decision does not provide a detailed explanation of the environmental valuation approach applied in determining the amount of damages. The absence of a sufficiently clear methodological explanation may create legal uncertainty, particularly with regard to the consistency of applying the strict liability

⁴² Elly Kristiani Purwendah dan Eti Mul Erowati, "Prinsip Pencemar Membayar (Polluter Pays Principle) Dalam Sistem Hukum Indonesia," *Jurnal Pendidikan Kewarganegaraan Undiksha* 9, no. 2 (2021): hlm. 340-355.

⁴³ D Gorun, "Theoretical and practical aspects regarding the applying of the principle "polluter pays"," *WSEAS Transactions on Environment and Development* 14 (2018): 481-94.

⁴⁴ Mahkamah Agung, Putusan Nomor 20/Pdt.G/LH2024/PN Sby (2024).

⁴⁵ L Himawan dan E S Lestari, "Settlement of Environmental Crime Through Restorative Justice," in *IOP Conference Series: Earth and Environmental Science*, vol. 1270, 2023, <https://doi.org/10.1088/1755-1315/1270/1/012009>.

principle in future environmental cases. In international environmental law practice, the assessment of environmental damage generally requires the use of transparent and standardized valuation methodologies to ensure proportionality between the environmental harm caused and the remedial or compensatory measures imposed. Such an approach is reflected, for example, in the framework of the Environmental Liability Directive, which is grounded in the polluter pays principle.⁴⁶ Without clear methodological standards, the determination of environmental damages may depend heavily on the quality and analytical approach of technical studies submitted by litigating parties, potentially affecting the consistency of judicial decisions and reducing the predictability of environmental law enforcement.

In addition, the decision does not provide a comprehensive explanation regarding the mechanisms for supervising the use of environmental restoration funds deposited into the State Treasury. In environmental law enforcement practice, oversight of environmental restoration implementation is an essential factor to ensure that judicial decisions produce tangible ecological improvements. Without an effective monitoring mechanism, the objective of environmental restoration risks remaining merely normative rather than producing measurable ecological recovery. Based on this analysis, this study argues that Decision No. 20/Pdt.G/LH/2024/PN Surabaya represents a progressive development in the application of the strict liability principle within Indonesian environmental litigation. The court did not merely apply Article 88 of the EPM Law in a formalistic manner but also integrated it with fundamental environmental law principles emphasizing environmental protection and ecological restoration.

At the same time, however, the decision also illustrates the structural limitations of strict liability implementation in judicial practice. The complexity of scientific evidence, the absence of standardized environmental damage valuation methods, and the still-limited mechanisms for supervising environmental restoration demonstrate that the effectiveness of strict liability remains closely dependent on the strengthening of institutional and technical frameworks within the environmental law enforcement system. Therefore, this study emphasizes that the successful implementation of strict liability does not depend solely on the existence of legal norms within statutory regulations but also on consistent judicial interpretation, the development of technical guidelines for environmental evidence, and stronger integration between legal analysis and environmental science within judicial processes.

⁴⁶ J Martin-Ortega, R Brouwer, dan H Aiking, "Application of a value-based equivalency method to assess environmental damage compensation under the European Environmental Liability Directive," *Journal of Environmental Management* 92, no. 6 (2011): 1461–70, <https://doi.org/10.1016/j.jenvman.2010.12.001>.

4. Conclusion

This study demonstrates that the principle of strict liability has become a significant instrument within Indonesia's environmental legal system, particularly through its regulation in Article 88 of Law No. 32 of 2009 on Environmental Protection and Management. The incorporation of this principle reflects a fundamental shift in environmental liability from a fault-based liability regime toward a risk-based approach, in which actors engaged in activities posing significant environmental risks may be held legally responsible for environmental harm regardless of fault. Although subsequent regulatory changes introduced through the Job Creation Law did not abolish the concept of strict liability, the modification of the normative wording has created potential uncertainties in legal interpretation, particularly regarding the evidentiary boundaries in environmental civil litigation. This study further finds that the implementation of strict liability in judicial practice continues to face various juridical and structural challenges. These challenges primarily relate to the complexity of proving environmental damage, the difficulty of establishing causal links between business activities and environmental harm, and the heavy reliance on scientific evidence and expert testimony in environmental litigation.

These findings indicate that, although the strict liability principle is normatively intended to simplify the evidentiary burden in environmental disputes, in practice environmental litigation still requires complex and costly technical proof. Consequently, such procedural complexities may inadvertently limit public access to environmental justice, particularly for communities affected by environmental pollution or degradation. The analysis of Decision No. 20/Pdt.G/LH/2024/PN Surabaya reveals that the court adopted a relatively progressive approach in applying the strict liability principle. The court not only relied on the formal provisions of Article 88 but also interpreted the principle in conjunction with fundamental environmental law doctrines, particularly the precautionary principle and the polluter pays principle, while placing environmental restoration as the primary objective of civil liability. This judicial reasoning reflects an emerging tendency for courts to strengthen the role of strict liability as an instrument for environmental protection.

However, this study also emphasizes that the effectiveness of strict liability does not depend solely on the existence of legal norms within statutory frameworks. Rather, it requires broader institutional and technical support mechanisms. In particular, the development of standardized methodologies for environmental damage valuation, clearer evidentiary guidelines for environmental cases, and more effective mechanisms for monitoring the implementation of environmental restoration are essential to ensure that judicial decisions lead to tangible ecological recovery. Therefore, strengthening the institutional and technical foundations of environmental law enforcement is crucial to ensure that the strict liability principle functions not merely as a normative provision but as

an effective legal instrument capable of advancing environmental protection and ecological restoration in a sustainable and equitable manner.

5. References

- Agung, Mahkamah. Putusan Nomor 20/Pdt.G/LH2024/PN Sby (2024).
- Al-Khowarizi, Muhammad Ibnu Musa. "Penerapan Asas Tanggungjawab Mutlak (Strict Liability) Dalam Kasus Pencemaran Lingkungan (Analisis Hukum Terhadap Putusan No 107/Pdt. G/LH/2019/PN Jmb)." *Dinamika* 28, no. 9 (2022): hlm. 4463-4480.
- Alhayyan, Riadhi, dan Jelly Leviza. "Peranan Dan Kewenangan Pemerintah Provinsi Sumatera Utara Terkait Penerapan Asas Tanggung Jawab Mutlak (Strict Liability) Berdasarkan Undang-Undang Nomor 32 Tahun 2009 Tentang Perlindungan Dan Pengelolaan Lingkungan Hidup." *Jurnal Hukum Samudra Keadilan* 15, no. 2 (2020): hlm. 223-236. <https://doi.org/https://doi.org/10.33059/jhsk.v15i2.2806>.
- Ali, M, M A Setiawan, dan W Sanjaya. "Punishing Environmental Offenses Without Guilty Mind: Regulatory Framework and Judicial Responses." *International Journal of Sustainable Development and Planning* 17, no. 3 (2022): 907-13. <https://doi.org/10.18280/IJSDP.170320>.
- Aminudin, Cecep. "Peranan Bukti Ilmiah (Scientific Evidence) Dalam Pengambilan Keputusan Hukum Perkara Tata Usaha Negara Lingkungan Hidup." *Iblam Law Review* 4, no. 1 (2024): hlm. 265-275. <https://doi.org/https://doi.org/10.52249/ilr.v4i1.264>.
- Amir, Irfan, Lazarus Try Setyawanta, Amalia Diamantiana, dan Andi Sugirman. "Climate Constitutionalism in Indonesia: Legal Pathways for Climate Action." *Al Bayyinah* 9, no. 2 (2025): 260-71. <https://doi.org/https://doi.org/10.30863/al-bayyinah.v9i2.10733>.
- Broderick, M, B Durning, dan L E Sánchez. "Cumulative effects." In *Methods of Environmental and Social Impact Assessment*, 649-77, 2017. <https://doi.org/10.4324/9781315626932>.
- Cholkami, C, M J M AlQudah, dan M Albasha. "Legal Frameworks for Liability for Damages Resulting from Industrial Activities: Towards Environmental and Economic Sustainability." In *Studies in Systems, Decision and Control*, 227:1881-94, 2026. https://doi.org/10.1007/978-3-031-95310-1_136.
- Cózar Escalante, J M De. "The precautionary principle and the environment." *Revista Espanola de Salud Publica* 79, no. 2 (2005): 133-44. <https://doi.org/10.1590/s1135-57272005000200003>.
- Fatah, A. "Citizen Lawsuit in Environmental Cases." *Lentera Hukum* 6, no. 2 (2019): 289-308. <https://doi.org/10.19184/ejlh.v6i2.9675>.
- Fatahillah, Ikhwan Aulia, dan Linda Novianti. *Hukum perdata lingkungan*. PT. Revormasi Jangkar Philosophia, 2025.
- Fath, Al. "Analisis Yuridis Penerapan Strict Liability Dalam Undang-Undang Perlindungan Dan Pengelolaan Lingkungan Hidup Yang Diubah Oleh Undang-Undang Ciptakerja." *Jurnal Batavia* 2, no. 2 (2025): hlm. 110-120. <https://doi.org/https://doi.org/10.64578/batavia.v2i2.168>.
- Fathurahman, Arif. "Penerapan prinsip pertanggungjawaban mutlak dalam gugatan pemerintah atas pencemaran lingkungan hidup." *PUSKAPSI Law Review* 5, no. 1 (2025): hlm. 101-118. <https://doi.org/https://doi.org/10.19184/puskapsi.v5i1.53728>.

- Fikri, M A Al. "Implementation of Strict Liability by Companies in Cases of Environmental Damage in Indonesia: An Overview of State Administrative Law in Indonesia." *Indonesian State Law Review* 5, no. 2 (2022): 41–52. <https://doi.org/10.15294/islrev.v5i2.47460>.
- Gorun, D. "Theoretical and practical aspects regarding the applying of the principle "polluter pays"." *WSEAS Transactions on Environment and Development* 14 (2018): 481–94.
- Himawan, L, dan E S Lestari. "Settlement of Environmental Crime Through Restorative Justice." In *IOP Conference Series: Earth and Environmental Science*, Vol. 1270, 2023. <https://doi.org/10.1088/1755-1315/1270/1/012009>.
- Himsworth, C M G. "Unsustainable developments in lawmaking for environmental liability?" In *Justice, Property and the Environment: Social and Legal Perspectives*, 161–77, 2018. <https://doi.org/10.4324/9780429451805-11>.
- Ishak, M B, dan M A A Samah. "Strict liability versus policy and regulation for environmental protection and agricultural waste management in Malaysia." *EnvironmentAsia* 3, no. SPECIAL ISSUE (2010): 11–19. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-76849104831&partnerID=40&md5=5e2c6081f45daf03800b104ddc9f3c48>.
- Jamwal, K. "A litigation strategy for vulnerable communities pursuing climate litigation: The Indian iteration of the precautionary principle and the reversal of the burden of proof." In *Climate Litigation and Vulnerabilities: Global South Perspectives*, 272–96, 2025. <https://doi.org/10.4324/9781003470632-12>.
- Julianto, R, dan R Arifin. "Intersection between administrative law and private law on environmental law litigation in indonesia legal system." *Indonesian Journal of Environmental Law and Sustainable Development* 2, no. 1 (2023): 69–104. <https://doi.org/10.15294/ijel.v2i1.65862>.
- Listiyani, N, dan M Yasir Said. "Political law on the environment: The authority of the government and local government to file litigation in law number 32 year 2009 on environmental protection and management." *Resources* 7, no. 4 (2018). <https://doi.org/10.3390/resources7040077>.
- Magomet, R D, dan N A Mironenkova. "The impact of anthropogenic activities on the indicators of environmental pollution." *Biosciences Biotechnology Research Asia* 12, no. 1 (2015): 7–14. <https://doi.org/10.13005/bbra/1629>.
- Martin-Ortega, J, R Brouwer, dan H Aiking. "Application of a value-based equivalency method to assess environmental damage compensation under the European Environmental Liability Directive." *Journal of Environmental Management* 92, no. 6 (2011): 1461–70. <https://doi.org/10.1016/j.jenvman.2010.12.001>.
- Marzuki, Peter Mahmud. *Penelitian Hukum*. Edisi Revi. Jakarta: Prenadamedia Group, 2015.
- Maulana, Jalu Akbar, dan Fadila Nur Annisa. "Analisa Yuridis Perubahan Makna Strict Liability dalam Undang-Undang Lingkungan Hidup Pasca Pengesahan Undang-Undang Cipta Kerja." *Amnesti: Jurnal Hukum* 6, no. 2 (2024): hlm. 298-314. <https://doi.org/https://doi.org/10.37729/amnesti.v6i2.4935>.
- Muryati, Dewi Tuti, Dharu Triasih, dan Tri Mulyani. "Implikasi kebijakan izin lingkungan terhadap lingkungan hidup di indonesia." *Jurnal usm law review* 5, no. 2 (2022): hlm. 693-707. <https://doi.org/https://doi.org/10.26623/julr.v5i2.5773>.
- Norris, R H, J A Webb, S J Nichols, M J Stewardson, dan E T Harrison. "Analyzing cause and effect in environmental assessments: Using weighted evidence from the literature." *Freshwater Science* 31, no. 1 (2012): 5–21. <https://doi.org/10.1899/11->

027.1.

- Nugroho, Wisnu Sapto, Romana Harjiyatni, dan Sunarya Rahardja. "Gugatan warga melalui citizen lawsuit pada kebakaran hutan dan lahan dalam konsep ekokarsi Tinjauan putusan MA no 3555 kpdt 2018." *Kajian Hasil Penelitian Hukum* 4, no. 1 (2020): hlm. 713-735. <https://doi.org/http://dx.doi.org/10.37159/jmih.v4i1.1230>.
- Nyekwere, E H, U Nnawulezi, S E Adiyatma, K Balarabe, dan M A Rouf. "Constitutional and Judicial Interpretation of Environmental Laws in Nigeria, India and Canada." *Lex Scientia Law Review* 7, no. 2 (2023): 905-58. <https://doi.org/10.15294/lesrev.v7i2.69394>.
- Purwanto, E, R Sjarief, dan M Z Saleh. "Legal Dynamics in Environmental Accountability: A Case Study of Forest Fire Litigation in Indonesia." *International Journal of Environmental Impacts* 7, no. 1 (2024): 25-30. <https://doi.org/10.18280/ije.070103>.
- Purwendah, Elly Kristiani, dan Eti Mul Erowati. "Prinsip Pencemar Membayar (Polluter Pays Principle) Dalam Sistem Hukum Indonesia." *Jurnal Pendidikan Kewarganegaraan Undiksha* 9, no. 2 (2021): hlm. 340-355.
- Putri Faizal, Z. "Strict Liability in Environmental Dispute Responsibility Before and After the Enabling of Omnibus Law." *Administrative and Environmental Law Review* 2, no. 1 (2021): 53-60. <https://doi.org/10.25041/aclr.v2i1.2318>.
- Rachmawati, I. "The Transformation from Fault Liability to Strict Liability: A Cutting-edge Indonesian Maritime Tort Law." In *E3S Web of Conferences*, Vol. 622, 2025. <https://doi.org/10.1051/e3sconf/202562202006>.
- RI, Mahkamah Agung. "Pengadilan Negeri Surabaya, Putusan Nomor 20/Pdt.G/LH/2024/PN Sby, tanggal 10 September 2024, Direktori Putusan Mahkamah Agung Republik Indonesia, diakses pada 19 Februari 2026.," n.d.
- Rizkia, Nanda Dwi, dan Hardi Fardiansyah. *Metode Penelitian Hukum (Normatif dan Empiris)*. Penerbit Widina, 2023.
- Ruzieva, M, dan U Ruziev. "Assessing environmental problems: Primary indicators and their role in ecosystem management." In *E3S Web of Conferences*, Vol. 587, 2024. <https://doi.org/10.1051/e3sconf/202458702012>.
- Sembiring, Raynaldo, Yustisia Rahman, Elizabeth Napitupulu, Margaretha Quina, dan Rika Fajrini. *Anotasi Undang-Undang Nomor 32 Tahun 2009 Tentang Perlindungan Dan Pengelolaan Lingkungan Hidup. Indonesian Center for Environmental Law (ICEL)*. Edisi Pert., 2014.
- Smollin, L, dan A Lubitow. "Environmental justice and interventions to prevent environmental injustice in the United States." In *Encyclopedia of Environmental Health*, 561-68, 2019. <https://doi.org/10.1016/B978-0-12-409548-9.11820-2>.
- Wagner, L. "Environmental justice." In *The Routledge Handbook to the Political Economy and Governance of the Americas*, 93-102, 2020. <https://doi.org/10.4324/9781351138444-9>.
- Wamuyu, H, C Odote, dan S Anyango. "Compensating Toxic Torts in Kenya: Overcoming the Causation Dilemma." *Journal of Sustainable Development Law and Policy* 12, no. 2 (2021): 258-81. <https://doi.org/10.4314/jsdlp.v12i2.5>.
- Wongkar, Etheldreda E L T. "Meninjau Kembali Strict Liability: Perkembangan Konseptual dan Tantangannya dalam Ajudikasi Lingkungan di Indonesia." *Jurnal Pro Natura* 1, no. 1 (2024): 1-18.
- Wood-Donnelly, C. "Environmental Justice." In *Theorising Justice: A Primer for Social Scientists*, 141-54, 2023. <https://doi.org/10.51952/9781529232233.ch009>.