

Normative Vacuum in Indonesia's Environmental Insurance Regulation: A Legal Certainty Analysis of Article 43 of Law No. 32/2009 and Government Regulation No. 46/2017

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ABSTRACT

This article examines the legal certainty deficit in Indonesia's environmental insurance regime by focusing on Law No. 32 of 2009 on Environmental Protection and Management (UUPPLH) and Government Regulation No. 46 of 2017 on Environmental Economic Instruments. Although Indonesian law formally recognizes environmental insurance as an environmental funding instrument, an environmental economic instrument, and a restoration guarantee, the implementing framework remains declarative, fragmented, and insufficiently operational. Using doctrinal legal research that combines statutory, conceptual, and case approaches, this study evaluates the regime through legal certainty theory, statutory formation theory, and normative delegation theory. The analysis identifies five critical deficiencies: undefined mandatory legal subjects, absence of indexed minimum coverage values, absence of standardized risk-based premium mechanisms, absence of definite claim submission and disbursement procedures, and absence of specific sanctions for non-compliance. Evidence from seven environmental pollution and land-fire cases adjudicated between 2021 and 2026 shows that environmental insurance has not functioned as an effective restoration-financing instrument; instead, compensation and restoration funding remain dependent on lengthy litigation and uncertain execution. The article argues that this failure is structural rather than merely technical because the parent statute and delegated regulations do not provide adequate substantive parameters for implementation. It recommends comprehensive reform through statutory clarification, an integrated Ministry of Environment–Financial Services Authority supervisory mechanism, and linkage of insurance obligations with OSS-RBA and AMDALNET licensing systems.

Keywords:
environmental liability; statutory delegation; restoration guarantee; polluter pays principle; risk-based licensing; Indonesia

DOI: <https://doi.org/10.56442/ijble.v7i1.1450>

INTRODUCTION

Environmental insurance occupies an important position in contemporary environmental governance because it combines prevention, compensation, and restoration financing. In theory, risk-based environmental insurance requires firms to internalize potential pollution costs into operational decision-making through premium mechanisms, while also ensuring that restoration funds are available when environmental harm occurs. In this sense, environmental insurance operates at the intersection of public environmental regulation, private insurance markets, and sustainable development policy (Faure, 1995; OECD, 1972; European Parliament and Council, 2004).

Indonesia has formally recognized environmental insurance within its environmental legal system. Law No. 32 of 2009 on Environmental Protection and Management identifies environmental insurance as an environmental funding instrument, part of environmental economic instruments, and one form of environmental restoration guarantee. Government Regulation No. 46 of 2017 further

acknowledges environmental insurance within the regulatory architecture of environmental economic instruments (Republic of Indonesia, 2009, 2017).

Nevertheless, formal recognition has not produced operational legal certainty. More than eight years after Government Regulation No. 46/2017 entered into force, the ministerial regulation contemplated by Article 46(2) has not provided a complete operational framework for legal subjects, minimum coverage, premium calculation, claim procedures, supervision, and sanctions. This situation produces a normative vacuum: the legal norm exists textually but remains weak at the level of institutional implementation and enforceability.

The practical consequences are visible in two linked phenomena. First, corporate fulfilment of environmental insurance tends to become a licensing formality: where a policy exists, it may serve merely as an administrative attachment rather than a verified instrument for risk mitigation. Second, pollution risk mitigation remains weak because restoration funding is still dependent on litigation, court-ordered compensation, and uncertain execution rather than pre-allocated insurance funds.

The research gap addressed in this article is therefore not whether environmental insurance is recognized in Indonesian positive law, but whether the current legal architecture satisfies the requirements of normative certainty and implementation certainty. International scholarship has examined environmental liability, polluter-pays instruments, and insurance-based risk allocation, but Indonesian environmental insurance remains under-theorized from the perspective of statutory delegation and legal certainty (Sands & Peel, 2012; Wibisana, 2016).

This article contributes to the literature in three ways. First, it reconstructs the regulatory design of environmental insurance in Indonesia. Second, it evaluates the regime using legal certainty, statutory formation, and delegation theories. Third, it connects normative analysis with seven court cases to show how regulatory incompleteness affects restoration financing in practice. The central research question is: to what extent does Indonesia's environmental insurance regulation satisfy legal certainty, and what regulatory reform is required to transform it from a sleeping norm into an enforceable restoration-financing instrument?

Literature Review and Analytical Framework

1. Environmental insurance as a regulatory-economic instrument

Environmental insurance is distinct from ordinary commercial insurance because its regulatory function is not limited to risk transfer between an insured party and an insurer. It is also intended to shape corporate behaviour before harm occurs and to secure restoration financing after harm occurs. A well-designed environmental insurance system links premium levels, coverage ceilings, exclusions, and claim procedures to the objective risk profile of business activities. This structure creates an economic signal: higher environmental risk should result in higher premiums, while stronger prevention and mitigation systems should reduce insurance costs (Faure, 1995).

From the perspective of environmental law, environmental insurance operationalizes the polluter-pays and precautionary principles. The Rio Declaration formulates the precautionary principle in Principle 15 and the polluter-pays principle in Principle 16. These principles require not only retrospective compensation but also ex ante allocation of environmental risk costs to the actors that generate those risks (United Nations, 1992; Sands & Peel, 2012).

2. Legal certainty, statutory formation, and normative delegation

The article uses legal certainty as its primary analytical lens. In the Indonesian legal literature, Sudikno Mertokusumo links legal certainty to clarity, predictability, and enforceability of legal norms. Lon Fuller's theory of the internal morality of law similarly requires rules to be general, public, prospective, clear, non-contradictory, possible to comply with, relatively stable, and congruent between official action and declared rules (Fuller, 1969; Mertokusumo, 2007, 2012).

The statutory formation perspective is drawn from A. Hamid S. Attamimi, who emphasizes that legislation must rest on philosophical, juridical, and sociological foundations. The delegation perspective is drawn from Moh. Fadli and Van der Vlies: delegated regulation must be accompanied by substantive parameters, because open-ended delegation without limits risks producing blanket delegation and implementation gaps (Attamimi, 1990; Fadli, 2010, 2023; Van der Vlies, 1987).

3. Conceptual proposition

The conceptual proposition advanced in this article is that environmental insurance will not become an effective pollution-risk mitigation instrument unless three conditions are simultaneously met: clear normative design, integrated institutional supervision, and operational linkage with the licensing system. Where any of these elements is absent, environmental insurance becomes a *lex imperfecta*—an obligation that exists in written law but lacks enforceable consequences.

METHODS

This study uses doctrinal legal research, also referred to in Indonesian legal scholarship as normative juridical research. The primary object of analysis is legal materials rather than survey-based social facts. The analysis focuses on the consistency, completeness, clarity, hierarchy, and enforceability of positive legal norms governing environmental insurance (Ali, 2016; Hamidi, 2017).

Three approaches are combined. First, the statutory approach examines the 1945 Constitution, Law No. 32/2009, Government Regulation No. 46/2017, Government Regulation No. 22/2021, Law No. 6/2023, Government Regulation No. 28/2025 on Risk-Based Business Licensing, the OSS-RBA framework, AMDALNET, and relevant ministerial regulations. The article updates the original licensing discussion by recognizing that Government Regulation No. 28/2025 replaced Government Regulation No. 5/2021.

Second, the conceptual approach uses three theoretical frameworks: Mertokusumo's legal certainty theory, Attamimi's statutory formation theory, and Fadli's normative delegation theory. These frameworks are used as analytical criteria for evaluating whether the environmental insurance regime contains clear subjects, objects, conditions, procedures, institutional authority, and sanctions.

Third, the case approach examines seven environmental pollution and damage cases adjudicated between 2021 and 2026. The cases are used not as empirical statistical samples but as juridical illustrations of how normative incompleteness affects restoration financing, compensation execution, and the practical relevance of environmental insurance in litigation.

The legal materials consist of primary legal materials (constitutional provisions, statutes, government regulations, ministerial regulations, and court decisions), secondary legal materials (books, journal articles, and doctrinal commentary), and tertiary legal materials (legal dictionaries and regulatory databases). Interpretation

uses grammatical, systematic, teleological, and comparative techniques, followed by inductive-deductive normative analysis.

The study has two limitations. First, the case mapping depends on accessible court decisions and public institutional information; before journal submission, each 2025–2026 decision cited in the table should be checked against the official court registry or certified decision copies. Second, the article does not conduct actuarial modelling of premium values; it focuses on the legal architecture required before actuarial standards can operate.

RESULTS AND DISCUSSION

4.1 Regulatory problems in Indonesia's environmental insurance regime

4.1.1 Environmental insurance under Law No. 32/2009 and Government Regulation No. 46/2017

Environmental insurance regulation in Indonesia has fundamentally had normative grounding in the national legal system. Law No. 32 of 2009 on Environmental Protection and Management (UUPPLH) is the parent norm that serves as the primary juridical foundation for all regulations in the field of environmental protection and management in Indonesia. In the hierarchy of legislation as regulated under Law Number 12 of 2011 on Statutory Formation, the UUPPLH occupies the position of a law with higher legal force than government regulations and regulations below it, so all implementing norms in the environmental field must originate from and not contradict it (Republic of Indonesia, 2009; Attamimi, 1990).

Provisions on environmental insurance are explicitly regulated in several articles of the UUPPLH. First, Article 42(2)(b) positions environmental insurance as one form of environmental funding instrument within the environmental economic instrument framework. Second, Article 43(3)(f) mentions environmental insurance as one of the economic instruments developed by the government. Third, Article 53(1) obligates every person causing environmental pollution and/or damage to undertake mitigation and within the interpretive system, environmental insurance is one mechanism for fulfilling that obligation. Fourth, Article 55(3)(c) explicitly mentions environmental insurance as one form of environmental restoration guarantee that can be used by business operators (Faure, 1995; Republic of Indonesia, 2009).

Thus, the UUPPLH has positioned environmental insurance not merely as a voluntary instrument, but as part of an environmental guarantee system that is normatively mandatory for business activities that potentially cause serious environmental impact. However, as will be elaborated, the UUPPLH has the character of an umbrella act that requires various implementing regulations to be effectively applied in practice (Republic of Indonesia, 2009).

To fill the normative incompleteness, the government issued Government Regulation No. 46 of 2017 as an implementing regulation of the UUPPLH. This GR further regulates various environmental economic instruments, including environmental insurance regulated in Articles 45 and 46. However, as the following analysis reveals, Article 45 only states that the development of environmental insurance is carried out by the Central Government without a clear institutional design or coordination mechanism. More crucially, Article 46(2) only contains a regulatory delegation to Ministerial Regulation without establishing content limits or formation deadlines, so that the intended Ministerial Regulation has never been issued to this day (Republic of Indonesia, 2009; Republic of Indonesia, 2017).

Table 1. Structure of Regulation and Normative Ambiguity of Environmental Insurance

Regulation and Article	Normative Formulation	Legal Position	Ambiguity Issues	Norm Character
Article 42 UUPPLH	The government is obligated to develop environmental economic instruments	Attributive declarative norm; establishes state obligation without operational formulation	No detailed classification of economic instruments; fails to explain insurance's role as a risk mitigation instrument	Non self-executing
Article 43(3)(f) UUPPLH	Economic instruments include the development of environmental insurance	Normative recognition of environmental insurance without further regulation on legal structure and implementation mechanisms	Does not regulate mandatory participation, premium standards, risk coverage, or claim mechanisms	Open, non-operational
Article 53(1) UUPPLH	Every person causing pollution is obligated to undertake mitigation	Obligation norm with general subject; does not explicitly list insurance as a mandatory instrument	Phrase "serious threat" lacks measurable operational benchmarks	Normatively vague
Article 55(3)(c) UUPPLH	Environmental insurance as a guarantee of environmental restoration	Positions insurance as one form of restoration guarantee, not the sole mandatory instrument	Optional (alternative) not a singular obligation; no technical provisions	Not fully binding
Article 45 GR No. 46/2017	Development of environmental insurance is carried out by the Central Government	Administrative mandate without institutional design or inter-sector coordination mechanisms	No institutional model; no regulation of OJK's role; risks institutional ambiguity	Unstructured delegation
Article 46(2) GR No. 46/2017	Further provisions shall be regulated by Ministerial Regulation	Further regulatory delegation without substantive content limits or deadlines	No Ministerial Regulation has been issued; creates prolonged vacuum of norm	Blanket delegation

Source: Authors' analysis based on Law No. 32/2009 and Government Regulation No. 46/2017.

As shown in Table 1, there is a consistent pattern throughout the current environmental insurance regulatory framework: existing norms are declarative, attributive, and open without operational technical formulations. This condition must be analyzed in depth through the lens of the Statutory Formation Theory proposed by A. Hamid S. Attamimi. Attamimi affirms that for a legal product to have general binding force and be effectively applicable, its formation must simultaneously consider three foundations: philosophical, juridical, and sociological foundations (Attamimi, 1990).

Referring to this theoretical framework, environmental insurance provisions in the UUPPLH actually have a strong philosophical foundation grounded in Article 28H(1) of the 1945 Constitution, which guarantees every person's right to a good and healthy environment. However, the operational juridical and sociological foundations remain insufficiently fulfilled. From a juridical foundation perspective, environmental insurance norms in the UUPPLH and Government Regulation No. 46/2017 have not formed a complete, consistent, and unambiguous system of norms. From a sociological foundation perspective, existing regulations have not been able to respond to the real needs of communities affected by pollution who require a rapid and adequate environmental restoration guarantee (Faure, 1995; Republic of Indonesia, 2009; Republic of Indonesia, 2017).

This condition is directly related to the Delegation Theory proposed by Moh. Fadli. Delegation is the transfer of authority from the organ holding the original authority (delegans) to another organ (delegataris). In the context of environmental insurance regulation, the UUPPLH has delegated technical regulatory authority to the GR, and subsequently to Ministerial Regulation. However, Van der Vlies emphasizes that delegation must be explicitly normed to prevent blanket delegation—the transfer of authority without limits or without clear substantive parameters. The delegation made by the UUPPLH to Government Regulation No. 46/2017 can be qualified as unstructured delegation, because the parent law does not establish sufficiently binding substantive parameters for the implementing regulation maker (Republic of Indonesia, 2009; Republic of Indonesia, 2017; Fadli, 2010, 2023; Van der Vlies, 1987).

Table 2. Completeness of Norm Delegation from Law No. 32/2009 to Government Regulation No. 46/2017 on Environmental Insurance

No.	Matters to Be Delegated	Substantive Parameters in UUPPLH	Regulation in GR No. 46/2017	Completeness Assessment	Critical Notes
1	Mandatory Insurance Legal Subjects	Present (Article 53(1)): business operators at risk of major impact	Linked to EIA ownership; no operational technical criteria for "major risk"	Unclear	Legal subject parameters exist but are unmeasurable; creates implementation uncertainty
2	Minimum Coverage Value	Absent: UUPPLH sets no minimum value parameters	No minimum value set; Article 46 only mentions risk assessment without threshold	Absent	No minimum creates moral hazard risk; companies may set disproportionate values
3	Premium Calculation Mechanism	Absent: UUPPLH provides no technical premium parameters	Unregulated; left to party agreement; Ministerial Regulation not yet issued	Absent	Without premium standards, inter-industry disparities occur and insurance's preventive function weakens
4	Claim Submission & Disbursement Procedures	Absent: UUPPLH sets no procedural parameters for claims	Articles 10-12 provide brief regulation; no details on procedure, timeframe, documents, or assessment standards	Unclear	Procedural ambiguity impedes victims' access to restoration through insurance mechanisms
5	Supervisory and Coordination Bodies	Partially present: Article 53(2) mentions government encouraging insurance, without explicit institutional design	Articles 13-14 mention MOEF's role; no clear MOEF-OJK authority delineation	Unclear	Vacuum of authority between MOEF and OJK creates supervisory gaps exploited by businesses
6	Sanctions for Obligation Violations	Present: Articles 76 & 109 regulate administrative and criminal sanctions generally	No specific sanctions for insurance obligation violations; types, amounts, and procedures absent	Absent	Generic sanctions are insufficiently operational; insurance obligations lose legal enforceability

Source: Authors' analysis based on Law No. 32/2009 and Government Regulation No. 46/2017.

From the analysis presented in Table 2, it is apparent that most of the technical matters that should have been regulated in the implementing regulations were not delegated with adequate parameters by the UUPPLH. As a result, Government Regulation No. 46 of 2017 lacks a sufficiently strong normative foundation to formulate comprehensive technical provisions, and the delegation to Ministerial Regulation also occurs under equally unstructured conditions. This proves that the weakness of environmental insurance regulation in Indonesia is not solely located in its implementing regulations, but is rooted in the weakness of norm delegation from the level of its parent statute (Republic of Indonesia, 2009; Republic of Indonesia, 2017).

4.1.2 Incompleteness and vagueness of environmental insurance norms

From the perspective of the statutory formation theory proposed by A. Hamid S. Attamimi, a good legal norm must satisfy the requirement of clarity of formulation (*duidelijkheid van formulering*) as part of the principles of good statutory formation (*beginselen van behoorlijke wetgeving*). Attamimi affirms that every norm must be formulated clearly, precisely, and without ambiguity so as to provide certain behavioral guidance for all legal subjects. When confronted with the current state of environmental insurance regulation, this requirement is clearly unfulfilled, as existing norms are not only vague and ambiguous, but also contain substantial gaps in several technical aspects (Attamimi, 1990).

Incompleteness and normative vagueness can be identified in five main aspects, systematically elaborated as follows.

(a) Unclear legal subjects obligated to participate in environmental insurance

The first and most fundamental aspect is the absence of provisions that explicitly and in detail establish which legal subjects are obligated to participate in environmental insurance. The UUPPLH only generally refers to the obligation of mitigation for parties causing pollution as contained in Article 53(1). Such formulation contains fundamental normative vagueness: there are no clear criteria defining when an activity is categorized as one triggering a legal obligation, no classification of specific business types that fall into the mandatory insurance category, and no differentiation of obligation levels based on business scale, risk level, or industrial sector (Faure, 1995; Republic of Indonesia, 2009).

Government Regulation No. 46 of 2017 also fails to adequately fill this incompleteness. Its provisions only link the insurance obligation to EIA ownership, without further regulating whether all EIA-required activities are automatically subject to the same obligation. In practice, this vagueness causes uncertainty for businesses regarding whether they fall into the mandatory insurance category, while opening space for supervisory officials to apply or not apply the obligation based on individual discretion without uniform standards (Republic of Indonesia, 2017).

This condition directly contradicts the norm certainty principle proposed by Sudikno Mertokusumo, which requires law to be formulated in such a way that the public knows with certainty what is obligated and what is prohibited. The unclear legal subjects not only create uncertainty for businesses in planning compliance, but also weaken the position of affected communities who cannot definitively identify which party has a legal obligation to provide environmental restoration guarantees (Mertokusumo, 2007, 2012).

(b) Absence of premium calculation and payment mechanisms

The second aspect is the absence of detailed regulation on environmental insurance premium calculation and payment mechanisms. Government Regulation

No. 46 of 2017 only states that the premium amount is determined based on agreement between the business operator and the insurance company, taking into account the level of risk of the business activity to the environment. This provision contains two fundamental normative weaknesses (Faure, 1995; Republic of Indonesia, 2017).

First, the premium determination fully entrusted to the mechanism of party agreement without a minimum standard set by regulation potentially produces coverage values disproportionate to the actual environmental risk level. Second, the absence of objective parameters in premium calculation means there is no real incentive for companies to improve their environmental management standards, because the premium amount does not accurately reflect the level of risk posed by their business activities.

From Moh. Fadli's delegation theory perspective, the premium determination provision is a clear example of unstructured delegation. The UUPPLH does not establish any substantive parameters regarding premium determination mechanisms, so Government Regulation No. 46/2017 lacks a sufficient normative foundation to regulate this matter in greater detail. As a result, regulatory gaps on premium mechanisms occur consecutively from the statutory level to implementing regulations, and even the Ministerial Regulation that should fill this gap has not been issued to this day (Republic of Indonesia, 2009; Republic of Indonesia, 2017; Fadli, 2010, 2023).

(c) Absence of standardized claim submission and disbursement procedures

The third aspect is the absence of provisions regulating standardized environmental insurance claim submission and disbursement procedures. Neither the UUPPLH nor Government Regulation No. 46/2017 contain any provisions regarding who is entitled to file a claim, the submission procedure, the disbursement deadline, or which institution has authority to resolve claim disputes if disagreements arise. The absence of such regulation has serious legal consequences in practice, because when environmental pollution actually occurs, there is no clear legal mechanism to ensure that restoration funds can be disbursed quickly and accurately (Faure, 1995; Republic of Indonesia, 2009; Republic of Indonesia, 2017).

Sudikno Mertokusumo affirms that legal certainty is the guarantee that entitled parties can obtain their rights. In this context, the absence of standardized claim procedures directly negates this legal certainty principle, as communities affected by environmental pollution have no certainty regarding their right to obtain compensation through insurance mechanisms. This in turn reinforces the tendency of companies to treat the insurance obligation merely as a licensing formality, because there is no clear legal consequence if claims cannot be adequately processed (Mertokusumo, 2007, 2012).

(d) Absence of classification of business sectors required to have insurance

The fourth aspect is the absence of a clear classification of which business sectors are mandatorily required to have environmental insurance based on the level of pollution risk they create. Existing regulations only link the insurance obligation to EIA ownership generally, without distinguishing risk levels between industrial sectors that actually have very different pollution risk profiles. Mining, chemical industry, and hazardous waste processing sectors have significantly higher pollution risk levels than light industry sectors, so uniform insurance requirements without risk classification are not only disproportionate, but also ineffective (Faure, 1995).

From Attamimi's theoretical perspective, this absence of classification reflects non-fulfillment of the principle of conformity between the type, hierarchy, and content

of statutory regulations, because norms that should regulate technical and operational matters are formulated generally like principle norms. This also reflects a failure of the sociological foundation of regulation, as regulations that do not differentiate risk levels between business sectors do not respond to the real needs of communities living near high-risk industries (Attamimi, 1990).

(e) Absence of clear sanctions for violations of environmental insurance obligations

The fifth and most directly impactful aspect on implementation effectiveness is the absence of clear, proportional, and effectively enforceable sanctions for companies violating environmental insurance obligations. The UUPPLH does not specifically mention sanctions for violations of environmental insurance obligations, while Government Regulation No. 46/2017 also does not regulate adequate sanction mechanisms. The absence of clear sanctions is one of the most determinant factors causing environmental insurance obligations to be reduced to mere licensing formality without substantive effectiveness (Republic of Indonesia, 2009; Republic of Indonesia, 2017).

From Sudikno Mertokusumo's legal certainty theory perspective, implementation certainty requires the existence of consistent and predictable law enforcement mechanisms. Without clear sanctions and effective enforcement mechanisms, legal norms lose their binding force (*afdwingbaarheid*), which is an essential characteristic of legal norms that distinguishes them from other social norms. In this context, the absence of sanctions not only weakens implementation certainty, but also creates negative incentives for companies not to comply with the obligation, as the cost of non-compliance is far lower than the cost of compliance through insurance premium payments (Mertokusumo, 2007, 2012).

4.1.3 Juridical impact of regulatory incompleteness on legal implementation

The incompleteness of environmental insurance regulation as identified above is not merely a normative-textual problem but has transformed into a concrete implementation problem with wide-ranging impact. From a reading of court decisions and environmental dispute resolution dynamics during 2021-2026, three main juridical impacts can be identified.

(a) Environmental insurance as a norm never tested in judicial practice

The first observable juridical impact is the great irony in Indonesian judicial practice: the fact that environmental insurance has never truly been tested as an effective legal instrument in court decisions related to environmental pollution, even though the obligation has been formulated since 2009. This condition is a strong empirical indicator that the environmental insurance norm is in the state of a sleeping norm: textually existent but absent in law enforcement practice.

For example, in the Decision of the Surabaya District Court No. 20/Pdt.G/LH/2024/PN Sby dated September 11, 2024, which granted the Ministry of Environment's lawsuit against PT Soedali Sejahtera for textile industry environmental pollution in Pasuruan with compensation of IDR 48,030,291,929, not a single legal consideration was found linking the defendant's liability to the obligation to have environmental insurance, or using insurance claims as a source of compensation funding.

The same pattern appears in the case of PT Banyu Kahuripan Indonesia (PT BKI) related to land fires covering 3,365.64 hectares in Karang Agung Village, Musi Banyuasin, South Sumatra. The lawsuit with material compensation demands of IDR

355.7 billion plus environmental restoration costs of IDR 960.2 billion received an appellate decision on July 8, 2025, ordering PT BKI to pay compensation of IDR 282,883,070,085. Throughout the more than nine-month trial process, there was no financial guarantee instrument that could be immediately disbursed to fund restoration of the peatland ecosystem damaged by the fires, even though peatland ecosystem damage is irreversible.

This irony directly confirms Sudikno Mertokusumo's view that legal uncertainty occurs not only at the level of normative formulation, but also at the level of legal predictability in reality. Business operators have no certainty regarding insurance's status as an enforceable obligation, affected communities have no certainty regarding restoration guarantee mechanisms, and law enforcement officers have no certainty regarding how to use insurance instruments as restoration tools (Mertokusumo, 2007, 2012).

(b) Verdict disparity and execution barriers as manifestations of weak enforcement power

The second juridical impact is the weak regulatory enforcement power manifested in two simultaneous phenomena: disparity in environmental compensation verdicts between court levels, and barriers to executing final and binding decisions. Both phenomena provide concrete evidence that without financial guarantee mechanisms ready to be disbursed through insurance, environmental pollution law enforcement becomes highly dependent on lengthy judicial processes and uncertain decision execution.

Verdict disparity is clearly evident in the case of PT Banyu Kahuripan Indonesia, where the West Jakarta District Court only imposed compensation of IDR 28.866 billion, far from the Ministry's claim of IDR 355.702 billion. After the appeal, the Jakarta High Court on July 8, 2025, increased the compensation to IDR 282.883 billion—an extreme change reflecting non-uniformity in assessing the same environmental damage. The tenfold disparity between the first-instance and appellate verdicts reflects the absence of substantive parameters in regulations regarding insurance coverage values, giving judges at various levels very wide discretionary range without uniform normative grounding.

Execution barriers become the second and more crucial phenomenon. Even successfully executed compensation funds enter the state treasury as non-tax state revenue not necessarily reallocated for environmental restoration. This condition clearly demonstrates that without environmental insurance functioning as a dedicated fund for restoration, compensation paid by polluting companies is not guaranteed to return to the restoration of the damaged ecosystem (Faure, 1995).

The pattern of execution barriers becomes increasingly apparent in MOEF decisions during 2025. The Supreme Court on May 23, 2025, rejected the Second Judicial Review (PK II) of PT Asia Palem Lestari (PT APL), which was required to pay compensation of IDR 53,750,562,650 and planned restoration costs of IDR 173,721,050,000. Similarly, on June 20, 2025, the Supreme Court rejected the PK II of PT Putralirik Domas (PT PD) related to land fires covering 500 hectares in Kubu Raya Regency, West Kalimantan, with compensation of IDR 199,544,042,450. Meanwhile, the Jambi High Court on June 26, 2025, rejected the appeal of PT Tiesico Cahaya Pertiwi (PT TCP) for fires covering 3,480 hectares in Musi Banyuasin that had occurred since 2019, with compensation of IDR 467,843,490,000.

(c) Repeated pollution as evidence of mitigation-function failure

The third juridical impact is the opening of space for companies to neglect substantive environmental insurance obligations, manifested in the pattern of repeated environmental pollution and damage cases. This pattern empirically proves that the preventive and mitigative functions of environmental insurance—which should encourage companies to improve environmental risk management standards through risk profile-based premium mechanisms do not work effectively due to the absence of substantively enforceable obligations (Faure, 1995).

Table 3. Environmental Pollution and Damage Cases 2021–2026 and Juridical Impact Indicators

Year	Company / Sector	Location	Verdict / Stage and Compensation Value	Legal Impact Indicators of Insurance Regulation Incompleteness
2021	PT TA / Textile Industry	Citarum Watershed, West Java	Bandung District Court No. 856/Pid.B/LH/2021/PN Bdg; imprisonment and fine; no financial guarantee for restoration	No insurance instrument as restoration source; ecosystem restoration depends on state budget
2023-2025	PT Banyu Kahuripan Indonesia / Palm Oil Plantation	Karang Agung Village, Musi Banyuasin, South Sumatra	W. Jakarta DC No. 929/Pdt.Sus-LH/2024 (22 Apr 2025): IDR 28.8B; Jakarta High Court (8 Jul 2025): IDR 282.8B; initial claim: IDR 1.3T	10x verdict disparity between court levels; no pre-allocated fund causes >2 year restoration delay; peatland damage irreversible
2023-2024	PT Soedali Sejahtera / Textile Industry	Pasuruan, East Java	Surabaya DC No. 20/Pdt.G/LH/2024/PN Sby (11 Sep 2024): IDR 48.03B; entered state treasury, not a dedicated restoration fund	Compensation not guaranteed to return to affected environmental restoration; without insurance, financial guarantee mechanism absent
2019-2025	PT Tiesico Cahaya Pertiwi / Plantation	Musi Banyuasin, South Sumatra	Jambi High Court (26 Jun 2025) rejected appeal; binding with IDR 467.8B compensation for 3,480 ha fire	6-year litigation; execution not guaranteed without pre-allocated financial guarantee; peatland restoration window missed
2025	PT Asia Palem Lestari / Peatland Plantation	Peatland Fire Area	Supreme Court (23 May 2025) rejected 2nd PK; binding: IDR 53.75B compensation + IDR 173.7B restoration costs	Legal process through 2nd PK shows enforcement difficulty without pre-allocated guarantee; peatland ecosystem continues degrading
2025	PT Putralirik Domas / Plantation	Kubu Raya Regency, West Kalimantan	Supreme Court (20 Jun 2025) rejected 2nd PK; binding: IDR 199.5B for 500 ha fire	Layered process hinders prompt execution for restoration; without pre-allocated fund, restoration cannot proceed immediately
2025	PT Dinamika Graha Sarana / Plantation	Kayuagung DC Jurisdiction, South Sumatra	Kayuagung DC (16 Jun 2025): IDR 184.3M compensation; IDR 1.79T restoration costs; MOEF filed appeal	Sharp disparity between compensation (IDR 184.3M) and restoration costs (IDR 1.79T) shows absence of guaranteed, proportional restoration funding scheme

Source: Authors' compilation from court decisions and publicly available case materials, 2021–2026.

As seen in Table 3, compensation values imposed by courts ranging from tens to hundreds of billions of rupiah and even reaching trillions for restoration costs—are not followed by fund pre-allocation through insurance instruments that can be immediately disbursed. The case of PT Dinamika Graha Sarana decided by the

Kayuagung District Court on June 16, 2025, provides the sharpest illustration: the compensation imposed was only IDR 184.3 million, while restoration costs are estimated at IDR 1.79 trillion. The extreme disparity between compensation value and restoration costs clearly demonstrates that the existing law enforcement scheme cannot guarantee the availability of restoration funds proportionate to the environmental damage caused.

In Attamimi's theoretical framework, this condition is a consequence of the failure of the sociological foundation of environmental insurance regulation: the inability of regulation to respond to the real needs of society and the environment for a preventive and operational risk mitigation mechanism. The regulation has only created a repressive enforcement regime that works only after pollution occurs through a long and complex judicial process (Faure, 1995; Attamimi, 1990).

4.2 Legal certainty analysis of environmental insurance regulation

4.2.1 Clarity and completeness of regulatory norms

Having mapped the problems in environmental insurance regulation, the main question addressed in this section is how far these regulations meet the standard of legal certainty, and why the existing legal certainty deficit is structural and cannot be resolved through partial improvements. Sudikno Mertokusumo affirms that normative clarity is not merely a matter of whether regulation exists, but a matter of drafting technique chosen by the legislature and the alignment of such formulation with the legal principles that form its foundation. Lon L. Fuller also identifies clarity of laws as one of eight principles of the internal morality of law, stating that law not clearly formulated cannot be considered valid law in the moral-legal sense (Mertokusumo, 2007, 2012; Fuller, 1969).

Tracing linguistically, there are four key phrases in environmental insurance regulation that serve as structural sources of normative ambiguity. The first phrase is "serious threat" in Article 1(34) UUPPLH, which marks the obligation to have an environmental restoration guarantee fund. This phrase is evaluative without measurable parameters, so every law enforcement officer may give it different meaning. The second phrase is "development of environmental insurance" in Article 43(3)(f), which is not accompanied by operational formulation on how the development is to be realized in practice. The third phrase is "potentially causing risk" in Government Regulation No. 46/2017, which opens at least three different interpretations of the scope of mandatory insurance subjects. The fourth phrase is "regulated by Ministerial Regulation" in Article 46(2) of Government Regulation No. 46/2017, which is a further regulatory delegation without content limits or deadlines—and which for more than eight years has never been followed up (Faure, 1995; Republic of Indonesia, 2009; Republic of Indonesia, 2017).

From a normative analysis perspective, the incompleteness is not merely a technical matter, but a fundamental question of whether environmental insurance norms meet the minimum requirements of an applicable legal norm. A legal norm, to be called a complete norm, must at least contain: (1) a clear legal subject regarding who is bound by the norm; (2) a clear norm object regarding what obligation or prohibition is regulated; (3) the operational conditions for the norm to apply; and (4) the legal consequences arising if the norm is violated. Of these four elements, environmental insurance norms in the UUPPLH and Government Regulation No. 46/2017 only partially fulfill a small part of the first and second elements, while the third

and fourth elements are not fulfilled at all (Republic of Indonesia, 2009; Republic of Indonesia, 2017).

The weakness of norm clarity also cannot be seen separately from Indonesia's international commitments in environmental law. The polluter pays principle formulated in Principle 16 of the Rio Declaration on Environment and Development 1992 has been internalized in Article 2(j) of the UUPPLH. The precautionary principle formulated in Principle 15 of the Rio Declaration 1992 has been internalized in Article 2(f) of the UUPPLH. The polluter pays principle requires operationalization through risk-based premium schemes so that pollution costs are absorbed into corporate operating costs from the outset. However, with the absence of premium parameters, this principle only applies post-factum through court compensation mechanisms—far from its preventive spirit (Republic of Indonesia, 2009; United Nations, 1992; Sands & Peel, 2012).

4.2.2 Implementation certainty and law enforcement of environmental insurance

Legal certainty is not only about normative predictability, but also about the predictability of institutional mechanisms that enforce it. Three main institutional issues can be identified in the context of environmental insurance regulation in Indonesia (Mertokusumo, 2007, 2012).

(a) Vacuum of authority between the Ministry of Environment and OJK

The first issue is the vacuum of authority between the Ministry of Environment as the regulator of environmental substantive norms and the Financial Services Authority (OJK) as the insurance industry regulator under Law No. 21 of 2011 on the Financial Services Authority. MOEF has the authority to set environmental insurance obligations, but lacks technical authority to determine policy standards, premium calculations, or insurance claim mechanisms. Conversely, OJK has technical authority for general insurance industry regulation, but lacks a specific mandate for environmental insurance because this matter is sectoral in nature and outside the focus of conventional financial services supervision (Faure, 1995).

This condition creates a vacuum of authority: a gap in authority where the obligations contained in Government Regulation No. 46/2017 are not followed by technically regulated insurance products in the national insurance industry market. The insurance industry also has no incentive to develop environmental insurance products seriously because no technical guidelines from any regulator provide certainty about what risks must be covered, what methodology is used to calculate premiums, and how the claim procedure works (Faure, 1995; Republic of Indonesia, 2017).

(b) Disconnection between insurance obligations, AMDALNET, and OSS-RBA

The second and most crucial issue is the disconnection between environmental insurance obligations and two modern licensing systems in Indonesia: the Online Single Submission Risk Based Approach (OSS-RBA) and the Environmental Document Information System (AMDALNET). The OSS-RBA system was built under Law No. 6 of 2023 on Job Creation and elaborated through Government Regulation No. 28 of 2025, which replaced Government Regulation No. 5 of 2021 on Risk-Based Business Licensing. Government Regulation No. 28 of 2025, which replaced Government Regulation No. 5 of 2021 classifies business activities into four risk levels low, medium-low, medium-high, and high—with different licensing and supervisory implications (Faure, 1995; Republic of Indonesia, 2025; Republic of Indonesia, 2023).

Meanwhile, AMDALNET is an integrated digital information system developed by the Ministry of Environment to process environmental approvals online and integrated with OSS-RBA. AMDALNET uses business sector classification as

regulated under Ministerial Regulation No. 4 of 2021 on the List of Business and/or Activities Required to Have EIA, UKL-UPL, or SPPL (Republic of Indonesia, 2025).

However, risk classification in OSS-RBA and environmental document classification in AMDALNET are not automatically linked to environmental insurance obligations. Two risk classification systems already built both from the business licensing side (OSS-RBA) and from the environmental document side (AMDALNET)- are not utilized as operational entry points for determining mandatory insurance subjects. This results in a missing link between three systems that should support each other: business licensing (OSS-RBA), environmental documents (AMDALNET), and environmental insurance (Government Regulation No. 46/2017). Moreover, Article 22 of Government Regulation No. 22 of 2021 on Environmental Protection and Management mandates that environmental approval must be integrated with business licensing as a unity, but this integration does not extend to aspects of environmental insurance (Faure, 1995; Republic of Indonesia, 2017; Republic of Indonesia, 2021a; Republic of Indonesia, 2025).

(c) Supervisory capacity limitations

The third issue is the limited supervisory capacity for environmental insurance obligations in the field. MOEF through the Directorate General of Law Enforcement focuses more on post-factum pollution handling through criminal or civil channels. There is no specialized unit in MOEF's organizational structure that systematically monitors insurance obligation compliance on an ex-ante basis. Similarly at the regional level, Local Environmental Agencies have limited technical human resources and infrastructure to verify the adequacy of environmental insurance policies, given that such verification requires cross-disciplinary competence in environmental law, actuarial science, and risk management (Faure, 1995).

Even AMDALNET, as a digital system that should be able to contain a specific module for environmental insurance policy verification, does not yet have this feature, so the policy verification process remains done manually or not done at all. This confirms Sudikno Mertokusumo's principle that implementation certainty cannot stand alone, but must be supported by uniformity of norm interpretation by competent law enforcement officers and by integrated supporting systems (Mertokusumo, 2007, 2012).

Table 4. Institutional, Licensing-System, and Environmental Insurance Supervisory Capacity in Indonesia

Institution / System	Formal Mandate	Actual Capacity	Legal Gaps
Ministry of Environment (MOEF)	Setting environmental insurance obligations; supervising EIA/UKL-UPL compliance	No dedicated technical unit for environmental insurance; focus on post-factum enforcement through Directorate General of Law Enforcement	No technical authority to set policy, premium, and claim standards; overlapping mandate with OJK
Financial Services Authority (OJK)	Regulation and supervision of financial services including insurance (Law No. 21/2011)	Full technical capacity for insurance industry standards; no specific OJK Regulation for environmental insurance	No substantive mandate in environmental field; no formal coordination with MOEF; no technically regulated environmental insurance products

Institution / System	Formal Mandate	Actual Capacity	Legal Gaps
Regional Governments / Local Environmental Agencies	Local environmental compliance supervision; granting certain environmental approvals	Limited technical human resources and policy verification infrastructure; significant capacity variation between regions	Often only verify document existence, not insurance policy substance; no uniform technical verification guidelines
AMDALNET System	Integrated digital information system for processing environmental approvals online, integrated with OSS-RBA	Can verify environmental document completeness; connected to OSS-RBA risk classification	No dedicated module for environmental insurance policy verification; no cross-check mechanism for insurance obligations with EIA categories
OSS-RBA System	Risk-based business licensing (Law No. 6/2023 and GR No. 28/2025 (replacing GR No. 5/2021))	Classifies business activities into four risk categories (L, ML, MH, H)	Risk classification in OSS-RBA not linked to environmental insurance obligations; AMDALNET integration does not include insurance supervision

Source: Authors' analysis based on Law No. 32/2009, Law No. 21/2011, Law No. 6/2023, Government Regulation No. 22/2021, Government Regulation No. 28/2025, and AMDALNET/OSS-RBA documentation.

As seen in Table 4, five entities that should mutually support environmental insurance obligation supervision instead work in their respective silos without adequate interoperability. Not a single institution or system has a full mandate combined with full technical capacity to supervise environmental insurance obligations from upstream to downstream.

4.2.3 Assessment of the level of legal certainty

Based on the analysis of normative certainty and implementation certainty dimensions above, a comprehensive assessment can be made of the level of legal certainty in Indonesian environmental insurance regulation. Sudikno Mertokusumo further affirms that true legal certainty is legal certainty that is just certainty that not only enforces the text of law, but also upholds moral and humanitarian values. In the context of environmental insurance, this principle means that the current normative uncertainty is not merely a technical statutory problem, but also a matter of substantive justice (Mertokusumo, 2007, 2012).

Table 5. Assessment of Legal Certainty in Environmental Insurance Regulation

No	Legal Certainty Dimension	Assessment Indicators	Regulatory Conditions in UUPPLH and GR No. 46/2017	Assessment	Analytical Notes
1	Normative Certainty	Clarity of Normative Formulation	Article 53 UUPPLH states insurance obligation generally without clear normative elements; GR No. 46/2017 regulates mandatory subjects in abstract formulation without verifiable benchmarks	Not Met	Violation of lex certa principle; opens subjective interpretation by enforcers
2	Normative Certainty	Absence of Multiple Interpretations	Concepts "major risk" and "potential pollution" lack operational definitions; open to multiple interpretations among supervisory agencies	Not Met	Discriminatory application disparities between similar businesses; weakens legal predictability

No	Legal Certainty Dimension	Assessment Indicators	Regulatory Conditions in UUPPLH and GR No. 46/2017	Assessment	Analytical Notes
3	Normative Certainty	Completeness of Norm Substance	Of six delegated matters that should be regulated, GR No. 46/2017 only partially regulates three and omits three entirely	Not Met	Insurance regime is "half-baked" regulation that cannot be effectively implemented without further technical regulations
4	Normative Certainty	Inter-norm Consistency	Normative tension between UUPPLH mandating mandatory insurance and GR No. 46/2017 that is de facto voluntary; inconsistency with insurance supervision regime under OJK	Partially Met	UUPPLH-GR vertical inconsistency and horizontal inconsistency across sectoral regulations weaken coherence of environmental insurance legal system
5	Implementation Certainty	Implementation Uniformity	No binding technical implementation guidelines; significant variation between regions and industries; no comprehensive compliance data	Not Met	Enforcement depends on individual supervisor capacity; contradicts equality before the law principle
6	Implementation Certainty	Clarity of Supervisory Authority	GR No. 46/2017 mentions MOEF's supervisory authority but does not regulate authority boundaries between MOEF and OJK; no coordination mechanism	Not Met	"Hot potato" phenomenon between agencies in handling violations weakens overall law enforcement effectiveness
7	Implementation Certainty	Standardized Enforcement Mechanism	No standard operational procedures for enforcing insurance obligations; generic sanctions in Articles 76 & 109 UUPPLH lack specific guidelines for insurance violations	Not Met	Environmental insurance obligation becomes ornamental norm (<i>lex imperfecta</i>): exists in writing but cannot be effectively enforced
8	Implementation Certainty	Absence of Excessive Discretion	GR No. 46/2017 grants very broad discretion in determining mandatory subjects, assessing coverage adequacy, and processing claims without control mechanisms	Partially Met	Excessive uncontrolled discretion encourages rent-seeking; contradicts <i>rechtsmatigheid van bestuur</i> principle

Source: Authors' analysis based on Law No. 32/2009, Government Regulation No. 46/2017, and legal certainty theory.

As presented in Table 5, current environmental insurance regulation does not meet normative certainty or implementation certainty indicators as required. Of eight indicators examined, six are entirely unmet and only two are partially met. This is a comprehensive and systemic condition of legal certainty deficiency (Mertokusumo, 2007, 2012).

From the normative certainty dimension, existing norms remain general, incomplete, and generate multiple interpretations in their application. From the implementation certainty dimension, the absence of detailed technical norms means no uniform standards in supervising and enforcing environmental insurance obligations, making implementation highly dependent on the discretion of individual supervisory agencies, potentially generating non-uniformity and even tolerance of obligation violations.

In Attamimi's theoretical framework, this condition shows multi-level failure on all three foundations simultaneously philosophical, juridical, and sociological meaning that regulatory reformulation cannot be done only at the Ministerial Regulation or Government Regulation level, but must encompass revision of the UUPPLH or formation of a specialized law. The most fundamental implication of this low level of legal certainty is the failure of environmental insurance to perform its two constitutive functions: (Republic of Indonesia, 2009; Mertokusumo, 2007, 2012; Attamimi, 1990).

The preventive function requires a risk-based premium scheme that encourages companies to internalize potential pollution costs into their operational costs as required by the polluter pays principle. This function can only work if insurance norms provide certainty about who is obligated, how much the premium is, and how risk is measured, and if modern licensing systems such as OSS-RBA and AMDALNET can automatically validate compliance. With a very low level of legal certainty on the six unfulfilled dimensions, the preventive function does not work, so companies have no economic incentive to improve their environmental management standards (Republic of Indonesia, 2025; Mertokusumo, 2007, 2012; United Nations, 1992; Sands & Peel, 2012).

The mitigative function requires a pre-allocated fund that can be immediately disbursed for ecosystem restoration when pollution occurs. This function can only work if insurance norms provide certainty about claim procedures, dispute resolution institutions, disbursement timeframes, and the interaction between insurance claims and conventional compensation instruments as regulated in Articles 76 and 109 of the UUPPLH. With the absence of certainty on these dimensions, when pollution occurs, affected communities and ecosystems must wait through lengthy judicial processes without immediate financial intervention (Republic of Indonesia, 2009).

4.3 Implications for licensing and pollution-risk mitigation

4.3.1 Corporate licensing formality in environmental insurance obligations

The phenomenon of corporate licensing formality in fulfilling environmental insurance obligations is an accumulation of all legal certainty deficits analyzed in previous sections. By licensing formality we mean the condition where insurance obligation fulfillment is done only to meet administrative requirements for obtaining a license, without substantive verification of the adequacy of coverage values, the appropriateness of risk coverage, or the actual claims-paying capacity of the insurance company. In this context, insurance does not perform its function as a risk mitigation instrument, but only becomes a licensing supplementary document fulfilled minimally (Faure, 1995; Mertokusumo, 2007, 2012).

To understand more concretely how this licensing formality occurs, a mapping of the current business licensing process in Indonesia is needed, from the Business Identification Number (NIB) application stage through OSS-RBA, environmental document submission through AMDALNET, issuance of environmental approval and business license, annual supervision, to sanction application. This mapping will show at which stage the insurance obligation should appear and at which stage disconnection actually occurs that causes insurance to degrade into formality (Republic of Indonesia, 2025).

Table 6. Business Licensing Process and the Position of Environmental Insurance Obligations in Indonesia

Stage	Licensing Activity	Systems Involved	Current Insurance Obligation Position	Legal Consequences
Stage I	NIB application and business risk classification	OSS-RBA: Low (L), Medium-Low (ML), Medium-High (MH), and High (H) risk categories	No automatic trigger for environmental insurance obligation when MH or H risk classification is issued	OSS-RBA risk classification not utilized as entry point for insurance obligations; even highest-risk businesses do not automatically trigger insurance obligation

Stage	Licensing Activity	Systems Involved	Current Insurance Obligation Position	Legal Consequences
Stage II	Environmental document submission (EIA/UKL-UPL/SPPL)	AMDALNET, integrated with OSS-RBA	Environmental document completion does not require uploading insurance policy or proof of financial guarantee	Substantive policy verification does not occur at environmental document level; EIA can be issued without insurance
Stage III	Issuance of environmental approval and business license	MOEF (environmental approval) and OSS-RBA (business licensing)	Environmental approval and business license can be issued without valid insurance ownership	Insurance is not a <i>conditio sine qua non</i> for obtaining license; companies can operate without insurance
Stage IV	Annual environmental supervision	MOEF/PPLH and regional Environmental Agencies	Inspections do not include routine examination of active insurance policy status	Insurance is not an environmental compliance audit parameter; absence of policy is not detected in regular supervisory cycles
Stage V	Sanction enforcement	MOEF/Directorate General of Law Enforcement and Courts	Insurance obligation violations are not linked to government coercion, administrative fines, or revocation of environmental approval	No concrete administrative consequences for absence of valid insurance policy; obligation is truly without enforcement power

Source: Authors' analysis based on Law No. 6/2023, Government Regulation No. 28/2025, Government Regulation No. 22/2021, OSS-RBA, and AMDALNET documentation.

As seen in Table 6, environmental insurance obligations are not integrated at any of the five licensing stages that should serve as obligation attachment points. At stage one, OSS-RBA risk classification does not become an automatic trigger for insurance obligations even when businesses are identified as medium-high or high-risk. At stage two, AMDALNET does not require uploading insurance policies as part of document completeness. At stage three, environmental approvals and business licenses can be issued without proof of valid insurance policy ownership. At stage four, annual supervisory inspections do not contain parameters for examining policy status. At stage five, the absence of insurance policies is not linked to concrete administrative consequences (Faure, 1995; Republic of Indonesia, 2025).

Andri G. Wibisana notes that one structural weakness in environmental law enforcement in Indonesia is the inconsistency between administrative licensing requirements and the substance of environmental obligations that should attach to the license, causing environmental licenses to be vulnerable to use as formal legitimacy without adequate substantive control. In the context of environmental insurance, this inconsistency is even more fundamental, because the insurance instrument that should be the core part of the environmental guarantee system is not made a licensing parameter at all.

Thus, corporate licensing formality in environmental insurance obligations is not a minor deviation from the ideal regime, but a structural consequence of the existing regulatory architecture. As long as there is no substantive attachment between insurance compliance and licensing stages, environmental insurance will continue to degrade into a supplementary document with no preventive or mitigative operational function.

4.3.2 Weakness of environmental pollution risk-mitigation guarantees

The second implication of environmental insurance regulatory incompleteness is the weakness of pollution risk mitigation guarantees, both ex-ante (before pollution occurs) and ex-post (after pollution occurs). These two dimensions are complementary but have different causal mechanisms (Faure, 1995).

On the ex-ante dimension, risk mitigation requires economic incentives that encourage companies to invest in higher environmental management standards. The risk-based premium mechanism in environmental insurance should provide these incentives by linking premium amounts to the company's actual risk profile; companies that invest in better environmental management receive lower premiums. However, with the absence of premium calculation parameters, this economic incentive mechanism does not form, so companies have no economic rationality to invest in better environmental management (Faure, 1995).

The absence of economic incentives exacerbates what is known in law and economics literature as the moral hazard problem. When companies do not bear the actual environmental risk costs, either because they are not required to be insured, or because their coverage value is minimal, there is no price signal encouraging behavioral change toward greater environmental responsibility. As a result, investment decisions in environmentally friendly technology and environmental risk management systems become less financially advantageous compared to externalizing those risks to surrounding communities and ecosystems.

On the ex-post dimension, risk mitigation requires the availability of restoration funds that are quick, adequate, and measurable when pollution has already occurred. As analyzed through the cases of PT Banyu Kahuripan Indonesia, PT Tiesico Cahaya Pertiwi, PT Asia Palem Lestari, PT Putralirik Domas, and PT Dinamika Graha Sarana, the absence of pre-allocated funds through insurance causes environmental restoration to await lengthy judicial processes—from first-instance courts through PK II, which can last more than six years. During this period, ecosystem damage continues without adequate financial intervention. A well-designed environmental insurance should be able to provide restoration funds in weeks or months, not years, because the policy has been agreed upon before pollution occurs (Faure, 1995).

The case of PT Dinamika Graha Sarana illustrates the most extreme condition: compensation imposed by Kayuagung District Court was only IDR 184.3 million, while restoration costs are estimated at IDR 1.79 trillion. If the company had insurance with coverage value equivalent to that compensation, the insurance would be entirely unable to finance the needed restoration because the value difference reaches nearly ten thousand times.

Furthermore, risk mitigation is also hampered by the absence of measurable ecosystem restoration obligations. Current regulations do not explicitly state how claim funds must be allocated for restoration, which institution has authority to determine restoration stages, and how restoration success indicators are verified. As a result, even if restoration funds are disbursed, there is no guarantee that they will actually be used to substantively restore the damaged ecosystem. This contradicts the main purpose of environmental insurance as an outcome-oriented mitigation instrument, not merely a fund disbursement mechanism (Faure, 1995).

4.4 Regulatory reform as a basis for legal reformulation

Based on all analyses conducted, a strong juridical argument can be formulated regarding the urgency of reforming environmental insurance regulation in Indonesia. This argument is built on two mutually reinforcing main pillars.

The first pillar is empirical evidence of the failure of the existing legal regime. Pollution and environmental damage cases between 2021 and 2026 clearly demonstrate that the existing system has failed to perform its mitigative function. Of seven cases analyzed, not one shows environmental insurance playing a role as a restoration instrument. All restoration processes had to go through lengthy litigation with extreme verdict disparities and uncertain execution. This empirical evidence is a strong counter-narrative to arguments that existing regulations are already adequate and only need technical improvements (Faure, 1995).

The second pillar is the pillar of constitutional and international commitments. Indonesia has a constitutional obligation under Article 28H(1) of the 1945 Constitution to guarantee every person's right to a good and healthy environment. Indonesia has also ratified the Convention on Biological Diversity (CBD) through Law No. 5 of 1994 and the Paris Agreement to the UNFCCC through Law No. 16 of 2016. These ratifications place Indonesia under juridical obligations to align domestic regulations with international standards, including in the matter of financial guarantee mechanisms for environmental restoration. Principles that have been internalized in the UUPPLH cannot be operationalized due to the incompleteness of environmental insurance regulation a condition that directly weakens Indonesia's ability to fulfill its international obligations (Faure, 1995; Republic of Indonesia, 2009).

In Attamimi's theoretical framework, regulatory reform of environmental insurance must be carried out comprehensively on all three foundations simultaneously: the philosophical foundation (Article 28H(1) of the 1945 Constitution, Pancasila principles, international environmental law principles), the juridical foundation (a complete, hierarchical, and consistent norm system with precise formulations and measurable parameters), and the sociological foundation (responding to the real needs of pollution-affected communities while considering domestic industry conditions and available institutional capacity) (Attamimi, 1990).

Concrete regulatory reform must encompass at least four simultaneous improvement agendas. First, revision of the UUPPLH or formation of a specialized law on environmental insurance that uses precise norm formulation techniques by explicitly identifying legal subjects through detailed business sector lists. Second, preparation of a comprehensive GR or Ministerial Regulation with measurable substantive parameters, covering: establishment of indexed minimum coverage values; claim procedures with definite deadlines; advance payment mechanisms; and specific progressive administrative sanctions. Third, harmonization with OSS-RBA, AMDALNET, and OJK Regulation regimes so that risk classification is integrated with insurance obligations through dedicated digital modules so that insurance becomes a *conditio sine qua non* in the licensing process, not merely a supplementary document that can be ignored. Fourth, establishment of a specialized unit or coordination forum integrating the authority of MOEF and OJK in environmental insurance supervision to address the vacuum of authority that has been the main obstacle to enforcement (Faure, 1995; Republic of Indonesia, 2009; Republic of Indonesia, 2025).

Thus, regulatory reform of environmental insurance in Indonesia is not merely a technical improvement agenda, but a strategic necessity to restore legal certainty

currently at a very low level; operationalize internationally internalized principles; integrate insurance obligations into modern licensing systems; ensure the availability of quick, adequate, and measurable restoration funds; and encourage internalization of environmental costs by businesses through effective risk-based premium mechanisms (Faure, 1995; Mertokusumo, 2007, 2012).

CONCLUSION

This study demonstrates that Indonesia's environmental insurance regulation contains structural and systemic legal certainty deficits. Of the eight legal certainty indicators examined through Mertokusumo's framework, six are not met and two are only partially met. This condition is not an incidental implementation weakness; it is the consequence of open-ended delegation from the statutory level and the failure to provide adequate substantive parameters in implementing regulations.

The five critical deficiencies—unclear mandatory legal subjects, absence of minimum coverage values, absence of standardized premium mechanisms, absence of claim procedures, and absence of specific sanctions—produce an obligation with insufficient operational content. The result is a *sleeping norm*: environmental insurance exists in the legal text but does not function effectively as a restoration-financing instrument in judicial practice.

The case mapping confirms that compensation and restoration funding remain dependent on lengthy litigation, large disparities in judicial valuation, and uncertain execution. Without pre-allocated and enforceable insurance funds, environmental restoration can be delayed for years, while ecosystem degradation continues. This situation undermines the preventive logic of the polluter-pays and precautionary principles.

The article recommends a comprehensive reform agenda consisting of: (1) statutory clarification of mandatory legal subjects through risk-based business sector lists; (2) establishment of indexed minimum coverage values and risk-based premium methodologies; (3) standardized claim procedures with clear timelines and advance-payment mechanisms; (4) specific progressive sanctions for non-compliance; (5) a formal coordination mechanism between the Ministry of Environment and OJK; and (6) integration of insurance verification into OSS-RBA and AMDALNET. Without these reforms, environmental insurance will remain a licensing formality rather than a substantive instrument of pollution-risk mitigation.

Acknowledgments

The authors thank Prof. Dr. Moh Fadli, S.H., M.Hum. and Dr. Shinta Hadiyantina, S.H., M.H. for their academic guidance, and the Faculty of Law, Universitas Brawijaya, for supporting the development of this research.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Conflict of Interest

The authors declare no conflict of interest.

Data Availability Statement

The legal materials analyzed in this study consist of publicly accessible statutes, regulations, and court decisions. The authors should verify each court decision cited in Table 3 against official court repositories or certified copies before submission.

Author Contributions

Conceptualization: Anissa Septiana and Moh Fadli; Methodology: Anissa Septiana and Shinta Hadiyantina; Legal analysis: Anissa Septiana; Supervision: Moh Fadli and Shinta Hadiyantina; Writing—original draft: Anissa Septiana; Writing—review and editing: all authors.

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