Reconstructing Environmental Criminal Law in Indonesia Through a Comparative Zemiological Legal Study

Zico Junius Fernando[1], Annisa Sabilla Sueni[2], Firdaus Arifin[3], Susi Ramadhani[4], Almira Novia Zulaika[5]
[124]Faculty of Law, Universitas Bengkulu, Indonesia
[3]Faculty of Law, Universitas Pasundan, Indonesia
[5]Melbourne Law School, University of Melbourne, Australia
[1]zjfernando@unib.ac.id
[2]annisa.sabillasueni@unib.ac.id
[3]firdaus.arifin@unpas.ac.id
[4]sramadhani@unib.ac.id
[5]aalmiranovia@gmail.com

Abstract

Environmental crimes in Indonesia are increasingly recognized not only as violations of legal norms but also as social and ecological harms affecting communities and ecosystems. However, the existing framework of environmental criminal law remains largely formalistic, emphasizing administrative violations and statutory illegality while insufficiently addressing the broader dimension of socio-ecological harm. This research examines how a zemiological perspective can contribute to the reconstruction of environmental criminal law in Indonesia through a comparative legal study. Using a normative juridical method with statute, conceptual, and comparative approaches, this study analyzes Indonesian environmental criminal law alongside developments in Belgium, the European Union, Argentina, Scotland, and the Philippines. The findings demonstrate that Indonesian law continues to rely on formal legality and weak corporate accountability, whereas comparative jurisdictions increasingly recognize severe environmental harm, ecocide, and collective victimization as bases for criminal responsibility. The contribution of this research lies in three main aspects. First, it develops a zemiological framework as a new theoretical basis for evaluating environmental criminal law beyond formal statutory violations, emphasizing social and ecological harm as the central criterion for criminalization. Second, it provides a systematic comparative legal analysis that identifies normative gaps between Indonesian law and emerging global models of harm-based environmental criminal law. Third, it proposes a conceptual model for reconstructing environmental criminal law in Indonesia by integrating the principles of social harm, the recognition of ecocide, and strengthened corporate liability.

Keywords: *Zemiology, Environmental Criminal Law, Social Harm, Ecocide, Legal Reconstruction*

Introduction

Environmental degradation is increasingly recognized as one of the most urgent challenges of the twenty-first century, transcending borders and demanding collective responses at both global and local levels.[1] Indonesia, endowed with abundant natural resources, tropical forests, and a unique role as a global biodiversity hotspot, sits at the center of this dilemma.[2] Yet the country is simultaneously confronted with severe ecological crises caused by deforestation, extractive mining, large-scale palm oil expansion, and industrial waste.

Based on data from the Ministry of Environment and Forestry (KLHK) as of January 2024, Indonesia's net deforestation during the 2021–2022 period was recorded at 104 thousand hectares. This figure shows a decline compared to the 2020–2021 period, which reached 113.5 thousand hectares. For comparison, the highest deforestation occurred between 1996 and 2000, with an average of 3.5 million hectares per year. Meanwhile, during the 2002–2014 period, the annual average was 0.75 million hectares, with the lowest deforestation rate recorded in 2022 at 104 thousand hectares.[3]

According to KLHK, deforestation in 2022 still took place within concession areas, including oil palm plantations and industrial forest plantations (HTI). In oil palm plantations, deforestation reached 28.5 thousand hectares, distributed across Maluku (119.8 hectares), Sulawesi (1.6 thousand hectares), Papua (3.3 thousand hectares), Sumatra (5.2 thousand hectares), and Kalimantan (18.3 thousand hectares). Within HTI areas, deforestation covered 36.6 thousand hectares, spread across Sumatra (7.9 thousand hectares), Kalimantan (27.9 thousand hectares), Sulawesi (466.3 hectares), Papua (56.4 thousand hectares), and Java–Bali–Nusa

[1] Michelle Ann Miller, Jonathan Rigg, and David Taylor, "Transboundary Environmental Governance: Emerging Themes and Lessons from Southeast Asia," *Environmental Policy and Governance* 32, no. 4 (August 1, 2022): 275–80, https://doi.org/10.1002/EET.2012.
[2] Didik Widyatmoko, "Biodiversity in Indonesia," in *Global Biodiversity* (Apple Academic Press, 2018), 149–64, https://doi.org/10.1201/9780429487743-5.
[3] Forest Watch Indonesia, "Klaim Deforestasi KLHK: Titik Terendah Atau Beda Cara Hitung?," fwi.or.id, 2024, https://fwi.or.id/klaim-deforestasi-klhk-berbeda-dengan-ngo/.

Tenggara (8.1 thousand hectares). Global Forest Watch (GFW) reported that from 2001 to 2022, Indonesia lost approximately 10.3 million hectares of primary forest. The declining trend began after 2017, when forest loss reached 928,660 hectares (the highest since 2001), before dropping to 373,255 hectares in 2017, 339,888 hectares in 2018, 323,646 hectares in 2019, 270,057 hectares in 2020, and 202,905 hectares in 2021. However, in 2022, forest loss increased slightly to around 230 thousand hectares, equivalent to 177 million tons of CO_2 emissions. Forest Watch Indonesia (FWI) presented a different dataset. Between 2017 and 2021, FWI recorded a loss of 9.6 million hectares of natural forest.[4] In 2017, Indonesia still had around 96.4 million hectares of natural forest, but by 2021, this had declined to 86.7 million hectares. On average, this represents an annual forest loss of 2.4 million hectares equivalent to six football fields every minute.

In detail, FWI's figures show annual average forest loss of 1.11 million hectares in Kalimantan, 556 thousand hectares in Papua, 428 thousand hectares in Sumatra, 290 thousand hectares in Sulawesi, 89 thousand hectares in Maluku, 38 thousand hectares in Bali–Nusa Tenggara, and 22 thousand hectares in Java. In small islands, a total of 874 thousand hectares of natural forest have been lost, or about 13% of the total land area of these islands. Of this, 310 thousand hectares were lost to logging, 245 thousand hectares to mining, 94 thousand hectares to industrial plantations, 194 thousand hectares to agriculture, and 30 thousand hectares to overlapping concessions. FWI further estimated that the average rate of deforestation in small islands reached 79 thousand hectares per year, or approximately 3% of the national deforestation rate.[5] These figures reveal that forest degradation in Indonesia not only occurs in large regions such as Kalimantan and Papua, but also extends to fragile ecosystems in small islands, contributing significantly to greenhouse gas emissions and accelerating biodiversity loss. These ecological harms cannot be separated from their social repercussions, the

[4] Forest Watch Indonesia.
[5] Forest Watch Indonesia.

displacement of indigenous groups, destruction of traditional livelihoods, rising public health emergencies, and widening intergenerational inequality. Within this context, the inadequacy of conventional criminal law frameworks in addressing the magnitude of harm becomes increasingly visible.[6]

The dominant orientation of criminal law in Indonesia is built on a framework that privileges statutory violations, emphasizing the breach of codified legal norms.[7] Under the Environmental Protection and Management Act (Law No. 32 of 2009) and the recently enacted Criminal Code (Law No. 1 of 2023), environmental offenses are generally defined by their formal illegality whether an action contravenes licensing requirements, exceeds emission thresholds, or violates administrative obligations. While these provisions provide avenues for prosecution, they do not encompass the full dimension of social harm produced by ecological destruction. Large-scale forest fires in Sumatra and Kalimantan in 2019 illustrate this shortcoming: more than 1.6 million hectares of land burned, producing toxic haze that spread across national borders. 919,516 people were reported to suffer acute respiratory infections across Indonesia, Malaysia, and Singapore.[8] Nevertheless, prosecutions focused disproportionately on small-scale actors and were often confined to administrative penalties, while major corporate beneficiaries of the destruction remained largely insulated from meaningful criminal liability.

The gap between the rigid boundaries of legal formalism and the complex realities of social harm brings zemiology into sharp relevance. Emerging from critical criminology in the United Kingdom during the 1990s, zemiology shifts the

[6] Valeria Vegh Weis, "Towards a Critical Green Southern Criminology: An Analysis of Criminal Selectivity, Indigenous Peoples and Green Harms in Argentina," *International Journal for Crime, Justice and Social Democracy* 8, no. 3 (September 22, 2025): 38–55, https://doi.org/10.5204/IJCJSD.V8I3.1244.

[7] Yaris Adhial Fajrin and Ach. Faisol Triwijaya, "Arah Pembaharuan Hukum Pidana Indonesia Di Tengah Pluralisme Hukum Indonesia," *Ekspose: Jurnal Penelitian Hukum Dan Pendidikan* 18, no. 1 (July 24, 2019): 734–40, https://doi.org/10.30863/EKSPOSE.V18I1.361.

[8] Aulia Mutiara Hatia Putri, "Jadi Sorotan Media Asing, Seberapa Parah Kebakaran Hutan RI?," cnbcindonesia.com, 2023, https://www.cnbcindonesia.com/research/20230918111352-128-473331/jadi-sorotan-media-asing-seberapa-parah-kebakaran-hutan-ri?

analytical focus away from crime as a strictly legal category toward harm as a broader social phenomenon.[9] Derived from the Greek term *zemia*, meaning harm or loss, zemiology critiques the limitations of criminal law, which tends to equate wrongfulness exclusively with statutory prohibitions. This perspective emphasizes that some of the most severe harms environmental degradation, economic exploitation, systemic inequalities remain either outside the scope of criminalization or inadequately addressed within existing legal frameworks.[10] In the Indonesian setting, zemiology opens the possibility of reconceptualizing environmental criminal law so that it responds not only to breaches of administrative regulation but also to the extensive harms inflicted on communities and ecosystems.

This reorientation becomes pressing when viewed against international legal developments. Belgium revised its Penal Code in 2024 to recognize ecocide as a criminal offense, defined as serious and widespread damage to the environment.[11] Similar legislative efforts are underway in Argentina and Scotland, where bills have been introduced to impose penalties of up to 20 years' imprisonment and significant corporate fines for acts of ecocide. These initiatives signal a growing global consensus that environmental destruction constitutes more than regulatory violation it represents a category of social harm demanding criminal recognition and robust sanction. In contrast, the new Indonesian Criminal Code retains a narrow conception of environmental crime, risking the legitimization of destructive activities so long as they are carried out under government-issued permits.

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[9] Lois Presser, "Social Harm/Zemiology," in *The Routledge Companion to Criminological Theory and Concepts* (Taylor and Francis, 2017), 377–80, https://doi.org/10.4324/9781315744902-84/SOCIAL-HARM-ZEMIOLOGY-LOIS-PRESSER.

[10] Robin Klimecki and Martin Parker, "Business Ethics, Law and Zemiology: The Criminology of Social and Environmental Harm," *Business Ethics, the Environment & Responsibility* 34, no. 4 (October 1, 2025): 1886–96, https://doi.org/10.1111/BEER.12742.

[11] Li Wei, Mariana Oliveira, and Camila Rodríguez, "Prosecuting Ecological Destruction: Comparative Legal Perspectives on the Crime of Ecocide," *Interdisciplinary Studies in Society, Law, and Politics* 4, no. 2 (April 1, 2025): 280–91, https://doi.org/10.61838/KMAN.ISSLP.4.2.24.

The urgency of reconsidering Indonesia's legal stance is reinforced by domestic case studies. A landmark example is the prosecution of PT Kallista Alam, a palm oil company convicted in 2014 for deliberately burning protected peatland in the Tripa Swamp of Aceh.[12] The court ordered the company to pay 366 billion rupiah (approximately USD 26 million) in fines and restoration costs.[13] The case was hailed as a breakthrough for environmental accountability, yet the enforcement of the ruling was delayed for years, and doubts persist regarding the effectiveness of ecosystem restoration. Viewed through a zemiological lens, the disparity becomes clear between the scale of harm loss of irreplaceable peatland, release of millions of tons of carbon dioxide, the devastation of community livelihoods and the limited scope of legal remedies, which emphasized financial compensation while failing to address long-term social and ecological consequences.

The 2019 forest fire disaster provides another illustration. Vast smoke haze blanketed Southeast Asia, and while several plantation companies faced convictions and penalties, communities most directly affected saw little meaningful redress. Medical costs, prolonged economic disruption, and enduring damage to agricultural productivity were borne largely by local populations without systematic compensation.[14] This scenario raises fundamental questions about the definition of "victim" in environmental crime. Traditional criminal law tends to identify victims narrowly as individuals or property owners, while zemiology insists on a broader conception encompassing entire communities, ecosystems, and even generations yet to come.[15] Without such a shift in perspective, environmental criminal law risks

[12] Lisa Ikhsana and Nabilla Alya Rahmah, "Civil Lawsuit Cases of Forest and Land Fires PT Kalista Alam (Study of Meulaboh District Court Decision Number 12/PDT.G/2012/PN.MBO)," *Jurnal Scientia Indonesia* 7, no. 2 (October 30, 2021): 185–200, https://doi.org/10.15294/JSI.V7I2.36152.
[13] Ikhsana and Rahmah.
[14] Joan Reibman et al., "Destruction of the World Trade Center Towers. Lessons Learned from an Environmental Health Disaster," *Annals of the American Thoracic Society* 13, no. 5 (May 1, 2016): 577–83, https://doi.org/10.1513/AnnalsATS.201509-572PS.
[15] Grace Alexandra Bell, "The Ciudad Juárez Fire: Zemiology's Expansion of a Criminological Analysis," *Contemporary Challenges: The Global Crime, Justice and Security Journal* 5 (September 27, 2024): 38–47, https://doi.org/10.2218/CCJ.V5.9365.

reinforcing a narrow vision of justice that fails to address the most substantial harms.[16]

The limitations of Indonesia's environmental criminal law are part of a global challenge.[17] Efforts in other jurisdictions show how legal systems are beginning to align with the realities of harm. The European Union's Environmental Crime Directive of 2024 requires member states to criminalize severe environmental harm, recognize corporate liability, and establish sanctions that are both effective and dissuasive.[18] In the Philippines, the constitutional remedy known as the *writ of Kalikasan* empowers communities to bring environmental claims even in the absence of direct individual harm.[19] These developments reflect a legal trajectory toward recognizing the expansive scope of environmental harm, a trajectory that resonates directly with the insights of zemiology. Zemiology calls for re-centering harm regardless of whether it falls within the strict boundaries of criminal statutes as the core benchmark for legal response.[20] Such a transformation would bring Indonesian law closer to emerging global practices and provide a more responsive framework to address the inequities borne disproportionately by vulnerable populations.

The broader significance of adopting a zemiological approach lies in its potential to reconceptualize the very purpose of criminal law in environmental governance. Rather than confining criminal liability to acts explicitly defined as

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[16] Matthew Hall, "Criminal Redress in Cases of Environmental Victimization: A Defence," *Http://Dx.Doi.Org/10.1177/0269758016672027* 23, no. 2 (November 14, 2016): 203, https://doi.org/10.1177/0269758016672027.

[17] Gregorius Widiartana, Vincentius Patria Setyawan, and Ariesta Wibisono Anditya, "Ecocide as an Environmental Crime: Urgency for Legal Reform in Indonesia," *Journal of Law, Environmental and Justice* 3, no. 2 (August 1, 2025): 268–308, https://doi.org/10.62264/JLEJ.V3I2.129.

[18] Michael G. Faure, "The EU Environmental Crime Directive 2024: A Revolution in EU Environmental Criminal Law?," *Journal of Environmental Law* 36, no. 3 (November 11, 2024): 323–42, https://doi.org/10.1093/JEL/EQAE020.

[19] Reynato S. Puno and Dante B. Gatmaytan, "Environmental Activism by The Philippine Supreme Court: Initiatives and Impediments," *Asia Pacific Journal of Environmental Law* 27, no. 1 (June 28, 2024): 10–35, https://doi.org/10.4337/APJEL.2024.01.01.

[20] Justin Kotzé, "Criminology or Zemiology? Yes, Please! On the Refusal of Choice Between False Alternatives," *Critical Criminological Perspectives*, 2018, 85–106, https://doi.org/10.1007/978-3-319-76312-5_5.

offenses, the law would be empowered to address the gravest harms to society and nature, even when cloaked in the legitimacy of permits or regulatory compliance. This has profound implications for a country like Indonesia, where powerful corporate actors frequently exploit regulatory loopholes to justify environmentally destructive practices. By integrating zemiology into the framework of environmental criminal law, the legal system could move beyond rigid formalism, recognize harm in its fullest dimensions, and hold perpetrators accountable in proportion to the true scale of the damage they cause.[21]

The reconstruction of environmental criminal law through zemiology also necessitates rethinking the aims of punishment. Traditional theories of retribution and deterrence, while still relevant, must be complemented with restorative and preventive objectives.[22] Restorative justice in the environmental context entails not only repairing ecological damage but also compensating affected communities and ensuring non-recurrence.[23] Preventive justice requires structural reforms that disincentivize harmful practices before they occur, including stronger corporate liability regimes and integration of scientific evidence in legal processes.[24] By embedding these aims within a zemiological framework, Indonesia could transform its environmental criminal law into a tool that genuinely safeguards both society and nature.

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[21] Victoria Canning and Steve Tombs, "From Social Harm to Zemiology: A Critical Introduction," in *From Social Harm to Zemiology: A Critical Introduction* (Taylor and Francis Inc., 2021), 1–156, https://doi.org/10.4324/9780429430497/Social-Harm-Zemiology-Victoria-Canning-Steve-Tombs/Rights-And-Permissions.

[22] Aa Muhamad Zaenudin, Kristiawanto Kristiawanto, and Maryano Maryano, "Criminal Law Enforcement Against Perpetrators of Environmental Pollution in The Criminal Justice System in Indonesia," *Policy, Law, Notary And Regulatory Issues* 4, no. 2 (March 22, 2025): 191–210, https://doi.org/10.55047/POLRI.V4I2.1675.

[23] Lorenzo Natali and Matthew Hall, "A Green Criminological Approach to Environmental Victimization and Reparation: A Case for Environmental Restorative Justice," *Rethinking Post-Disaster Recovery: Socio-Anthropological Perspectives on Repairing Environments*, January 1, 2021, 165–84, https://doi.org/10.4324/9781003184782-12.

[24] Christopher Slobogin, "Preventive Justice: A Paradigm in Need of Testing," *Behavioral Sciences and the Law* 36, no. 4 (July 1, 2018): 391–410, https://doi.org/10.1002/bsl.2350.

Empirical evidence underscores the urgency of this transformation. The World Bank estimates that environmental degradation costs Indonesia around 3.5% of its annual GDP, primarily through health impacts, reduced agricultural productivity, and loss of ecosystem services. Such figures highlight the inadequacy of current legal responses, which often reduce complex social harms to isolated violations punishable by modest fines or short prison terms. Zemiology reminds us that behind these statistics lie profound disruptions to human well-being and intergenerational justice. By aligning criminal law with the recognition of harm, Indonesia can begin to address not only the symptoms but the structural drivers of environmental injustice.

Methods

This research employs a normative legal method, which is an approach that focuses on the study of positive legal norms.[25] This method is chosen because the issues under examination are closely related to the framework of prevailing legislation, legal doctrines, and fundamental principles underlying the system of environmental criminal law in Indonesia.[26] By positioning law as a normative system, the study seeks to explain, interpret, and evaluate the coherence between normative provisions and the realities of practice. Within the framework of the normative legal method, this research adopts several approaches. First, the statutory approach, used to critically examine Law No. 32 of 2009 on Environmental Protection and Management, as well as the new Criminal Code (Law No. 1 of 2023), particularly the provisions governing environmental crimes. Second, the conceptual approach is applied to explore theoretical ideas, such as the concept of social harm in zemiology, to find philosophical and conceptual justifications for reconstructing

[25] Zico Junius Fernando et al, "Eco-Democracy: Advancing Sustainable Governance Through Green Politics," *Proceeding APHTN-HAN* 2, no. 1 (December 31, 2024): 231–72, https://doi.org/10.1126/SCIENCE.AAL4863.
[26] Zico Junius Fernando and Muhammad Imanuddin, "Green Financial Crime in The Perspective of Islamic Law," *Khazanah Hukum* 7, no. 2 (June 28, 2025): 206–22, https://doi.org/10.15575/KH.V7I2.39211.

environmental criminal law. Third, the comparative approach, which compares practices and regulations in other jurisdictions such as Belgium, Argentina, and Scotland, as well as legal instruments in the European Union and the Philippines, with the aim of identifying relevant points for the development of Indonesian law. The nature of this research is descriptive-prescriptive.[27] Descriptive means that the study seeks to provide a comprehensive picture of the current state of environmental criminal law in Indonesia, including the weaknesses inherent in its regulatory framework and enforcement practices. Prescriptive means that the study does not stop at description, but also offers normative solutions in the form of recommendations for reconstructing environmental criminal law through a zemiological perspective. In this way, the research addresses not only questions of "what is" (*das sein*), but also formulates ideas concerning "what ought to be" (*das sollen*).

The data used in this research consist of legal materials, including primary, secondary, and tertiary legal sources. Primary legal materials include relevant legislation, court decisions, and international legal instruments. Secondary materials comprise academic literature, prior research, scholarly journals, and other works that provide conceptual understanding. Tertiary materials include legal dictionaries, encyclopedias, and other supporting references. The data are analyzed using content analysis.[28] This method allows the researcher to examine the normative substance of legal provisions, assess the consistency of the concepts employed, and evaluate their relevance in addressing social and ecological harms. Through content analysis[29], the study reveals structural weaknesses in Indonesia's

[27] Pidari Sinaga et al., "Kejahatan Biodiversitas Dan Urgensi Peran Hukum Pidana Dalam Sektor Agraria," *Jurnal Pembangunan Hukum Indonesia* 6, no. 2 (June 27, 2024): 210–42, https://doi.org/10.14710/JPHI.V6I2.210-242.
[28] Zico Junius Fernando et al., "Advancing Ecological Justice through the Integration of Eco-Religion in Criminal Law Reform," *Journal of Law, Environmental and Justice* 3, no. 2 (July 27, 2025): 160–200, https://doi.org/10.62264/JLEJ.V3I2.133.
[29] Zico Junius Fernando et al., "Neurolaw: A Concept in Development and Enforcement of Criminal Law in Indonesia," *Jambura Law Review* 7, no. 1 (2025): 55–87, https://doi.org/10.33756/JLR.V7I1.24144.

environmental criminal law and interprets how the concept of zemiology can be integrated into the existing legal framework. In this way, the research produces not only a normative assessment but also constructive proposals for developing an environmental criminal law that is more responsive to the realities of harm.

Discussion

The Limitations of the Formalistic Paradigm in Environmental Criminal Law in Indonesia

The construction of environmental criminal law in Indonesia remains dominated by a formalistic paradigm.[30] This paradigm perceives criminal acts merely as conduct that violates written legal provisions, without sufficiently considering the full social and ecological consequences that follow. Legal formalism is rooted in the tradition of legal positivism, emphasizing the principle of *nullum crimen sine lege* no crime without law.[31] While this principle ensures legal certainty, in the context of environmental protection it produces profound limitations. Environmental destruction carried out under licensing or other forms of administrative approval is often excluded from the reach of criminal law, even though the harms inflicted are immense and systemic.[32]

Law No. 32 of 2009 on Environmental Protection and Management (Environmental Act/UU PPLH) provides formal definitions of "pollution" and "environmental destruction".[33] Article 1(14) defines pollution as the entry of living beings, substances, energy, or other components into the environment that cause its

[30] Siti Kasiyati, "Law Enforcement in Indonesia in Perspective of Transcendental Legal Justice Paradigm," *Journal of Transcendental Law* 2, no. 2 (December 15, 2020): 100–114, https://doi.org/10.23917/JTL.V2I2.11855.
[31] Gao Wei, "Reconstructing the Principle of Nullum Crimen Sine Lege," *Social Sciences in China* 42, no. 3 (July 3, 2021): 58–73, https://doi.org/10.1080/02529203.2021.1971397.
[32] Angus Nurse, "Contemporary Perspectives on Environmental Enforcement," *International Journal of Offender Therapy and Comparative Criminology* 66, no. 4 (March 1, 2022): 327–44, https://doi.org/10.1177/0306624X20964037.
[33] M Noor Chaidir et al., "Juridical Analysis of Criminal Acts in Environmental Pollution in Accordance to the 32 Law of 2009 Concerning Protection and Management Environment," *International Journal of Law, Environment, and Natural Resources* 4, no. 1 (April 29, 2024): 45–67, https://doi.org/10.51749/INJURLENS.V4I1.58.

quality to decline to a certain level. Article 1(17) defines environmental destruction as direct or indirect changes to the physical, chemical, or biological properties of the environment that exceed predetermined criteria. Both definitions are normative and technical, relying on "quality standards" and "damage criteria" as the central parameters. Thus, the threshold for criminal liability is based primarily on administrative breaches of technical standards, rather than on the substantive harms experienced by society and ecosystems.

This paradigm becomes evident in Articles 97 through 120 of the Environmental Act, which stipulate criminal provisions. Article 98, for instance, states that any person whose conduct causes pollution or environmental damage that exceeds environmental quality standards shall be subject to imprisonment and fines. The standard of "exceeding quality limits" therefore becomes the decisive measure of criminality. If actors possess government-issued permits and remain within set limits, then even significant social and ecological harm is not regarded as a criminal act. Here lies the problem of formalism, criminal law is confined within a narrow frame, while the realities of environmental harm are far more complex and cannot be reduced to technical thresholds.

The enactment of Indonesia's new Criminal Code under Law No. 1 of 2023 further reinforces the dominance of a formalistic paradigm. The Code requires that environmental crimes contain the element of being "against the law".[34] Yet, in practice, Indonesian jurisprudence tends to interpret this requirement narrowly, limiting it to conduct that breaches statutory provisions or occurs without proper licenses. Consequently, mining, plantation, and industrial activities conducted under government-issued permits are not classified as unlawful, even when they result in

[34] Muhammad Rifaid et al., "Transformation of Indonesian Criminal Justice Paradigm: Analysis of the Integration of Restorative Justice Principles in the National Criminal Code (Law No. 1 of 2023)," *Lex Journal : Kajian Hukum Dan Keadilan* 9, no. 3 (August 2, 2025): 694–706, https://doi.org/10.25139/LEX.V9I3.10823.

severe environmental destruction.[35] Such an approach underscores the legal system's preference for administrative certainty over the pursuit of substantive ecological justice.

The 2019 forest and land fires in Sumatra and Kalimantan illustrate this shortcoming vividly. More than 1.6 million hectares of land were burned, producing cross-border haze pollution and causing respiratory illness in over 900,000 people across Indonesia, Malaysia, and Singapore.[36] Yet most large corporations holding plantation permits faced only administrative sanctions or civil lawsuits. Criminal prosecutions were disproportionately directed at small-scale actors or field workers. The formalistic paradigm thus allowed licensing to function as a legal shield, protecting corporations from criminal liability while the social and ecological harms inflicted were vast.[37]

From the standpoint of legal theory, the Indonesian approach illustrates the predominance of legal certainty as the guiding value in environmental criminal law.[38] Gustav Radbruch famously identified three essential elements that law must balance, legal certainty (*Rechtssicherheit*), justice (*Gerechtigkeit*), and utility (*Zweckmäßigkeit*).[39] Ideally, these three values operate in harmony, ensuring that

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[35] Hilaire Tegnan et al., "Mining Corruption and Environmental Degradation in Indonesia: Critical Legal Issues," *BESTUUR* 9, no. 2 (November 24, 2021): 90–100, https://doi.org/10.20961/bestuur.v9i2.55219.

[36] H. Purnomo et al., "Forest and Land Fires, Toxic Haze and Local Politics in Indonesia," *International Forestry Review* 21, no. 4 (December 1, 2019): 486–500, https://doi.org/10.1505/146554819827906799.

[37] Masna Nuros Safitri et al., "The Administrative Court Judges Paradigm on Justice and the Protection of the Awyu Indigenous People's Rights in Environmental Permit Dispute," *South East Asian Journal of Advanced Law and Governance (SEAJ-ALGov)* 2, no. 1 (April 30, 2025): 20–37, https://doi.org/10.22146/seajalgov.v2i1.19539.

[38] Evy Febryani, Rival Pahrijal, and Agung Zulfikri, "The Impact of Supreme Court Decision Number 5851 K/Pid.Sus LH/2024 on Legal Certainty in Illegal Mining Cases," *West Science Law and Human Rights* 3, no. 04 (October 31, 2025): 424–34, https://doi.org/10.58812/wslhr.v3i04.2320.

[39] Mutia Evi Kristhy et al, "The Role of Judges in Realizing the Three Basic Legal Values Reviewed from Gustav Radbruch's View," *Journal of Political And Legal Sovereignty* 1, no. 2 (April 30, 2023): 87–91, https://doi.org/10.38142/JPLS.V1I2.81.

the law is predictable, fair, and responsive to societal needs.[40] However, in the Indonesian context, the emphasis on legal certainty manifested primarily through strict adherence to administrative permits and technical compliance often overshadows the pursuit of substantive justice and broader social utility.[41] This overreliance on formal legality creates an imbalance, whereby environmental crimes are assessed on procedural compliance rather than their real impact on communities and ecosystems. As a result, criminal law falls short of its protective function, leaving fundamental societal and ecological interests vulnerable to exploitation and harm.

Rudolf von Jhering's theory of legal interests (*Rechtsbelangen*) provides another lens for critique. Jhering contends that the purpose of law is to protect specific social interests.[42] In the environmental context, the protected interest should be the right of the people to a healthy and sustainable environment, as enshrined in Article 28H of the 1945 Constitution and Article 65 of the Environmental Act.[43] Yet the formalistic paradigm favors the interests of state administration and corporate investment through licensing, rather than protecting ecological and community interests. This produces a disjunction between the values that the law purports to uphold and the outcomes it delivers in practice.

Zemiology further sharpens this critique. Emerging from critical criminology in the 1990s, zemiology shifts focus from legal crime to *social harm*. It argues that some of the gravest harms environmental degradation, economic exploitation, systemic inequality are either not criminalized or inadequately addressed by law. In Indonesia, many environmental harms with broad social and ecological

[40] Mutia Evi Kristhy et al, "The Role of Judges in Realizing the Three Basic Legal Values Reviewed from Gustav Radbruch's View," *Journal of Political And Legal Sovereignty* 1, no. 3 (July 31, 2023): 88–92, https://doi.org/10.38142/jpls.v1i3.81.
[41] Kasiyati, "Law Enforcement in Indonesia in Perspective of Transcendental Legal Justice Paradigm."
[42] William Seagle, "Rudolf von Jhering: Or Law as a Means to an End," *The University of Chicago Law Review* 13, no. 1 (December 1945): 71–89, https://doi.org/10.2307/1597562.
[43] Ni Wayan Eka Sumartini et al, "Kedudukan Hak Atas Lingkungan Hidup Yang Bersih, Sehat, Dan Berkelanjutan Dalam Sistem Hukum Indonesia," *Satya Dharma : Jurnal Ilmu Hukum* 8, no. 2 (December 31, 2025): 537–50, https://doi.org/10.33363/sd.v8i2.1530.

consequences are excluded from criminal law simply because they do not meet the narrow formal elements of the Environmental Act or the Criminal Code. Zemiology exposes the gap between harm and crime, highlighting the inadequacy of formalistic approaches in addressing the lived realities of environmental injustice.[44]

The limitations of formalism are also visible in the enforcement of corporate criminal liability. The Environmental Act recognizes corporations as potential subjects of environmental crimes. Article 116 stipulates that when environmental crimes are committed by, for, or on behalf of a corporation, criminal charges and sanctions may be imposed on the corporation, its managers, or those giving orders. The Criminal Code of 2023 also establishes corporate criminal liability in Article 45. Yet in practice, prosecutions against corporations remain weak, often substituted with administrative fines or civil claims. Law enforcement authorities, constrained by formalism, tend to pursue individuals rather than navigate the complexities of corporate liability.[45]

This limitation is not merely technical but cultural. Satjipto Rahardjo's concept of progressive law emphasizes that law should function as a tool to achieve justice and social welfare, not as a static system of rules.[46] Legal formalism, by contrast, confines law to rigid texts, disregarding the social and ecological harms that continue to accumulate. Thus, the problem of environmental criminal law in Indonesia is not only one of legislative content but also of legal culture, which remains entrenched in narrow positivism.

The relationship between state, corporations, and communities further complicates matters. As the licensing authority, the state often privileges economic and investment interests over ecological protection. Licenses are granted even

[44] Canning and Tombs, "From Soc. Harm to Zemiology A Crit. Introd."
[45] Endang Rusyana and Januar Agung Saputera, "Criminal Liability in The Perspective of Corporations' Crimes," *Jurnal Indonesia Sosial Sains* 5, no. 09 (September 24, 2024): 2245–54, https://doi.org/10.59141/JISS.V5I09.1375.
[46] Achmad Muchtarom and Megawati Barthos, "Strategy for Strengthening the Implementation of Progressive Law in the Republic of Indonesia National Police," *International Journal of Social Service and Research* 5, no. 6 (June 21, 2025): 588–95, https://doi.org/10.46799/IJSSR.V5I6.1246.

when environmental damage is foreseeable, granting corporations de facto immunity from criminal prosecution. Communities directly affected by pollution, deforestation, or habitat loss lack sufficient legal protection. This demonstrates how the formalistic paradigm operates not as a neutral safeguard of legality but as a mechanism legitimizing ecological harm.

The Citarum River, often cited as one of the most polluted rivers in the world, exemplifies this problem. Numerous textile and chemical industries discharge hazardous waste into the river. Yet most possess government-issued discharge permits, making criminal prosecution difficult. The social and ecological harms ecosystem collapse, contaminated drinking water, public health crises are undeniable, but formalism protects corporations so long as they comply with licensing requirements. Here, law functions as a barrier to justice rather than a vehicle for it.

Aristotle's conception of substantive justice provides a valuable framework for analyzing the shortcomings of Indonesia's environmental criminal law. Substantive justice, in Aristotelian terms, is not merely about procedural compliance but about ensuring fairness in the distribution of benefits and burdens (*distributive justice*) as well as the correction of wrongs and restoration of balance when harm has been inflicted (*corrective justice*).[47] Distributive justice demands that the advantages derived from natural resources, such as economic growth and industrial profits, be allocated in a way that does not disproportionately burden certain groups, particularly marginalized communities.[48] Yet, within Indonesia's legal framework, economic actors especially corporations engaged in resource extraction often enjoy privileges derived from state-sanctioned licenses, while the ecological and social costs are externalized to local populations. Corrective justice, on the other hand,

[47] Ernest J. Weinrib, "Aristotle's Forms of Justice," *Ratio Juris* 2, no. 3 (December 1, 1989): 211–26, https://doi.org/10.1111/J.1467-9337.1989.TB00039.X.
[48] Lillian Aponte Miranda, "The Role of International Law in Intrastate Natural Resource Allocation," *Proceedings of the ASIL Annual Meeting* 106 (2012): 75–78, https://doi.org/10.5305/procannmeetasil.106.0075.

requires that when damage occurs, the law must provide mechanisms for redress and restoration that are commensurate with the harm sustained. In the context of environmental crimes, this would mean ensuring that communities affected by pollution, deforestation, or land degradation receive adequate remedies, whether in the form of compensation, rehabilitation of ecosystems, or accountability for the perpetrators. However, Indonesia's environmental criminal law, influenced by formalistic interpretations of "illegality," frequently limits accountability to narrow administrative breaches, leaving broader social and ecological harms unaddressed. Thus, while Aristotle's theory highlights the dual requirements of fairness in distribution and adequacy in correction, the prevailing legal paradigm in Indonesia reveals significant gaps in operationalizing both aspects within the environmental domain.[49]

Globally, legal systems are moving beyond formalism. The European Union's Environmental Crime Directive (2024) expands the scope of environmental crimes, strengthens corporate liability, and mandates sanctions that are effective, proportionate, and dissuasive.[50] Belgium has taken a pioneering step by explicitly criminalizing ecocide in its revised Penal Code, positioning severe and widespread environmental destruction as a grave offense comparable to other serious crimes under international law. By doing so, Belgium not only acknowledges the catastrophic consequences of large-scale ecological harm such as biodiversity collapse, irreversible damage to ecosystems, and threats to human health but also elevates environmental protection to a core function of criminal law. The legal recognition of ecocide reflects a shift toward treating environmental harm as an existential threat to society and future generations, rather than merely a regulatory

[49] Pandang Silalahi, "Substantive Justice in Enforcing Environmental and Plantation Criminal Law in Indonesia," *KnE Social Sciences* 10, no. 26 (October 29, 2025): 560–70, https://doi.org/10.18502/kss.v10i26.20034.
[50] Faure, "The EU Environmental Crime Directive 2024: A Revolution in EU Environmental Criminal Law?"

violation.[51] The Philippines provides constitutional remedies through the *writ of Kalikasan*, enabling communities to seek environmental protection without proving individual harm.[52] These innovations signal a global shift toward harm-based approaches, leaving Indonesia behind as it continues to cling to formalistic legalism.

The persistence of the formalistic paradigm in Indonesian environmental criminal law thus arises from statutory construction, legal culture, and structural power relations. The Environmental Act of 2009 and the Criminal Code of 2023 both emphasize formal elements such as licenses, quality standards, and narrow interpretations of "unlawfulness." Yet legal theories from Radbruch's triadic values to Jhering's theory of interests, from progressive law to zemiology point toward the necessity of reorienting criminal law to focus on harm.[53] Without such a paradigm shift, Indonesia's environmental criminal law will remain unable to address the realities of ecological destruction and will lag far behind global developments in environmental justice.

Weak Corporate Liability for Socio-Ecological Harm

The weakness of corporate accountability in cases of environmental damage is a persistent problem in the Indonesian legal system. Numerous studies and reports demonstrate that large-scale corporations are the main drivers of environmental destruction, ranging from mining companies to monoculture plantations and manufacturing industries. Yet, criminal law mechanisms often fail to hold corporate entities effectively accountable. Many cases end with administrative sanctions, such as license suspension or light fines that are economically negligible compared to the vast profits gained from destructive

[51] Widiartana, Setyawan, and Anditya, "Ecocide as an Environmental Crime: Urgency for Legal Reform in Indonesia."
[52] Puno and Gatmaytan, "Environmental Activism by The Philippine Supreme Court: Initiatives and Impediments."
[53] Kotzé, "Criminology or Zemiology? Yes, Please! On the Refusal of Choice Between False Alternatives."

practices.[54] This creates a situation in which deterrence is absent and socio-ecological harms recur, often on an even larger scale.

Normatively, Indonesia has already recognized the possibility of corporate criminal liability. Article 116 of Law No. 32 of 2009 on Environmental Protection and Management explicitly states that when an environmental crime is committed by, for, or on behalf of a business entity, both the corporation and its decision-makers may be subject to criminal charges and sanctions. Similarly, Article 45 of the new Criminal Code (Law No. 1 of 2023) affirms that corporations can be held criminally liable when offenses are committed within the scope of their business activities. However, despite these provisions, effective enforcement remains weak. Law enforcement agencies tend to focus on prosecuting individuals, while proving corporate guilt is often perceived as too complex due to the layered organizational structures of modern corporations.

From the perspective of criminal law theory, the persistent weakness of corporate liability in Indonesia can be traced to the dominance of the classical principle of fault (*schuld*), which is traditionally easier to attribute to natural persons than to legal entities.[55] The doctrine of schuld rests upon the idea that liability must be based on the presence of a guilty mind or mens rea, coupled with a wrongful act or actus reus. For individuals, establishing these elements is relatively straightforward because human agents possess intention, knowledge, and awareness that can be assessed and evaluated in court. Corporations, however, as artificial legal entities, do not have physical bodies or mental states, making it far more challenging to attribute mens rea to their conduct in the same manner as with individuals.[56] This conceptual difficulty has generated long-standing debates in

[54] Loso Judijanto et al., "The Urgency of Environmental Criminal Law Reform in Ensnaring Corporations: A Case Study of Tin Ecological Crimes by Harvey Moeis," *Journal of Strafvordering Indonesian* 2, no. 2 (May 31, 2025): 32–41, https://doi.org/10.62872/AAF32B77.
[55] Zulkarnain et al, "Corporate Criminal Liability Based on Economic Analysis of Law," in *Proceedings of the 1st International Conference on Recent Innovations ICRI* (Scitepress, 2020), 1133–39, https://doi.org/10.5220/0009923811331139.
[56] Mihailis E. Diamantis, "Corporate Criminal Minds," *Notre Dame Law Review* 91, no. 5 (January 1, 2017): 2049–90, https://doi.org/10.2139/SSRN.2633627.

criminal law scholarship regarding the proper basis for holding collective entities criminally responsible. Critics of corporate criminal liability argue that since corporations cannot think or act independently of their members, they should not be treated as capable of bearing fault in the criminal sense. Supporters, however, emphasize that corporations wield enormous economic power and decision-making autonomy, and therefore limiting criminal liability only to individuals within corporations creates a loophole that allows systemic harms to escape adequate sanction. These debates are particularly relevant in the environmental sector, where large-scale ecological damage is often the result of institutional decisions rather than isolated actions by individual employees. To address this theoretical impasse, functional theories of corporate liability have emerged as a more practical and equitable approach. Such theories suggest that the will and intent of a corporation can be discerned through the policies, directives, and collective actions of its decision-makers, including boards of directors, executives, and senior managers. Under this model, corporate mens rea is not located in a single individual but in the organizational culture and decision-making structures that enable or encourage harmful practices. For example, a corporate policy that tolerates illegal waste disposal or incentivizes excessive deforestation can be treated as evidence of collective intent, making the corporation itself directly culpable. Internationally, some jurisdictions have embraced these functional approaches. In the United Kingdom, the "identification doctrine" attempts to attribute corporate fault by linking the actions and mental states of senior executives to the corporation itself.[57] More recently, doctrines of "corporate culture" liability, as found in Australian law, expand this approach by considering systemic failures within corporate governance as a basis for criminal responsibility.[58] These models illustrate how corporate fault

[57] Alexander Sarch, "Collective Knowledge and the Limits of the Expanded Identification Doctrine," *Oxford Journal of Legal Studies* 44, no. 4 (November 28, 2024): 920–48, https://doi.org/10.1093/OJLS/GQAE025.
[58] Olivia Dixon, "Corporate Criminal Liability: The Influence of Corporate Culture," *Integrity, Risk and Accountability in Capital Markets: Regulating Culture*, January 1, 2013, 251–68, https://doi.org/10.5040/9781472561497.CH-013.

can be reconstructed beyond the limitations of individual liability, thereby ensuring that corporations do not hide behind complex hierarchies to evade accountability.

Structural factors also reinforce weak corporate accountability. The power relations between the state and corporations frequently obstruct law enforcement, as political and economic interests overshadow environmental concerns. Business permits issued by government agencies often serve as shields that protect companies from criminal prosecution. Large corporations, which contribute significantly to state revenues through taxes and investments, are often placed in privileged positions, resulting in selective enforcement. In this context, law functions less as a neutral arbiter of justice and more as an instrument influenced by political economy.

Viewed through the lens of zemiology, weak corporate liability reveals the deep gap between *harm* and *crime*. Tangible socio-ecological harms such as the loss of indigenous communities' livelihoods, rising health problems due to air or water pollution, and the extinction of endangered species are frequently not treated as crimes simply because corporations hold formal licenses or because the criminal justice system is unable to navigate the complexities of corporate structures. Yet these harms represent some of the gravest forms of *social harm* and ought to be the central concern of environmental criminal law.

The implications of weak corporate accountability are profound. Local communities bear the brunt of social, health, and economic losses that persist across generations. Ecosystems sustain long-term damage that is difficult, and sometimes impossible, to restore. Meanwhile, corporations continue to generate significant profits from destructive practices, creating entrenched structural injustice. In this way, the weakness of corporate criminal liability perpetuates not only environmental crimes but also institutionalizes them within a legal system that remains overly formalistic and permissive.

The Absence of Integration of Social Harm and Ecocide in National Regulation

One of the most significant normative gaps in Indonesian environmental criminal law lies in the absence of explicit recognition of *social harm* and *ecocide*. While other jurisdictions have increasingly embraced these concepts as a way of confronting the gravity of environmental destruction, Indonesia's legal framework shaped primarily by Law No. 32 of 2009 on Environmental Protection and Management and the 2023 Criminal Code remains confined to a narrow definition of environmental crime. Violations are framed primarily as administrative breaches, such as exceeding emission standards or operating without permits, rather than as grave harms that devastate communities, ecosystems, and future generations. The result is a system that fails to capture the broader moral and social dimensions of environmental harm, leaving a substantial normative gap compared to emerging global practices.

Belgium represents one of the most progressive examples in this field. In 2024, the Belgian Parliament revised its Penal Code to incorporate *ecocide* as a distinct and serious criminal offense. Ecocide is defined as acts causing widespread, severe, and long-term damage to the environment. The law does not limit liability to individuals but explicitly extends it to corporations, with sanctions including not only heavy fines but also prohibitions on continuing certain activities and even dissolution orders for repeat offenders. This recognition of ecocide marks a fundamental shift in the function of criminal law. It signals a transition from viewing environmental infractions as regulatory issues to acknowledging them as existential threats to society and the biosphere. Belgium's approach is deeply aligned with zemiological insights, emphasizing the reality of harm rather than narrow legal categories. Compared to Indonesia, where environmental offenses are still treated as violations of permits or technical standards, Belgium's incorporation of ecocide demonstrates a paradigm shift in which law recognizes the destructive capacity of environmental crimes as being on par with crimes against humanity.

The European Union's *Environmental Crime Directive*, adopted in 2024, provides another strong model of integrating *social harm* into criminal law. The Directive requires member states to criminalize a wide range of environmental offenses, including illegal logging, pollution that crosses borders, the trade of endangered species, and serious harm to marine ecosystems. Importantly, the Directive emphasizes that sanctions must be effective, proportionate, and dissuasive, especially when applied to corporate offenders.

The Directive's underlying philosophy resonates with the idea of *social harm*. By explicitly requiring the recognition of severe and widespread damage, the EU acknowledges that harm to ecosystems cannot be reduced to technical breaches. Instead, it reflects the societal costs of environmental crime, such as health crises, economic displacement, and long-term ecological loss. When compared with Indonesia, which still defines environmental crimes largely in relation to permit violations and administrative thresholds, the EU's framework demonstrates a more holistic vision of criminal law as a tool for ecological justice.

In Latin America, Argentina has also moved toward criminalizing ecocide. A draft bill currently under discussion in the Argentine legislature seeks to recognize ecocide as a separate category of crime, with penalties of up to 25 years' imprisonment for individuals and significant fines and sanctions for corporations. The proposal reflects Argentina's growing awareness of the long-term ecological and social impacts of deforestation, mining, and industrial pollution. What distinguishes the Argentine debate is its explicit focus on intergenerational justice. The bill frames ecocide not only as a violation of environmental norms but also as a crime that robs future generations of their right to a healthy and sustainable environment. In this sense, Argentina integrates human rights considerations into environmental criminal law. Indonesia, by contrast, has not yet linked its environmental legislation to broader human rights obligations, despite constitutional guarantees under Article 28H of the 1945 Constitution. This

highlights a normative gap where Indonesia fails to recognize environmental harm as a violation of fundamental human rights.

Scotland has emerged as one of the leading jurisdictions actively debating the recognition of ecocide as a serious criminal offense. Parliamentary initiatives, particularly the draft Ecocide (Prevention) (Scotland) Bill, have framed ecocide not only as large-scale harm to ecosystems but also as a matter with profound implications for human rights, especially the rights of future generations.[59] The draft proposals underline the potential liability of corporate leaders and, in certain contexts, public authorities, highlighting a growing consensus that environmental destruction cannot be treated merely as a matter of regulatory non-compliance. The Scottish discourse reflects an effort to connect ecological harm with broader principles of social justice, situating ecocide within the context of sustainability, intergenerational equity, and community wellbeing. By conceptualizing ecocide simultaneously as a criminal wrong and a violation of fundamental rights, Scotland is working toward a dual framing that links social harm with ecological harm. This approach elevates environmental crime to the level of a rights-based concern, thereby justifying a more robust legal response. In contrast, Indonesia has not yet embraced such a perspective. Environmental crimes in Indonesia continue to be treated predominantly as violations of statutory provisions or licensing requirements, reflecting a formalistic paradigm rather than recognizing them as existential threats that endanger both human rights and ecological integrity.

The Philippines provides a different but equally significant model through its constitutional mechanism known as the *writ of Kalikasan*.[60] Introduced by the Supreme Court in 2010, the writ allows communities to bring environmental claims without the need to prove direct individual harm. Instead, it recognizes collective harm and grants standing to groups who can show that large-scale environmental

[59] Wei, Oliveira, and Rodríguez.
[60] Hilario G. Davide Jr., "The Environment as Life Sources and the Writ of Kalikasan in the Philippines," *Pace Environmental Law Review* 29, no. 2 (April 23, 2012): 592–601, https://doi.org/10.58948/0738-6206.1699.

damage threatens life, health, or property. The *writ of Kalikasan* demonstrates how legal systems can embed the recognition of *social harm* into their judicial frameworks.[61] By shifting the burden of proof and recognizing collective rights, the Philippines has created a mechanism that directly addresses the disparity between formal law and real-world harm. Indonesia's legal system, while providing avenues for environmental litigation under the Environmental Act, does not yet offer such broad standing or recognition of collective harm. As a result, many Indonesian communities facing displacement, pollution, or resource loss remain legally marginalized.

The comparative experiences of Belgium, the European Union, Argentina, Scotland, and the Philippines reveal a clear trend: environmental harm is increasingly recognized as a form of *social harm* and, in extreme cases, as *ecocide*. These jurisdictions understand that environmental crimes are not merely administrative infractions but acts that fundamentally threaten ecological integrity, public health, and intergenerational justice.

Indonesia, by contrast, continues to define environmental crimes narrowly, grounded in administrative legality and technical standards. There is no explicit recognition of *social harm* in its criminal law, nor has ecocide been introduced as a distinct category of offense. This normative gap means that widespread environmental destruction such as the 2019 forest fires in Sumatra and Kalimantan cannot be prosecuted as ecocide, despite the scale of harm inflicted on communities, ecosystems, and neighboring states.

The absence of *social harm* and *ecocide* in Indonesian law underscores the urgent need for normative reform. Drawing lessons from comparative jurisdictions, Indonesia could begin by explicitly defining severe and widespread environmental harm as a criminal offense. Corporate liability should be broadened to include

[61] Lael K. Weis, "Environmental Constitutionalism: Aspiration or Transformation?," *International Journal of Constitutional Law* 16, no. 3 (November 9, 2018): 836–70, https://doi.org/10.1093/ICON/MOY063.

sanctions proportionate to the magnitude of harm, and intergenerational justice should be embedded as a guiding principle of environmental criminal law. Integrating these concepts would not only bring Indonesia in line with global best practices but also fulfill its constitutional commitment to protect the right to a healthy environment for all citizens.

Conclusion

Comparative perspectives across jurisdictions demonstrate that global developments in environmental criminal law are shifting from a legalistic paradigm toward a harm-based paradigm. Belgium, the European Union, Argentina, Scotland, and the Philippines have each taken steps to integrate the frameworks of *social harm* and *ecocide* into their criminal justice systems. Consequently, the law is no longer confined to assessing whether a permit has been violated or whether a technical standard has been exceeded, but rather considers the tangible harms suffered by communities, ecosystems, and even future generations. From a zemiological perspective, this development is highly significant. Zemiology teaches that crime cannot be reduced merely to statutory violations; it must be understood as encompassing all forms of *harm* generated by social, economic, and corporate practices. States that have recognized *social harm* and *ecocide* as elements of criminal law are effectively affirming that their legal systems prioritize the protection of society and the environment over the rigidity of legal formalism. Indonesia, through Law No. 32 of 2009 and the 2023 Criminal Code, still adheres to a formalistic paradigm.

Environmental crimes are defined primarily as administrative infractions, while massive socio-ecological harms such as the impoverishment of local communities, transboundary haze pollution, and biodiversity loss remain unacknowledged as criminal categories. From a zemiological standpoint, this reveals a serious gap between the reality of *harm* and the scope of *crime* recognized by the law. The urgency of reconstructing Indonesia's environmental criminal law

thus lies not only in the need for harmonization with global developments but also in the imperative to deliver substantive ecological justice. Integrating the concepts of *social harm* and *ecocide* would allow criminal law to transcend formalism, transforming it into an instrument capable of capturing and responding to the socio-ecological suffering caused by destructive practices. Such a step would align Indonesia's legal framework with the spirit of zemiology: placing *harm* at the center of legal attention and affirming the protection of society and ecosystems as the ultimate purpose of criminal law.

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